



DREXEL UNIVERSITY
College of
Arts and Sciences

CATALOG

2025-2026

UNDERGRADUATE



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The College of Arts and Sciences

About the College

In Drexel University's College of Arts and Sciences (CoAS), we believe that the future is a place we make together. The key to thriving in this ever-shifting landscape is understanding how the human condition drives the need for local, national and global progress. Our constantly evolving and fast-paced culture requires a new approach to a liberal arts education that embraces both the breadth of knowledge acquired through the liberal arts and the depth of knowledge made possible through experiential learning.

Innovation requires versatility — we must not only be experts in our fields, but also agile enough to engage in the cross-disciplinary work needed to address modern problems resourcefully. That's why our co-op program inserts students within a professional culture, introducing them to the expectations of the job while offering hands-on, practical application of coursework. It's why students in Drexel's community-based learning courses don't just read about complex, global issues; they study alongside the people affected by them — in prisons, hospitals, hospice centers and more. And it's why, starting as early as freshmen year, students team with faculty members as peers, conducting research that affects the world *now*.

Here in Drexel's CoAS, we are committed to implementing sustainable change because it's what the world needs.

Vision

Our vision is to be locally, regionally, nationally and globally recognized for impactful research, scholarship, creative inquiry and civic engagement. We are a leader in experiential learning through our Co-op program, community-based learning courses, and undergraduate and graduate research opportunities.

Mission

By pursuing excellence in research and scholarship, we educate our students to become ethical professionals and citizens with knowledge of and appreciation for the fundamental interactions among the humanities, social sciences, and the sciences in a fast-changing, challenging, and diverse world.

CoAS aims to identify and address the grand challenges of our world through our research, teaching and community outreach. The College's dedicated, engaged faculty and staff train and educate new leaders to provide vision and direction in an ever-changing world. Through our emphasis on experiential learning, community engagement and hands-on research experiences, students learn to identify and solve societal challenges. Educated in modes of inquiry ranging from historical to scientific, from theoretical to data-driven, students are prepared to participate in local, regional and global communities in thoughtful, meaningful ways.

Majors

- Biological Sciences (BS) (p. 13)
 - Cell/Molecular/Genetics/Biochemistry Concentration
 - Organismal Biology/Physiology Concentration
 - Ecology/Evolution/Genomics Concentration

- Pathobiology Concentration
- General Biology Concentration
- Cell and Gene Therapy Concentration
- Chemistry (BA) (p. 23)
- Chemistry (BS) (p. 27)
 - Biochemistry Concentration (p. 30)
- Communication (BA) (p. 35)
 - Communication and Media Studies Concentration (p. 37)
 - Journalism Concentration (p. 35)
 - Public Relations Concentration (p. 40)
- Criminology and Justice Studies (BS) (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/criminaljusticeconc/>)
- English (BA) (p. 44)
 - **NEW** Creative Writing Concentration
 - Literary Studies Concentration (p. 49)
 - Writing Studies Concentration (p. 53)
 - Secondary Education Concentration (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/english-secondaryeducation-concentration/>)
- Environmental Science (BS) (p. 58)
 - Ecology & Evolution Concentration
 - Applied Environmental Science Concentration
- Environmental Studies and Sustainability (BA) (p. 63)
- Global Studies (BA) (p. 68)
 - Global Media, Arts, and Cultures Concentration
 - Global Business, Economics, and Development Concentration
 - Global Health and Sustainability Concentration
 - Global Justice and Human Rights Concentration
- History (BA) (p. 75)
 - History of Science, Technology and Environment Concentration
 - Global History Concentration
- Mathematical Statistics (BS) (p. 84)
- Mathematics (BA) (p. 89)
- Mathematics (BS) (p. 94)
- Neuroscience (BS) in partnership with the School of Biomedical Engineering and Health Systems (p. 99)
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 - Cognitive & Affective Neuroscience Concentration
 - Neurosystems & Computational Neuroscience Concentration
- Philosophy (BA) (p. 104)
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- First-Year Exploratory Studies (p. 132)
- General Humanities and Social Sciences (GHSS) (p. 135)
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3+3 Bachelor's/JD Dual Degree Programs

- English (BA) / Law (JD) (p. 216)
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Certificates

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Intermediate Proficiency Certificates

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Minors

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Core Curriculum

Starting in 2021, the College of Arts and Sciences began developing a Core Curriculum as part of the larger aim to create a more nimble, flexible curriculum that will create a unified intellectual experience in the College and allow undergraduate students to double/dual major and/or to explore additional fields in addition to their major. 21st-century CoAS students and their future employers want a liberal arts core and the ability to double major, or at least gain expertise in multiple areas of inquiry.

Note that Core courses may also apply toward major requirements. Also, a given course may apply to multiple categories. If a course counts more

than once, additional advising may be necessary as students must still meet the minimum number of total credits for their major.

Cultivating Global Competence

Learning Outcomes:

Develop global citizenship competencies to tackle the broader issues of our time from climate change to inequality and racism, and productively engage with diverse communities at the international and local levels.

- Analyze pressing global issues and complex transnational systems and their impact at both the global and local levels.
- Explore diversity, equity, and inclusion around the world, including language, culture, and identity.
- Engage with foreign cultures abroad and/or with transnational, migrant, and refugee communities domestically.

Notes:

CoAS has created a master list of courses that fit within this category—updated January 2021. This list includes such courses as:

- All Global Studies and Modern Languages courses.
- Any course in any discipline that has a substantial (50% or more) focus on global/international issues, including migrant or refugee communities in the U.S.
- Language courses (no minimum proficiency required for the Core Skills, but for example BAs have and may choose

Courses which satisfy Cultivating Global Competence include:

ARBC (100-499)		
BIO 114	Climate Change and Human Health	3.0
CHIN (100-499)		
CJS 320	Comparative Justice Systems	3.0
COM 342	English Worldwide	3.0
COM 345	Intercultural Communication	3.0
COM 360	Strategic International Communication	3.0
COM 362	International Negotiations	3.0
ENVS 275	The Science of Climate Change	3.0
HIST 118	History of Modern Biology	4.0
HIST 153	Culture, Ethnicity, Religion: An Introduction to Jewish Studies	3.0
HIST 155	The Historical Jesus	4.0
HIST 161	Themes in World Civilization I	4.0
HIST 162	Themes in World Civilization II	4.0
HIST 163	Themes in World Civilization III	4.0
HIST 215	American Slavery	4.0
HIST 235	The Great War, 1914-1918	4.0
HIST 236	World War II	4.0
HIST 239	The Pacific War	4.0
HIST 248	History of the Holocaust	4.0
HIST 249 [WI]	Modern Jewish History	4.0
HIST 251	Fascism	4.0
HIST 253	Jewish Life and Culture in the Middle Ages	4.0
HIST 254	Russian History Before 1900	4.0
HIST 255	Twentieth Century Russia & the USSR	4.0
HIST 257	The Reformation Age	4.0
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	4.0
HIST 278	Medicine Before Germs	4.0
HIST 287	History of Science: Ancient to Medieval	4.0
HIST 288	History of Science: Medieval to Enlightenment	4.0
HIST 289	History of Science: Enlightenment to Modernity	4.0

HIST 303	The Study of Global History	4.0
HIST 315	History of Capitalism	4.0
HIST 321	Themes in Global Environmental History	4.0
HIST 322	Empire and Environment	4.0
HIST 323	The History of Climate Change	4.0
HIST 338 [WI]	The Vietnam War	4.0
HIST 355 [WI]	Venice and the Mediterranean from the Middle Ages to Napoleon	4.0
HIST 358	Witches, Demons, and Witch-hunters in European History	4.0
HIST 365	Science and State Power: Colonialism	4.0
HIST 366	The Black Atlantic: Slave Societies of the Americas	4.0
PHIL 291	Judaism and Christianity: Two Religions or One?	3.0
PHIL 335	Global Ethical Issues	3.0
LING 102	Language and Society	3.0
SOC 210	Race, Ethnicity and Social Inequality	4.0
SOC 313	Sociology of Global Health	4.0
SOC 330	Development and Underdevelopment in the Global South	4.0

Perspectives in Diversity

Learning Outcomes:

Understand the diverse world that we live in and to value diverse cultures and perspectives. These courses enable students to develop their awareness of diversity, equity, and social justice issues both domestically and globally.

Students are required to take at least one course (3-4 credits) of Perspectives in Diversity. These courses can be found across several categories and can also be applied to that category: Engaging the Natural World, Analyzing Cultures & Histories, Understanding Society & Human Behavior, and Cultivating Global Competence.

Courses which satisfy Perspective in Diversity include:

AFAS 101	Introduction to Africana Studies	3.0
AFAS 201	Cross Currents in Africana Studies	3.0
AFAS 260	Race, Politics and Religion	3.0
AFAS 301	Politics of Hip Hop	3.0
AFAS 385	Rum, Rice and Revolution: Caribbean History	3.0
ANTH 101	Introduction to Cultural Diversity	3.0
ANTH 117	Introduction to World Religions	3.0
ANTH 205	Imagining Africa	3.0
ANTH 212 [WI]	Topics in World Ethnography	3.0
ANTH 250	Anthropology of Immigration	3.0
ANTH 270	Comparative Religious Ethics	3.0
ANTH 330	Media Anthropology	3.0
BIO 200	Connections in Biology	3.0
BIO 204	The Privilege of Aging	3.0
BIO 305	Mobilizing the Scientific Method	3.0
BIO 444	Human Genetics	3.0
CJS 210	Race, Crime, and Justice	3.0
CJS 220	Crime and the City	3.0
CJS 261	Prison, Society and You	4.0
CJS 262	Places of Justice	3.0
CJS 280	Communities and Crime	3.0
CJS 320	Comparative Justice Systems	3.0
CJS 362	Gender, Crime, and Justice	3.0
CJS 372	Death Penalty - An American Dilemma	3.0
COM 101	Human Communication	3.0
COM 200	Current Events in Media and Communication	3.0
COM 210	Theory and Models of Communication	3.0
COM 246	Media and Identity	3.0

COM 250	Diversity in Media	3.0
COM 342	English Worldwide	3.0
COM 345	Intercultural Communication	3.0
COM 355	Ethnography of Communication	3.0
COM 360	Strategic International Communication	3.0
COM 362	International Negotiations	3.0
ENGL 203 [WI]	Survey of World Literature	3.0
ENGL 204	Post-Colonial Literature	3.0
ENGL 207 [WI]	African American Literature	3.0
ENGL 220	LGBT Literature and Culture	3.0
ENGL 307	Literature of Genocide	3.0
ENGL 345	American Ethnic Literature	3.0
ENGL 350	Jewish Literature and Civilization	3.0
ENGL 355 [WI]	Women and Literature	3.0
ENGL 365	Topics in African American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
GST 101	Becoming Global: Language and Cultural Context	4.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 231	Introduction to Identities and Communities	4.0
GST 241	Introduction to Power and Resistance	4.0
GST 261	Introduction to Global Health and Sustainability	4.0
GST 321	Advanced Studies in Global Capital and Development	4.0
GST 331	Advanced Studies in Identities and Communities	4.0
GST 341	Advanced Studies in Power and Resistance	4.0
GST 351	Advanced Studies in Global Media, Arts, and Cultures	4.0
GST 361	Advanced Studies in Global Health and Sustainability	4.0
GST 400	Senior Project in Global Studies	4.0
HIST 153	Culture, Ethnicity, Religion: An Introduction to Jewish Studies	3.0
HIST 161	Themes in World Civilization I	4.0
HIST 162	Themes in World Civilization II	4.0
HIST 163	Themes in World Civilization III	4.0
HIST 181	Religion, Science, and Medicine in History	4.0
HIST 206	Race and Islam in Africa and the Middle East	4.0
HIST 208	Women in American History	4.0
HIST 212	Themes in African-American History	4.0
HIST 214	United States Civil Rights Movement	4.0
HIST 215	American Slavery	4.0
HIST 216	Freedom in America	4.0
HIST 222	History of Work & Workers in America	4.0
HIST 248	History of the Holocaust	4.0
HIST 249 [WI]	Modern Jewish History	4.0
HIST 253	Jewish Life and Culture in the Middle Ages	4.0
HIST 255	Twentieth Century Russia & the USSR	4.0
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	4.0
HIST 264	East Asia in Modern Times	4.0
HIST 279	History of Modern Medicine	4.0
HIST 283	Technology and Identity	4.0
HIST 322	Empire and Environment	4.0
HIST 334	American Empire in the Nineteenth Century	4.0
HIST 341	Disabilities in History	4.0
HIST 342	Madness, Mental Health and Psychiatry in the Modern West	4.0
HIST 366	The Black Atlantic: Slave Societies of the Americas	4.0
JWST (100-499)		
LING 101	Introduction to Linguistics	0.0-3.0
LING 102	Language and Society	3.0
PHIL 212	Ancient Philosophy	3.0
PHIL 291	Judaism and Christianity: Two Religions or One?	3.0
PHIL 330	Criminal Justice Ethics	3.0
PHIL 335	Global Ethical Issues	3.0
PHIL 391	Philosophy of Religion	3.0
PSCI 100	Introduction to Political Science	4.0

PSCI 140	Comparative Politics I	4.0
PSCI 150	International Politics	4.0
PSCI 260 [WI]	Power in Protest: Social Movements in Comparative Perspective	4.0
PSCI 351	The United Nations in World Politics	4.0
PSCI 352	Ethics and International Relations	4.0
PSCI 375	Politics of Immigration	4.0
PSY 150	Introduction to Social Psychology	3.0
PSY 222	Psychological Problems of Modern Youth	3.0
PSY 225	Child Psychopathology	3.0
PSY 244	Cross-Cultural Psychology	3.0
PSY 270	Psychology of Hate	3.0
PSY 356	Women's Health Psychology	3.0
PSY 368	Psychology - Inequity & Injustice	3.0
SOC 101	Introduction to Sociology	3.0
SOC 115	Social Problems	4.0
SOC 207	Medicine and Society	4.0
SOC 210	Race, Ethnicity and Social Inequality	4.0
SOC 215	Sociology of Work	4.0
SOC 220	Wealth and Power	4.0
SOC 222	Sex and Society	4.0
SOC 230	Gender and Society	4.0
SOC 235	Sociology of Health and Illness	4.0
SOC 240	Urban Sociology	4.0
SOC 244	Sociology of the Environment	4.0
SOC 261	Sex and The City	4.0
SOC 271	Sociology of Aging	4.0
SOC 313	Sociology of Global Health	4.0
SOC 318	Social Networks and Health	4.0
SOC 320	Sociology of Deviance	4.0
SOC 330	Development and Underdevelopment in the Global South	4.0
SOC 340	Globalization	4.0
SOC 346	Environmental Justice	4.0
SOC 406	Housing and Homelessness	4.0
WGST (100-499)		
WRIT 315	Writing for Social Change	3.0

Developing Quantitative Reasoning

Learning Outcomes:

These courses provide mathematical foundations and analytical skills. In these courses, students will:

- Apply formal reasoning to particular problems and subject matter within the areas covered by this category.
- Develop mathematical foundations and analytical skills.

Note:

- Disciplinary methods classes, while important to that discipline, cannot be used to fulfill this category.

Courses which satisfy Developing Quantitative Reasoning include:

Any MATH (100-499)		
PHIL 111	Symbolic Logic I	3.0
PHIL 121	Symbolic Logic II	3.0

Engaging the Natural World

Learning Outcomes:

- Explore and understand key concepts and processes in the life and earth sciences, learning the most current scientific approaches to and understandings of natural phenomena on our planet.
- Interpret and critically apply scientific, technological, and environmental knowledge.
- Learn and be able to apply the scientific method to explore natural phenomena, including observation, hypothesis development, measurement and data collection, evaluation of evidence, and employment of mathematical and computational analysis.

BIO 100	Applied Cells, Genetics & Physiology	3.0
BIO 101	Applied Biological Diversity, Ecology & Evolution	3.0
BIO 107	Cells, Genetics & Physiology	3.0
BIO 109	Biological Diversity, Ecology & Evolution	3.0
BIO 114	Climate Change and Human Health	3.0
BIO 116	How Your Body Works-Or Not	3.0
BIO 118	Basics of Cancer	3.0
BIO 131	Cells and Biomolecules	4.0
BIO 132	Genetics and Evolution	4.0
BIO 133	Physiology and Ecology	4.0
BIO 214	Principles of Cell Biology	4.0
BIO 218	Principles of Molecular Biology	4.0
BIO 220	Essential Microbiology	3.0
BIO 221	Microbiology	3.0
BIO 228	Evolutionary Biology & Human Health	3.0
BIO 232	Discovering Antibiotics	3.0
BIO 244	Genetics I	3.0
BIO 284	Biology of Stress	3.0
BIO 285	Forensic Biology	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 349	Behavioral Neuroscience	3.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
CHEM 108	Health Chemistry I	3.0
CHEM 111	General Chemistry I	4.0
CHEM 112	General Chemistry II	4.0
CHEM 113	General Chemistry I Laboratory	1.5
CHEM 121	Majors Chemistry I	5.0
CHEM 122	Majors Chemistry II	5.0
CHEM 151	Applied Chemistry	3.0
CHEM 201	Why Things Work: Everyday Chemistry	3.0
ENSS 120	Introduction to Environmental Studies	3.0
ENSS 283	Introduction to Environmental Policy	3.0
ENSS 346	Environmental Justice	4.0
ENVS 169	Environmental Science	3.0
ENVS 230	General Ecology	3.0
ENVS 275	The Science of Climate Change	3.0
ENVS 260	Environmental Science and Society	3.0
GEO 101	Physical Geology	4.0
GEO 102	History of the Earth	4.0
GEO 111	Natural Disasters	3.0
GEO 201 [WI]	Earth Systems Processes	3.0
GEO 207	Introduction to Oceanography	3.0
PHYS: Any courses (100-499)		
PSCI 336	Political Economy of Climate Change	3.0

Analyzing Cultures

Learning Outcomes:

- Introduce students to practices and achievements in the expression and organization of human thought in philosophical, literary, historical, and religious traditions from around the world and throughout human history.
- Appreciate the breadth, diversity, and creativity of human experience and thought, both collective and individual.
- Learn fundamental skills and methods of sustained critical inquiry in relation to human history, thought, and creative expression.
- Develop skills in the expression and integration of ethical reasoning, values, and the moral imagination for the purpose of creating meaning from human experience.

BIO 264	Ethnobotany	3.0
ENGL (All 100-499 ENGL course EXCEPT ENGL 101, ENGL 102, ENGL 103, ENGL 105, ENGL 111, ENGL 112, ENGL 113)		
GST 100	Introduction to Cultural Diversity	3.0
GST 101	Becoming Global: Language and Cultural Context	4.0
GST 221	Introduction to Global Capital and Development	4.0
GST 231	Introduction to Identities and Communities	4.0
GST 241	Introduction to Power and Resistance	4.0
GST 251	Introduction to Global Media, Arts, and Cultures	4.0
GST 261	Introduction to Global Health and Sustainability	4.0
HIST (All 100-499 HIST courses EXCEPT HIST 296)		
JWST (100-499)		
PHIL (All 100-499 PHIL courses EXCEPT PHIL 105, PHIL 111, and PHIL 121)		
PPE (100-499)		
WGST (100-499)		

Understanding Society & Human Behavior

Learning Outcomes

Courses that examine social, political, psychological, or environmental theories, concepts, or systems:

- Examine ways our societies have developed from political, social, environmental, or psychological perspectives.
- Understand foundational theories and ways of thinking about human societies and social relationships.
- Expose students to scientific methods as applied to social phenomena.

ANTH (100-299)		
BIO 349	Behavioral Neuroscience	3.0
CJS 101	Introduction to Criminal Justice	3.0
CJS 180	Serial Killers	3.0
CJS 200	Criminology	3.0
CJS 220	Crime and the City	3.0
CJS 261	Prison, Society and You	4.0
CJS 262	Places of Justice	3.0
CJS 280	Communities and Crime	3.0
COM 101	Human Communication	3.0
COM 111	Principles of Communication	3.0
COM 150	Mass Media and Society	3.0
COM 200	Current Events in Media and Communication	3.0
COM 210	Theory and Models of Communication	3.0
COM 220	Qualitative Research Methods	3.0
COM 221	Quantitative Research Methods in Communication	3.0
COM 222	Interpersonal Communication	3.0
COM 240	New Technologies In Communication	3.0
COM 246	Media and Identity	3.0
COM 248	Reputation Management in Public Relations	3.0

COM 250	Diversity in Media	3.0
COM 290	Sports and the Mass Media	3.0
COM 318	Film, Celebrity and the Environmental Movement	3.0
COM 355	Ethnography of Communication	3.0
COM 384	Free Speech & Censorship	3.0
COM 385	Media Effects	3.0
GST 100	Introduction to Cultural Diversity	3.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 221	Introduction to Global Capital and Development	4.0
GST 231	Introduction to Identities and Communities	4.0
GST 241	Introduction to Power and Resistance	4.0
GST 251	Introduction to Global Media, Arts, and Cultures	4.0
GST 261	Introduction to Global Health and Sustainability	4.0
HIST (100-499)		
LING 101	Introduction to Linguistics	0.0-3.0
LING 102	Language and Society	3.0
PHIL 210	Philosophy of Sport	3.0
PHIL 241	Social & Political Philosophy	3.0
PHIL 251	Ethics	3.0
PHIL 255	Philosophy of Sex & Love	3.0
PHIL 335	Global Ethical Issues	3.0
PPE 101	Introduction to Philosophy, Politics and Economics	3.0
PSCI 100	Introduction to Political Science	4.0
PSCI 110	American Government	4.0
PSCI 120	History of Political Thought	4.0
PSCI 140	Comparative Politics I	4.0
PSCI 150	International Politics	4.0
PSCI 210	American Political Development	4.0
PSCI 229	Theories of Justice	4.0
PSCI 240	Comparative Politics II	4.0
PSCI 250	American Foreign Policy	4.0
PSCI 252	Global Governance	4.0
PSCI 289	Technology and Politics	4.0
PSY 101	General Psychology I	3.0
PSY 120	Developmental Psychology	3.0
PSY 140	Approaches to Personality	3.0
PSY 150	Introduction to Social Psychology	3.0
PSY 270	Psychology of Hate	3.0
SOC 101	Introduction to Sociology	3.0
SOC 115	Social Problems	4.0
SOC 221	Sociology of the Family	4.0
SOC 230	Gender and Society	4.0
SOC 235	Sociology of Health and Illness	4.0
SOC 240	Urban Sociology	4.0

Special Programs

Pre-professional Programs

Students wishing to prepare for admission to professional schools of medicine, veterinary medicine, dentistry, or public health may obtain pre-professional counseling and application assistance at the Steinbright Career Development Center. (<https://drexel.edu/scdc/>) For health profession application assistance, students may call 215.895.2437. For law school admission assistance, students may call 215.895.1632.

Accelerated Programs

The College of Arts and Sciences offers several accelerated degree programs that enable academically qualified students to earn both a bachelor's and an advanced degree concurrently, graduating sooner than they would in traditional programs. Depending on the academic program, eligible students can be admitted to an accelerated degree program in

one of two ways: as an incoming freshman or after completing a minimum of 90.0 credits but no more than 120.0 credits. Note: In addition to the options listed below, students can apply to combine degree programs into an accelerated BS/MS program. Talk to your academic advisor to learn more.

More details about Accelerated Programs can be found on the Undergraduate Admissions (<http://drexel.edu/coas/admissions/overview/>) website.

BA/BS+MD Early Assurance Program

Drexel offers a BA/BS+MD program, a 4 + 4 combined program that allows outstanding high school students to gain acceptance into their undergraduate program and provisional early acceptance into medical school.

The program is open only to the following majors:

- Biological Sciences (p. 13)
- Chemistry (BA only) (p. 23)
- Biomedical Engineering (<https://catalog.drexel.edu/undergraduate/schoolofbioengscienceandhealthsystems/biomedicalengineering/>) (four year program only)

Students in this program cannot double major. However, students are encouraged to minor in one or more areas. In addition, students are not eligible to participate in combined Bachelors/Masters programs.

Admission Requirement

For consideration to the BA/BS+MD Early Assurance Program, applicants must:

- Submit the Common Application or the Coalition Application and all required documents prior to November 1
- Be a U.S. citizen or permanent resident applying for first-year admission
- Be on track to graduate from an American high school
- Have a minimum 3.5 GPA on a 4.0 weighted scale (subject to change)
- Have a combined SAT score of at least 1420 on the SAT (for Evidence-based Reading and Writing and Math sections) or a minimum ACT composite score of 31; submission of an SAT Subject Test is strongly recommended, preferably in the sciences, but all Subject Tests will be reviewed.
- Be on track to graduate, having satisfactorily completed four years of laboratory science with one year each of biology, chemistry, and physics

As a point of reference, first-year students admitted to the BA/BS+MD program had an average GPA of 4.42 and an average combined SAT (Evidence-based Reading and Writing and Math) of 1542 or ACT 35 composite.

A select number of students will be invited to attend an interview with the medical school admissions committee at the Drexel University College of Medicine.

Undergraduate Program Requirements

Upon acceptance into the BA/BS +MD Program, students will be provided with a contract of requirements for the completion of the undergraduate

portion of the program. The current general requirements of the program are:

- Maintain minimum cumulative GPA of 3.6 in all coursework and a minimum GPA of 3.6 in BCPM classes (all biological sciences, chemistry, physics, and math), without repeating a course and with no grade less than a C. The GPA requirements must be met by the end of their third undergraduate year and at the end of their fourth year
- Complete a minimum of 100 hours of service that is documented and approved by the advisor.
- Complete a spring/summer six-month co-op in research, clinical, or health informatics, health law, or bioengineering. A co-op of 20 or 40 hours a week is possible.
- Complete 12.0 quarters of study, including fall, winter, and spring quarter of their 4th year as a matriculated Drexel student. In order to maintain their full-time status, BA/BS+MD program students must be registered for at least 14.0 credits per quarter for the 12.0 quarters of Drexel University undergraduate studies.
- BSMD programs follow a full 4 year co-op plan with the following schedule of classes and co-op terms. Students must follow this layout of full-time terms in class and co-op. (see below).

First Year				
Fall	Credits	Winter	Credits	Credits
Courses	Courses	Courses	Vacation Term	
	0	0	0	0
Second Year				
Fall	Credits	Credits	Credits	Credits
Courses	Courses	Courses	Courses	
	0	0	0	0
Third Year				
Fall	Credits	Credits	Credits	Credits
Courses	Courses	COOP EXPERIENCE	COOP EXPERIENCE	
	0	0	0	0
Fourth Year				
Fall	Credits	Credits	Credits	Credits
Courses	Courses	Courses	Undergrad Degree Completed	
	0	0	0	0
Total Credits 0				

- The MCAT is required prior to matriculation into the College of Medicine. Students must receive a minimum MCAT score of 511, including:
 - 128 or better in chemical and physical foundations of biological systems
 - 127 or better in critical analysis and reasoning skills
 - 128 or better in biological and biochemical foundations of living systems
 - 128 or better in psychological, social, and biological foundations of behavior
- Alternatively, students can receive a minimum total score of 513 with no subsection less than 127.
- The College of Medicine reserves the right to revise the above requirements. As noted above, acceptance into the College of Medicine is provisional.

DragonsTeach

DragonsTeach is a collaboration between the College of Engineering, the College of Arts and Sciences, and the School of Education designed to allow students in science, technology, engineering, and math (STEM) degree programs to explore a career in education. Through a unique combination of skills development and classroom experiences, DragonsTeach students can earn a minor in STEM Education and eligibility for teaching credentials while completing their major degree program and co-ops. Learn more on the DragonsTeach website (<http://drexel.edu/dragonsteach/>).

Eligible Majors:

- BS in Biological Sciences (p. 13)
- BA in Chemistry (p. 23)
- BS in Chemistry (p. 27)
- BS in Environmental Science (p. 58)
- BA in Mathematics (p. 89)
- BS in Mathematics (p. 94)
- BS in Physics (p. 113)

Secondary and Elementary Teacher Certification

The School of Education offers innovative curricula that combines academic majors with appropriate coursework to satisfy state requirements for certification in elementary education. Students interested in the teacher education programs should contact the School of Education (<http://drexel.edu/soe/>).

The Drexel Writing Center

The Drexel Writing Center (DWC) is dedicated to helping students, faculty, and staff, at all levels of experience and across all disciplines, in their development as writers.

- The DWC works with writers at all stages in the writing process, from brainstorming ideas to polishing final drafts.
- The DWC focus is on individual, one-on-one sessions that feature a conversational, collaborative relationship between the reader and the writer they work with.
- Interaction with the DWC will help writers develop not just writing but critical thinking and reading skills.
- While DWC readers do not perform copy-editing services, they will help students learn strategies for proofreading and editing their documents.

The DWC is located at 100-103 Korman Center and can be reached at 215.895.6633. Further information can be found at the Drexel Writing Center (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) website.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

English Language Center

As part of the College of Arts and Sciences, Drexel's English Language Center (<http://www.drexel.edu/elc/>) offers an accredited intensive English program throughout the year. In addition to classes in academic skills such as essay writing and oral presentations, the Center offers the Language of STEM (Science, Technology, Engineering, and Math), Language of Media and Design, Global Business English program (GLOBE), English for academic purposes, TOEFL and IELTS preparation, ESL Teaching enhancement programs, and other subjects.

Through the International Gateway program, the English Language Center offers academic language preparation for students who have an admissible high school academic background but need further English language proficiency. This pathway program combines academic English language courses, credit courses taught by CoAS faculty, and acculturation activities. Students admitted into the University Preparation program (UPREP) begin their studies at Drexel in the English Language Center in a short, pre-term program designed to prepare international students for the academic work and culture of the American university.

Accepted undergraduate students have access to free language tutoring and other academic skills workshops throughout the academic year.

For more information, see the ELC website or contact the Center at:

English Language Center
229 N. 33rd Street
Philadelphia, PA 19104

Phone: 215-895-2022
Fax: 215-895-6775
E-mail: elc@drexel.edu

The Drexel Co-op

No summers of coffee runs or mindless filing here! Drexel students embark on six-month periods of full-time employment in practical, discipline-specific positions consistent with their interests and abilities. Depending on their chosen program, students have the opportunity to participate in up to three different co-op positions—that's 18 months of real work experience—during their time at Drexel, allowing them to explore their career options, strengthen their resumes, and build a professional network in the process. While co-op opportunities can be both paid and unpaid, students who participate in the co-op program typically receive higher starting salaries post-graduation than graduates of other schools.

The number of co-op experiences required for graduation is determined by the student's chosen course of study. The following options exist for most majors:

- **Three Co-op Option** (Five Years)
- **One Co-op Option** (Four Years)
- **No Co-op Option** (Four Years) *Though this program is available, we strongly encourage students to take advantage of the co-op program, a key benefit of a Drexel education.*

Learn more on the Steinbright Career Development Center (<http://drexel.edu/scdc/>) website.

Global Opportunities

Global Opportunities Abound

Philadelphia may be the heart of Drexel's campus, but the world is our muse. There are numerous opportunities for Drexel Dragons to go abroad.

Study Abroad

Study abroad allows students a unique academic experience to learn about subjects from an international perspective, often with local students and professors. From Costa Rica to Barcelona, Milan to Turkey, and Brazil to Israel, our students have studied all over the world.

Research Abroad

Research extends far beyond the walls of any laboratory. Our students have studied sea turtles in Costa Rica, infectious diseases in Uganda, and data from the Double Chooz experiment in France. Many of our faculty members are also involved in international research collaborations and our students have the opportunity to make an impact alongside them.

Co-Op Abroad

Co-op abroad provides students with a unique professional perspective and exposure to an international work environment. Our students have worked at Coca Cola in India, the UN Development Programme in Africa, the Italian Parliament in Rome, and the Heraklion Community Mental Health Center in Greece—just to name a few.

An international co-op gives students a distinct advantage in the global economy, making them more attractive to prospective employers. Candidates with international experience also have the ability to earn higher starting salaries upon graduation.

Visit the Steinbright Career Development Center (<http://drexel.edu/scdc/>) website to learn more.

Travel Courses

The College of Arts and Sciences' travel-integrated courses allow students to travel domestically or internationally for one or two weeks at the end of a course to extend their studies beyond the classroom. Recent classes have traveled to France to learn about WWI and Brazil to study commodities exchange. Talk to your academic advisor to learn more.

Alternative Spring Break

The Alternative Spring Break (ASB) program places teams of Drexel students in communities to engage in community service and experiential learning during spring break. Students may choose to work domestically

or internationally in activities that benefit the environment, the community, and those in need.

Community-Based Learning

In the College of Arts and Sciences' unique Community-Based-Learning (CBL) courses, students don't just study the issues affecting the world, they study alongside the people affected, from prison inmates to hospice patients. CBL courses are offered in three formats:

- Side by side
- Community hybrid
- Service learning

Side-by-side courses create a co-learning environment in which Drexel students and the community members take classes together.

Community hybrid courses are composed entirely of Drexel students and time is split between the classroom and the community.

Service-learning courses require service in the community in addition to students' credit hours in the classroom.

For a current list of available courses, visit the Lindy Center for Civic Engagement (<http://drexel.edu/lindycenter/>).

Biological Sciences BS

Major: Biological Sciences

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 183.5

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No

Co-op (Four years)

Classification of Instructional Programs (CIP) code: 26.0101

Standard Occupational Classification (SOC) code: 19-1029

About the Program

The biological sciences major resides in the Department of Biology (<http://drexel.edu/coas/academics/departments-centers/biology/>). Students earn a bachelor's degree in the biological sciences and are prepared for technical careers in research or commercial laboratories, or for professional schools or graduate study.

The biological sciences encompass many areas of study. Biologists study the structure and functions of living organisms from the individual cell to the full organism, and collectively to the community level. Discoveries in the biological sciences influence many aspects of our daily lives and have become the foundation of many new developments in biotechnology and medicine. In the past two decades, advances in molecular biology, cell biology and genetics have been rapid, opening many new, exciting career opportunities in biotechnology, genetic engineering and the development of new diagnostics and therapeutics. Biologists can pursue a variety of options including careers in medicine, dentistry, veterinary medicine or other health-related areas; in research or commercial laboratories at pharmaceutical companies, medical research laboratories, biotechnology companies or in government agencies; and in teaching. In fact, more than 100 different occupations have been listed for biologists. Graduates in the biological sciences are in demand and enjoy a high placement rate with competitive salaries.

The curricular choices are designed to provide a sound basis for careers in the private sector, government and research laboratories, and for advanced study in graduate and professional programs in medicine, other health related areas, or in teaching.

The course requirements identifies required support courses in chemistry, physics, mathematics, humanities, and social sciences. With proper selection of electives, students can meet teacher certification requirements or complete a minor in another field. Students are encouraged to consult frequently with their academic advisor for curriculum planning.

In addition to the core requirements, students select one of six concentrations in a field of interest:

- Cell/Molecular Biology/Genetics/Biochemistry
- Organismal Biology/Physiology
- Ecology/Evolution/Genomics
- Pathobiology
- General Biology
- Cell and Gene Therapy

Program Options

Co-op employment is an option for biological science students. Through Drexel Co-op, biological sciences majors gain on-the-job experience — exploring their career options, strengthening their résumés and building a

professional network in the process. This experience is crucial for biology majors interested in pursuing advanced degrees and careers in academia. It also gives graduates a competitive edge for careers in industry. The major offers three distinct plans:

Five-year option with co-op experience

This option allows for the greatest amount of employment experience, with three distinct six-month periods of employment included with studies. After the start of the sophomore year, students study or work through all terms, including summer.

Four-year option with co-op experience

The degree includes just one six-month period of employment. After the start of sophomore year, students study or work through all terms, including summer.

Four-year option without co-op experience

The degree can be completed in four years without co-op/internship employment. Students are not required to pursue studies during any of the summer terms.

For additional information about this program, please

visit the Department of Biology (<https://drexel.edu/coas/academics/departments-centers/biology/>?)

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Degree Requirements

The Biological Sciences curriculum is designed to provide students with both depth and flexibility within the field of biology. In addition to the core requirements, students select one of five concentrations in a field of interest.

- Cell/Molecular Biology/Genetics/Biochemistry
- Organismal Biology/Physiology
- Ecology/Evolution/Genomics
- Pathobiology
- General Biology
- Cell and Gene Therapy

Concentration requirements and elective options are outlined below. Within each concentration, students are able to further specialize in a focus area by selecting electives in their area of interest.

Requirements		
Humanities and Social Sciences		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COM 310 [WI] or COM 320	Technical Communication Science Writing	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
PHIL 251 or PHIL 321	Ethics Biomedical Ethics	3.0
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0

Humanities and Social Science Electives **	9.0
Science, Technology, Health and Human Affairs Elective	
Select 3.0 credits from the list below:	3.0
BIO 212 Biotechnology	
ENGL 300 [WI] Literature & Science	
ENGL 302 Environmental Literature	
ENGL 370 Topics in Literature and Medicine	
ENVS 260 Environmental Science and Society	
HIST 285 Technology in Historical Perspective	
HSAD 210 Health-Care Ethics I	
HSAD 328 Health Care for Diverse Groups	
HSCI 125 Medical Terminology	
HSCI 315 Current Issues in Health Sciences	
PBHL 301 Epidemiology in Public Health	
PBHL 333 Health Inequality	
PHIL 341 Environmental Philosophy	
PHIL 351 Philosophy of Technology	
PHIL 361 Philosophy of Science	
PSCI 371 Science, Technology, & Public Policy	
SCTS 101 Introduction to Science, Technology, and Society	
SOC 222 Sex and Society	
SOC 235 Sociology of Health and Illness	
Mathematics and Statistics	
Select one of the following sequences:	12.0
Intro to Analysis	
MATH 101 Introduction to Analysis I & MATH 102 and Introduction to Analysis II & MATH 239 and Mathematics for the Life Sciences	
Calculus	
MATH 121 Calculus I & MATH 122 and Calculus II & MATH 123 and Calculus III	
MATH 410 Scientific Data Analysis I	3.0
MATH 411 Scientific Data Analysis II	3.0
Physical Sciences	
BIO 311 Biochemistry or CHEM 243 Organic Chemistry III	3.0-4.0
CHEM 101 General Chemistry I	3.5
CHEM 102 General Chemistry II	4.5
CHEM 103 General Chemistry III	4.5
CHEM 241 Organic Chemistry I	4.0
CHEM 242 Organic Chemistry II	4.0
PHYS 152 Introductory Physics I	4.0
PHYS 153 Introductory Physics II	4.0
PHYS 154 Introductory Physics III	4.0
Core Biology Courses	
BIO 131 Cells and Biomolecules	4.0
BIO 134 Cells and Biomolecules Lab or BIO 142 SEA-PHAGES I	1.0-2.0
BIO 132 Genetics and Evolution	4.0
BIO 135 Genetics and Evolution Lab or BIO 143 SEA-PHAGES II	1.0-2.0
BIO 133 Physiology and Ecology	4.0
BIO 136 Anatomy and Ecology Lab or BIO 144 SEA-PHAGES III	1.0-2.0
BIO 207 Applications in Biology I	1.0
BIO 208 Applications in Biology II	1.0
BIO 209 Cell, Molecular & Developmental Biology I	4.0
BIO 211 Cell, Molecular & Developmental Biology II	4.0
BIO 219 [WI] Techniques in Molecular Biology	3.0
BIO 224 Form, Function & Evolution of Vertebrates	4.0
BIO 225 Vertebrate Biology and Evolution Laboratory	2.0

BIO 471 Seminar in Biological Sciences	2.0
BIO 472 Seminar in Biological Sciences	2.0
BIO 473 [WI] Seminar in Biological Sciences	2.0
ENVS 212 Evolution	4.0
Concentration Courses	
28.0-30.0	
Free electives	24.0
Total Credits	
183.5-189.5	

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Any course in ANTH, AFAS, ARBC, CHIN, CJS, COM, FREN, GER, HBRW, HIST, HUM, ITAL, JAPN, JWST, KOR, LING, PHIL, PSCI, PSY, SOC, SPAN, and WGST at the 100-499 level, except COM 310 [WI] , COM 320 [WI]

Concentrations

Students select one of six concentrations and fulfill the requirements as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements		
BIO 244 Genetics I		3.0
or BIO 444 Human Genetics		
BIO 314 Pharmacology		3.0
or BIO 404 Structure and Function of Biomolecules		
or BIO 416 Biochemistry of Major Diseases		
BIO 318 Biology of Cancer		3.0
or BIO 430 Cell Biology of Disease		
BIO 410 Advanced Molecular Biology		3.0
Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)		
Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)		6.0
Organismal/Physiology Elective (see list below)		3.0
Ecology/Evolution/Genomics Elective (see list below)		3.0
Concentration Laboratory Courses		
Two Laboratory Electives (see list below)		4.0
Total Credits		28.0

Students interested in pursuing a focus area in Neurobiology, Pharmaceuticals, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives		
BIO 244 Genetics I		3.0

BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 414	Behavioral Genetics	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0
Organismal/Physiology Electives		
BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0
Ecology/Evolution/Genomics Electives		
BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 390	Marine Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0
Laboratory Electives		
BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0

BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I can be repeated	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements

BIO 201	Human Physiology I	4.0
or ENVS 254	Invertebrate Morphology and Physiology	
BIO 203	Human Physiology II	4.0
or BIO 256	Vertebrate Morphology and Physiology	
BIO 373	Developmental Biology	3.0
Select one of the following:		
BIO 412	Biology of Aging	3.0
or BIO 284	Biology of Stress	
or BIO 466	Endocrinology	
or BIO 468	Pathophysiology	

Organismal Biology/Physiology Concentration Concentration Electives (See List Below)

Cell/Molecular/Genetics/Biochemistry (CMGB) Elective	3.0
Two Organismal/Physiology Electives	6.0
Ecology/Evolution/Genomics Elective	3.0

Concentration Laboratory Courses

Two Laboratory Electives	4.0
Total Credits	30.0

Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0

BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 390	Marine Ecology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0

BIO 242	SEA-GENES I can be repeated	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration Requirements

BIO 228	Evolutionary Biology & Human Health	3.0
or BIO 331	Bioinformatics I	
BIO 436	Population Genetics	3.0-4.0
or ENVS 230	General Ecology	
ENVS 326	Molecular Ecology	3.0
Select one of the following:		3.0-5.0
BIO 221	Microbiology	
BIO 256	Vertebrate Morphology and Physiology	
BIO 323	Parasitology	
BIO 413	Genomics	
BIO 420	Virology	
ENVS 254	Invertebrate Morphology and Physiology	
ENVS 360	Evolutionary Developmental Biology	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 438	Biodiversity	

Ecology/Evolution/Genomics Concentration Electives

Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)	3.0
Select one Organismal/Physiology Elective (see list below)	3.0
Select two Ecology/Evolution/Genomics Electives (see list below)	6.0

Concentration Laboratory Courses

Select two Laboratory Electives (see list below)	4.0
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Total Credits	28.0-31.0
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Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0

BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
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BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I can be repeated	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

Pathobiology Concentration Requirements

BIO 221	Microbiology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
or BIO 420	Virology	
or BIO 435	Immunobiology of Disease	
BIO 426	Immunology	3.0
Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)		3.0
Select two Organismal/Physiology Electives (see list below)		6.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0

Concentration Laboratory Courses

Two Laboratory electives (see list below)		4.0
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Total Credits	28.0
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Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0

BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I ^{can be repeated}	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0

ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

General Biology Concentration Requirements

General Biology Concentration Electives	24.0
2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)	
2 or 3 Organismal/Physiology Electives (see list below)	
2 or 3 Ecology/Evolution/Genomics Electives (see list below)	
Concentration Laboratory Courses	
Two Laboratory electives (see list below)	4.0
Total Credits	28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 413	Genomics	3.0
BIO 415	Proteins	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0

BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens *	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods *	4.0
ENVS 394	Entomology Laboratory	2.0

*

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

6. The Cell and Gene Therapy Concentration

The Cell and Gene Therapy concentration provides a strong biological foundation for those aspiring toward professions in this unique subdiscipline. These therapies have the potential to transform medicine by alleviating the cause of disease using RNA, DNA and cells to reprogram the body's defenses to fight disease. The cell and gene therapy workforce is expected to grow 35-94% between 2022 and 2032. This concentration will benefit students pursuing careers in medicine bioinformatics, regulatory compliance, public health, research and industry.

Cell and Gene Therapy Concentration Requirements

BIO 244	Genetics I	3.0
BIO 346	Stem Cell Research	3.0
BIO 413	Genomics	3.0
or BIO 426	Immunology	
BIO 444	Human Genetics	3.0
or BIO 420	Virology	
Select two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)		6.0
Select one Organismal/Physiology Elective (see list below)		3.0-4.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0-4.0
Concentration Laboratory Courses		
Two Laboratory Electives (see list below)		4.0-6.0
Total Credits		28.0-32.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 373	Developmental Biology	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 315	Plant Animal Interactions	3.0

Laboratory Electives

BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I can be repeated	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 497	Research (by permission of Dept)	0.5-12.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must

be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid “clustering” these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plans of Study

4 year, no co-op

First Year				
Fall	Credits	Winter	Credits	Spring
BIO 131	4.0	BIO 132	4.0	BIO 133
BIO 134 or 142	1.0-2.0	BIO 135 or 143	1.0-2.0	BIO 136 or 144
CHEM 101	3.5	CHEM 102	4.5	CHEM 103
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113
MATH 121 or 101	4.0	ENGL 102 or 112	3.0	MATH 239 or 123
UNIV S101	1.0	MATH 122 or 102	4.0	
16.5-17.5		17.5-18.5		16.5-17.5
0				
Second Year				
Fall	Credits	Winter	Credits	Spring
BIO 207	1.0	BIO 208	1.0	BIO 224
BIO 209	4.0	BIO 211	4.0	BIO 225
BIO 219	3.0	CHEM 242	4.0	BIO 311 or CHEM 243
CHEM 241	4.0	PHYS 153	4.0	PHIL 251
PHYS 152	4.0	UNIV S201	1.0	PHYS 154
		Biology Laboratory Requirement course*	2.0	
16		16		16-17
0				
Third Year				
Fall	Credits	Winter	Credits	Spring
ENVS 212	4.0	COM 310	3.0	COM 230
MATH 410	3.0	MATH 411	3.0	BIO/ENVS elective
BIO/ENVS elective	3.0	BIO/ENVS elective	3.0	Biology Laboratory Requirement course*
Humanities/ Social Science elective	3.0	Humanities/ Social Science elective	3.0	Free elective

Science, Technology, Health & Human Affairs elective	3.0	Humanities/ Social Science elective	3.0		
16		12	14	0	
Fourth Year					
Fall	Credits Winter		Credits Spring	Credits	
BIO 471	2.0	BIO 472	2.0	BIO 473	2.0
BIO/ENVS electives	6.0	BIO/ENVS elective	6.0	BIO/ENVS elective	3.0
Free electives **	7.0	Free electives	6.0	Free electives	9.0
15		14	14		
Total Credits 183.5-187.5					

* See degree requirements (p. 13).

** Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

4 year, 1 co-op

First Year				
Fall	Credits	Winter	Credits	Spring
BIO 131	4.0	BIO 132	4.0	BIO 133
BIO 134 or 142	1.0-2.0	BIO 135 or 143	1.0-2.0	BIO 136 or 144
CHEM 101	3.5	CHEM 102	4.5	CHEM 103
ENGL 101 or 111	3.0	CIVC 101	1.0	COOP 101*
MATH 121 or 101	4.0	ENGL 102 or 112	3.0	ENGL 103 or 113
UNIV S101	1.0	MATH 122 or 102	4.0	MATH 239 or 123
16.5-17.5		17.5-18.5		17.5-18.5
Second Year				
Fall	Credits	Winter	Credits	Spring
BIO 207	1.0	BIO 208	1.0	BIO 311 or CHEM 243
BIO 209	4.0	BIO 211	4.0	ENVS 212
BIO 219	3.0	CHEM 242	4.0	PHIL 251
CHEM 241	4.0	PHYS 153	4.0	PHYS 154
PHYS 152	4.0	UNIV S201	1.0	
				Biology Laboratory requirement
16		16		14-15
Third Year				
Fall	Credits	Winter	Credits	Spring
COOP EXPERIENCE		COOP EXPERIENCE		COM 230
				MATH 410
				BIO/ENVS elective
				3.0
				3.0
				3.0

	Free electives	6.0 Biology Laboratory Requiremen course**	2.0
		Free elective	3.0
	0	0	15
			14
Fourth Year			
Fall	Credits Winter	Credits Spring	Credits
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0
BIO/ENVS electives	6.0 BIO/ENVS electives	6.0 BIO/ENVS elective	3.0
Free electives	6.0 Free elective	3.0 Free electives	6.0
	Humanities/ Social Science elective	3.0 Humanities/ Social Science elective	3.0
	14	14	14
Total Credits 183.5-187.5			

*
Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**
See degree requirements (p. 13).

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 BIO 133	4.0 VACATION	
BIO 134 or 142	1.0-2.0 BIO 135 or 143	1.0-2.0 BIO 136 or 144	1.0-2.0	
CHEM 101	3.5 CHEM 102	4.5 CHEM 103	4.5	
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0	
MATH 121 or 101	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 MATH 122 or 102	4.0 MATH 239 or 123	4.0	
	16.5-17.5	17.5-18.5	17.5-18.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	BIO 207	1.0 BIO 208	1.0
		BIO 209	4.0 BIO 211	4.0
		BIO 219	3.0 CHEM 242	4.0
		CHEM 241	4.0 PHYS 153	4.0
		PHYS 152	4.0 UNIV S201	1.0
			Biology Laboratory Requiremen course**	2.0
	0	0	16	16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	BIO 311 or CHEM 243	3.0-4.0 BIO 224	4.0
		ENVS 212	4.0 BIO 225	2.0

		PHIL 251	3.0 BIO/ENVS elective	3.0
		PHYS 154	4.0 Humanities/ Social Science elective	3.0
			Science, Technology, Health & Human Affairs elective	3.0
0		0	14-15	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 230	3.0 COM 310	3.0
		MATH 410	3.0 MATH 411	3.0
		BIO/ENVS elective	3.0 BIO/ENVS elective	3.0
		Free electives	6.0 Biology Laboratory Requiremer course**	2.0
			Free elective	3.0
0		0	15	14
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0	
BIO/ENVS electives	6.0 BIO/ENVS electives	6.0 BIO/ENVS elective	3.0	
Free electives	6.0 Free elective	3.0 Free electives	6.0	
	Humanities/ Social Science elective	3.0 Humanities/ Social Science elective	3.0	
14		14	14	
Total Credits 183.5-187.5				

*
Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**
See degree requirements (p. 13).

Co-op/Career Opportunities Opportunities

Students earn a bachelor's degree in the biological sciences and are prepared for technical careers in research or commercial laboratories or for professional schools.

Graduates typically work for pharmaceutical companies, university and medical research laboratories, biotechnology companies, or in government laboratories. Many graduates also choose to pursue an advanced degree in the medical, dental and veterinary disciplines; or Masters or PhD degrees in Biology-related fields and Public Health.

Co-op Opportunities

Past co-op employers of biosciences majors have included:

- GlaxoSmithKline
- Fox Chase Cancer Center
- Children's Hospital of Philadelphia
- Johnson and Johnson
- Merck
- Wistar Institute
- Moss Rehab
- ViroPharma, Inc.
- Janssen Biotech
- Integral Molecular

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Dual/Accelerated Degree

Combined Bachelor's/Master's Degree

Qualified students can take graduate courses in their junior and senior years for graduate credit. They can also complete a combined Biological Sciences BS/Biological Sciences MS (p. 146) degree in five years. Further questions about the BS/MS degree program should be directed to the departmental graduate advisor:

Kate Pelusi
Graduate Program Manager
Department of Biology
215.895.6374
kp475@drexel.edu

Facilities

The Department of Biology resides in the Papadakis Integrated Sciences Building (PISB). This state of the art facility has well-equipped teaching laboratories with networked computers and advanced digital image analysis capability. Both teaching and research laboratories contain a range of modern equipment including basic and cutting-edge light microscopes, confocal microscopy facilities, a Cell Imaging Center, basic and analytical ultracentrifuges, spectrophotometers, scintillation and luminescence counters, densitometers and cell culture facilities.

Visit the Research in Biology (<http://www.drexel.edu/coas/academics/departments-centers/biology/research/>) webpage for more information.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Attain a good functional knowledge of general biology content
- Understand and be able to perform techniques relevant to modern biology
- Critically read and analyze their own work and the biology literature with respect to global impact and experimental design
- Communicate effectively in science
- Understand how to conduct science in an ethical manner
- Be prepared effectively for a career or future schooling in biology or related fields

Biological Sciences Faculty

Michael Akins, PhD (*Yale University*). Assistant Professor. The neural mechanisms underlying how organisms interact with the environment; circuit formation, particularly of sensory circuits, and neural diseases including autism and Fragile X syndrome (FXS).

Shivanthi Anandan, PhD (*University of California, Los Angeles*). Associate Professor. Microbial genetics, in particular the analysis of light-regulated signal transduction pathways and the regulation of gene expression in photosynthesizing organisms.

Joseph Bentz, PhD (*State University of New York (SUNY) at Buffalo*). Professor. Biophysics, biochemistry and biopharmaceutics, focused on the molecular basis of biological membrane transport and fusion.

John R. Bethea, PhD (*University of Alabama at Birmingham*) *Department Head*. Professor. Neuroscience and immunology.

Valerie Bracchi-Ricard, PhD (*University Joseph Fourier, Grenoble, France*). Research Assistant Professor. Role of TNF and TNF receptors in neuroinflammation and remyelination following spinal cord injury.

Laura Duwel, PhD (*University of Cincinnati*) *Assistant Department Head, Department of Biology*. Teaching Professor. Immunology and microbiology.

Felice Elephant, PhD (*Temple University*). Associate Professor. Understanding the roles of two classes of chromatin regulatory proteins termed histone acetyltransferases (HATs) and histone de-methylases.

Denise Garcia, PhD (*UCLA*). Assistant Professor. Neuroscience, the role of astrocytes in the central nervous system.

Tali Gidalevitz, PhD (*University of Chicago*). Assistant Professor. Genetic and molecular pathways regulating protein folding homeostasis, and their role in protein conformation diseases, aging, and development.

Mary Katherine Gonder, PhD (*The City University of New York*) *Director, Bioko Biodiversity Protection Program Co-Founder, Central African Biodiversity Alliance*. Associate Professor. Deciphering spatial patterns of biodiversity across the Gulf of Guinea and Congo Basin region; Conservation measures to mitigate the effects of habitat loss and climate change in western equatorial Africa.

Susan Gurney, PhD (*Westfälische Wilhelms-Universität Münster (Germany)*). Assistant Teaching Professor. Evolutionary genetics (human and equids); stem cell biology; forensic science

Meshagae Hunte-Brown, PhD (*Drexel University*). Associate Teaching Professor. Stable isotopes in aquatic food webs, ecosystem ecology, STEM education.

Jiu Jiang, MD, PhD (*Shanghai Second Medical University*). Research Associate Professor. T cell immune response to virus infection in aged mice.

Karen Kabnick, PhD (*Massachusetts Institute of Technology*). Associate Teaching Professor. Molecular and genetic mechanisms of cellular biology, human disease, host/parasite interactions.

Joy Little, PhD (*Wake Forest University*). Assistant Teaching Professor. Stem education, cancer cell biology.

Robert Loudon, PhD (*Thomas Jefferson University*). Associate Teaching Professor. Rho GTPases, regulation of actin cytoskeleton, Regulation of G protein-coupled receptors by receptor kinases and arrestins.

Daniel Marena, PhD (*Syracuse University*) *Director of the Biology Graduate Program, Co-Director of the Cell Imaging Center* . Associate Professor. Developmental neurobiology and behavior; CHARGE syndrome; Pitt-Hopkins syndrome; Alzheimer's disease.

Donna Murasko, PhD (*Penn State Hershey Medical Center*) *Dean, College of Arts and Sciences*. Professor. The effects of aging on the adaptive immune response to influenza virus and retrovirus latency and reactivation.

Michael O'Connor, MD, PhD (*MD, Johns Hopkins University; PhD, Colorado State*). Associate Professor. Biophysical and physiological ecology, thermoregulation of vertebrates, ecological modeling.

Ryan Petrie, PhD (*McGill University*). Assistant Professor. Mechanisms of cell movement through three-dimensional extracellular matrix.

Jerome Ricard, PhD (*University Joseph Fourier, Grenoble, France*). Research Assistant Professor. Inflammation and cell death after spinal cord injury. Regulation of cell death by Eph receptors.

Jacob Russell, PhD (*University of Arizona*). Associate Professor. Microbiomes and metagenomics; ecology and evolution of symbiosis.

Nianli Sang, MB, PhD (*M.B., Fudan University Shanghai Medical College; Ph.D., Thomas Jefferson University*) *Co-Director of the Cell Imaging Center*. Associate Professor. Molecular and cellular biology of cancer; posttranslational modification, folding and quality control of proteins and their implication in cell physiology and human diseases.

Aleister Saunders, PhD (*University of North Carolina, Chapel Hill*) *Senior Vice Provost for Research, Director of the RNAi Resource Center*. Associate Professor. Identification and characterization of genes and proteins involved in Alzheimer's disease.

Kevin P.W. Smith, PhD (*Drexel University*). Assistant Teaching Professor. Linking behavioral ecology and organismal diversity, neonate behavior in herpetological models, STEM education.

Elias T. Spiliotis, PhD (*The Johns Hopkins University*) *Director of the Cell Imaging Center* . Associate Professor. Cell polarity and cell division: regulation of cytoskeleton-dependent motility.

Jennifer Stanford, PhD (*Harvard University*). Assistant Professor. Evaluating and improving approaches to teach STEM content in higher education environments to promote student learning, engagement in STEM courses, and STEM student retention.

Monica M. Togna, PhD (*New Jersey Institute of Technology*). Assistant Teaching Professor. Examination of the structure and function of living organisms from the cellular to the organismal level in order to better understand common physiological processes.

Emeritus Faculty

Cecilie Goodrich, PhD (*Harvard University*). Professor Emeritus. Neuroscience and systems physiology, postnatal maturation of physiology and behavior in relation to brain immunocytochemistry.

Chemistry BA

Major: Chemistry

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 184.0

Co-op Options: One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0501

Standard Occupational Classification (SOC) code: 19-2031

About the Program

The BA in Chemistry is designed for students who want a foundational education in chemistry and the flexibility to select courses in other fields. The Bachelor of Arts in Chemistry program is less demanding mathematically compared to the Bachelor of Science, and is well suited for those interested in entering medical school and other chemistry-related fields, as well as those aspiring to careers in biotechnology, forensic chemistry, and environmental chemistry. It is also well suited for students who are interested in double majoring. BA in Chemistry graduates might opt to work as laboratory technicians in the pharmaceutical industry, as research assistants in medical school science departments, such as toxicology or biochemistry, or as technicians in biotechnology and forensic firms.

Additional Information

For more information about the major in Chemistry, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Degree Requirements (BA)

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Humanities and Arts electives *		6.0
International Studies electives *		6.0
Language Requirements courses *		8.0-12.0
Social and Behavioral Studies electives *		6.0
Studies in Diversity electives *		6.0
CHEM 121	Majors Chemistry I	5.0
CHEM 122	Majors Chemistry II	5.0
CHEM 123	Majors Chemistry III	5.5
CHEM 230	Quantitative Analysis	4.0
CHEM 231 [WI]	Quantitative Analysis Laboratory	2.0
CHEM 246	Organic Chemistry for Majors I	6.5
CHEM 248	Organic Chemistry for Majors II	6.5
CHEM 249	Organic Chemistry for Majors III	7.0
CHEM 253	Thermodynamics and Kinetics	4.0

CHEM 270	Software Skills for Chemists	3.0
CHEM 357 [WI]	Physical Chemistry Laboratory I	2.5
CHEM 367	Chemical Information Retrieval	3.0
CHEM 421	Inorganic Chemistry I	3.0
Chemistry Electives		
Select two Chemistry Electives **		6.0
Biology Requirements		
BIO 131 & BIO 134	Cells and Biomolecules and Cells and Biomolecules Lab	5.0
BIO 132 & BIO 135	Genetics and Evolution and Genetics and Evolution Lab	5.0
BIO 133 & BIO 136	Physiology and Ecology and Anatomy and Ecology Lab	5.0
Mathematics Requirements		
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
Physics Requirements		
PHYS 101	Fundamentals of Physics I	4.0
PHYS 102	Fundamentals of Physics II	4.0
PHYS 201	Fundamentals of Physics III	4.0
Free Electives ***		33.0-37.0
Total Credits		184.0-192.0

*

Categories of Electives:

- *Humanities and Arts Electives*
Designated courses in art, art history, communication studies, foreign languages (300-level or above), history, literature, music, philosophy, religion, and theatre arts.
- *International Electives*
Designated courses in anthropology, art history, history, literature, music, politics and sociology. Courses with an international focus may be used to fulfill requirements in other categories as well.
- *Language Requirement*
Students may satisfy the language course requirements in two ways: (1) complete at least 8.0 credits of a foreign language at Drexel and, at minimum, must complete the 103 level of the target language (or beyond if they place higher); or (2) take 12.0 credits of a computer language over two terms.
- *Social and Behavioral Studies Electives*
Designated courses in anthropology, criminal justice, economics, international relations, history, politics, psychology and sociology.
- *Studies in Diversity Electives*
Africana studies, women's studies or designated cross-listed courses in anthropology, art, art history, history, literature, music, philosophy, politics and sociology.

**

Courses with CHEM prefix, although ENVS chemistry courses can also fulfill this requirement (with Department approval).

The total number of free elective credits depends on the number of credits required to fulfill the language requirement.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the

sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study (BA)

4 year, 1 co-op

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131 & BIO 134	5.0	BIO 132 & BIO 135	5.0	BIO 133 & BIO 136	5.0	VACATION	
CHEM 121	5.0	CHEM 122	5.0	CHEM 123	5.5		
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0		
MATH 121	4.0	ENGL 102 or 112	3.0	MATH 123	4.0		
UNIV S101	1.0	MATH 122	4.0				
18		18		17.5		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 230 & CHEM 231	6.0	CHEM 248	6.5	CHEM 249	7.0	COOP 101 *	1.0
CHEM 246	6.5	MATH 200	4.0	PHYS 102	4.0	PHYS 201	4.0
Free elective	3.0	PHYS 101	4.0	Humanities elective	3.0	Free electives	6.0
						Internationa Studies elective	3.0
15.5		14.5		14		14	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 253	4.0	CHEM 270	3.0	COOP EXPERIENCE		COOP EXPERIENCE	
CHEM 367	3.0	CHEM 357	2.5				
CHEM 421	3.0	Diversity Studies elective	3.0				
UNIV S201	1.0	Language elective	4.0				
Language elective	4.0	Social and Behavioral Studies elective	3.0				
15		15.5		0		0	
Fourth Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
Chemistry elective	3.0	Chemistry elective	3.0	Free electives	12.0		
Diversity Studies elective	3.0	Free electives	6.0				

Free electives	6.0 Humanities elective	3.0
Social and Behavioral Studies elective	3.0 International Studies elective	3.0
15		15
12		
Total Credits 184		

★

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op/Career Opportunities

The high concentration of pharmaceutical and chemical firms in the Philadelphia area provides a wide range of co-op and professional opportunities, in addition to co-ops across the country and abroad. Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

A four-year, one co-op degree is offered. When students complete their co-op job, they are asked to write an overview of their experience. These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic roots to the prescribed target. This would include the investigation of reactions which were going to be used...the position was very independent...great working environment. "

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis. "

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Facility

The department maintains a professionally supervised Mass Spectrometry Facility (located in Stratton 406) available to all members of the Drexel University community. Currently operating instrumentation consists of a Bruker Autoflex III matrix-assisted laser desorption/ionization time-of-flight mass spectrometer (NSF CRIF-MU #0840273), a Bruker Ultraflex III MALDI TOF-TOF MS (NSF MRI #0820996) donated from the U PA Chemistry Department, located in Stratton 142), a Micromass Q-TOF Premier equipped with both electrospray ionization (ESI) and atmospheric-pressure chemical ionization (APCI) sources and a 2998 diode array detector (DAD), a Micromass Quattro Micro triple-quadrupole MS instrument equipped with an ESI source and a 2996 DAD, and a Waters ZQ single-quadrupole instrument with both ESI and APCI capability. The three Micromass instruments are each interfaced with a Waters Alliance model 2695 high-performance liquid chromatography (HPLC) system. The Facility also includes a Waters Xevo G2 Q-TOF equipped with both ESI) and APCI sources and a Waters Acquity UPLC system and a manufacturer refurbished Thermo-Electron, Inc. Q-Exactive Orbitrap Mass Spectrometer equipped with both ESI and APCI sources interfaced to a Vanquish Ultra-Performance Liquid Chromatography (UPLC) system. The laboratory also houses a Sciex PACE MDQ Plus capillary electrophoresis system. Samples for MS analysis may be submitted for analysis or users may be trained in operation of the instruments for use in long-term projects.

Nuclear Magnetic Resonance Facility

The professionally staffed Chemistry department NMR facility is equipped with a 400 MHz Varian Mercury Plus and a 500 MHz Unity INOVA. The 400 MHz NMR is actively shielded and equipped with an AutoSwitchable broadband probe ($^1\text{H}/^{19}\text{F}/^{13}\text{C}/^{31}\text{P}$, $^1\text{H}/^{19}\text{F}/\{^{15}\text{N}-^{31}\text{P}\}$) and the 500 MHz NMR is equipped with a triple resonance probe ($^1\text{H}/\{^{13}\text{C}/^{15}\text{N}\}$). Both magnets are connected to a Cryomech helium recovery system.

Analytical Instrumentation Laboratory (AIL)

The professionally supervised Chemistry Department Analytical Instrumentation Laboratory is equipped with the usual array of open-access chemical analysis instrumentation, including: (in Disque 407) a Thermo Scientific Nanodrop One microvolume UV-visible spectrometer, a Shimadzu UV-1900 UV/visible absorption spectrometer, a Shimadzu UV-2600 UV/visible absorption spectrometer equipped with a Quantum Northwest temperature controller, a Shimadzu UV-3600 UV/visible/NIR absorption spectrometer with a 120mm diameter diffuse-reflectance integrating sphere, a Jasco J-1500 circular dichroism spectrometer, a Shimadzu Tracer-100 Fourier-transform infrared (FTIR) absorption spectrometer, a Shimadzu AIM-9000 FTIR Microscope system (including beamsplitters for near- mid- and far-IR capability), a Shimadzu RF-6000 fluorescence spectrophotometer, a Shimadzu SALD-7500 nano particle size analyzer, a Shimadzu Prominence-i LC-2030C 3D Plus HPLC (with both UV-visible diode array and refractive index detectors), a Shimadzu Nexera X2 Prominence modular ultra-performance liquid chromatograph (UPLC) equipped with a FRC-10A fraction collector, a SPD-M20A DAD and a Sedex 90 evaporative light scattering detector, a Shimadzu 8050 triple quadrupole LC-MS system including a Prominence binary HPLC pump and a SPD-M20A DAD, a Shimadzu Nexis GC-2030 capillary-column gas chromatograph (GC) equipped w/AOC-20i Plus Auto-injector/AOC-20s Plus Auto-sampler System, a Shimadzu GC-2010+ capillary-column GC Shimadzu GC-MS QP-2020 GC/MS system w/AOC-6000 Autosampler, and a Shimadzu AA7000 flame atomic absorption spectrometer equipped with a GFA-7000A graphite-furnace accessory and a ASC-7000 auto-sampler capable of either macro or micro-sampling (between 5-90 uL of sample required).

Organic Instrumentation Laboratory

The Department Organic Instrumentation Laboratory (located in the Papadakis Integrated Sciences Building 502) is equipped with two PE Clarus 500 capillary-column GCs (one with dual flame ionization detectors, FIDs), the other with one FID and a thermal conductivity detector (TCD), two PE Spectrum 2 FTIRs, each equipped with a diamond ATR, a PE model 343 polarimeter, a CEM model X microwave synthesis system, an Anasazi, Inc. EFT-90 90MHz NMR with both C-13 and H-1 capability, and an Advion Expression Compact Mass Spectrometer (CMS) with ESI and APCI capability.

Vibrational Spectroscopy Laboratory

The Department Vibrational Spectroscopy Laboratory (located in Disque 112) is equipped with a PE Spectrum One FTIR (also equipped with a universal diamond ATR and transmission sampling accessories), a Horiba LB500 Dynamic Light Scattering Spectrometer with Peltier Temperature Controller, and a Renishaw Invia Raman Microscope system (equipped with three laser wavelengths: 514.5nm, 632.8nm and 785nm).

Analytical/Inorganic Teaching Laboratory

The Analytical/Inorganic Teaching Laboratory (located in Disque 409) is equipped with a Perkin-Elmer (PE) Spectrum One FTIR (equipped with a universal diamond ATR and transmission sampling accessories), a PE LS55B Luminescence spectrometer, a PE Lambda-2 UV/visible spectrometer, a BAS Epsilon Eclipse system with a RDE-2 rotating disk electrode head, a UCT Inc., Positive Pressure Manifold (for performing solid phase extraction), and a Biotage Turbo-Vac LV Concentration workstation.

Microscopy Laboratory

The department Microscopy Laboratory (located in Stratton 416) is equipped with a Leica DM IRBE Inverted Fluorescence Microscope, a Zeiss EpiFluorescence III RS Microscope, and a Bruker (formerly Veeco Metrology, Inc.), Multimode NanoScope IIIa SPM System which performs all major SPM imaging techniques including contact and non-contact atomic force, lateral force, TappingMode (air), magnetic force and electric force microscopy. Additional instrumentation located there include a PE Lambda-950 UV/visible/NIR spectrometer equipped with a Labsphere, Inc., 60mm diameter diffuse-reflectance integrating sphere, A Camag Reprostart 3 Gel Imaging System, a Thermo Scientific (formerly Nicolet) 6700 FT-IR/Raman spectrometer, an ISS Chronos DFD fluorescence lifetime spectrometer with three laser sources and an ISS T-format steady-state fluorescence polarization spectrometer.

Polymer Analysis Laboratory

The Department Polymer Analysis Laboratory (located in Disque 210) is equipped with a Brookfield DV-II+ Pro Viscometer with cone/plate capabilities, a Brookfield CAP 2000+ viscometer, a Mettler-Toledo Thermal Gravimetric Analyzer/Differential Scanning Calorimeter (TGA/DSC) Star system, a Mettler-Toledo Polymer DSC system, and a modular Gel Permeation Chromatography system composed of a Waters 515 HPLC pump, 2414 refractive index detector and 2487 dual wavelength absorbance detector.

Program Level Outcomes

- Communicate scientific ideas effectively using scientifically relevant language
- Be resourceful and engage in critical and analytical thinking to solve problems
- Be facile with chemical computations
- Have an understanding of how atomic-and molecular-scale structure governs macroscopic properties and reactivity

- Have developed an appropriate set of laboratory skills
- Practice ethical and professional behavior as described in the American Chemical Society Guidelines

Chemistry Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Jason Cross, PhD (*University of Surrey (UK)*). Assistant Teaching Professor. Luminescent lanthanide complexes

Peter DeCarlo, PhD (*University of Colorado*). Assistant Professor. Outdoor air quality, particulate matter size and composition instrumentation and measurements, source apportionment of ambient particulate matter, climate impacts of particulate matter.

Aaron Fafarman, PhD (*Stanford University*). Assistant Professor. Photovoltaic energy conversion; solution-based synthesis of semiconductor thin films; colloidal nanocrystals; electromodulation and photomodulation spectroscopy.

Fraser Fleming, PhD (*University of British Columbia (Canada)*) *Department Head, Chemistry*. Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Associate Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Assistant Teaching Professor.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Chemistry Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Daniel A. Kleier, PhD (*University of Notre Dame*). Associate Teaching Professor.

Molly O'Connor, PhD (*Drexel University*). Assistant Teaching Professor. Synthesis and characterization of chiral and achiral metal complexes with novel multidentate ligands.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Lynn S. Penn, PhD (*Bryn Mawr College*). Professor. Surface modification for specific applications: chemically derivatize metal and ceramic solid surfaces; designing and executing sequential chemical processes, building complex and layered structures on surfaces, with specific focus on behavior of polymer brushes (investigating the fundamental transport-selective behavior of polymer brushes because of potential in drug delivery, biomedical devices and as an explanation of some biological processes).

Reinhard Schweitzer-Stenner, PhD (*Universitat Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Chemistry Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Peter A. Wade, PhD (*Purdue University*). Associate Professor. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to #,#-unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Chemistry BS

Major: Chemistry

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 189.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0501

Standard Occupational Classification (SOC) code: 19-2031

About the Program

The Bachelor of Science in Chemistry is certified by the American Chemical Society. The Chemistry BS program provides a complete introduction to the many subfields of chemistry, along with significant hands-on laboratory research experience. All students are required to complete at least 9.0 credits of undergraduate research experience prior to graduation.

The BS in Chemistry is well suited for students wishing to pursue graduate degrees in chemistry or a related discipline. The degree also assures that students are properly trained and prepared for rewarding careers as chemists in a range of industries, including pharmaceutical, biotech, environmental, manufacturing or other allied fields.

Most graduate courses in chemistry are open to qualified seniors. Prerequisites and descriptions of available graduate courses appear in the graduate catalog.

The BS degree also can be completed with a Biochemistry concentration. Bachelor of Science in Chemistry majors in this concentration gain an enhanced ability to engage in critical thinking and communicate scientific ideas across disciplines. Interested students can contact their academic advisors for more information.

Additional Information

For more information about the major in Chemistry, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Degree Requirements

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Technical electives **		6.0
Liberal Studies electives **		6.0

Chemistry Requirements

CHEM 121	Majors Chemistry I	5.0
CHEM 122	Majors Chemistry II	5.0
CHEM 123	Majors Chemistry III	5.5
CHEM 230	Quantitative Analysis	4.0
CHEM 231 [WI]	Quantitative Analysis Laboratory	2.0

CHEM 246	Organic Chemistry for Majors I	6.5
CHEM 248	Organic Chemistry for Majors II	6.5
CHEM 249	Organic Chemistry for Majors III	7.0
CHEM 253	Thermodynamics and Kinetics	4.0
CHEM 270	Software Skills for Chemists	3.0
CHEM 346	Qualitative Organic Chemistry	5.5
CHEM 355	Physical Chemistry IV	3.0
CHEM 357 [WI]	Physical Chemistry Laboratory I	2.5
CHEM 358	Physical Chemistry Laboratory II	2.5
CHEM 359	Atomic and Molecular Spectroscopy	3.0
CHEM 367	Chemical Information Retrieval	3.0
CHEM 420	Molecular Symmetry and Group Theory Applied Chemistry	3.0
CHEM 421	Inorganic Chemistry I	3.0
CHEM 422	Inorganic Chemistry II	3.0
CHEM 425	Inorganic Chemistry Laboratory	4.0
CHEM 430	Analytical Chemistry I	3.0
CHEM 431 [WI]	Analytical Chemistry II	4.0
CHEM 493	Senior Research Project	9.0

Biology Requirements

BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 214	Principles of Cell Biology	4.0

Biochemistry Requirements ***

BIO 311	Biochemistry	3.0-4.0
or BIO 404	Structure and Function of Biomolecules	
or CHEM 371	Chemistry of Biomolecules	
BIO 306	Biochemistry Laboratory	2.0

Computer/Mathematics Requirements

MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
or MATH 210	Differential Equations	

Physics Requirements

PHYS 101	Fundamentals of Physics I	4.0
PHYS 102	Fundamentals of Physics II	4.0
PHYS 201	Fundamentals of Physics III	4.0

Free Electives	21.0
Total Credits	189.0-190.0

*

Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

**

Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404, or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	CHEM 122	5.0	CHEM 123	5.5	VACATION	
BIO 134	1.0	CIVC 101	1.0	ENGL 103 or 113	3.0		
CHEM 121	5.0	ENGL 102 or 112	3.0	MATH 123	4.0		
ENGL 101 or 111	3.0	MATH 122	4.0	PHYS 102	4.0		
MATH 121	4.0	PHYS 101	4.0				
UNIV S101	1.0						
	18		17		16.5		0

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 230 & CHEM 231	6.0	CHEM 248	6.5	BIO 214	4.0	VACATION	
CHEM 246	6.5	MATH 200	4.0	CHEM 249	7.0		
PHYS 201	4.0	Free elective	3.0	MATH 210 or 201	4.0		
		Technical Elective *	3.0	Free elective	3.0		
	16.5		16.5		18		0

Third Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 253	4.0	CHEM 270	3.0	Liberal Studies elective	3.0	VACATION	
CHEM 367	3.0	CHEM 357	2.5	Technical elective *	3.0		
CHEM 421	3.0	CHEM 420	3.0	Free electives	9.0		
CHEM 430	3.0	CHEM 431	4.0				
UNIV S201	1.0						
	14		12.5		15		0

Fourth Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 346	5.5	BIO 306	2.0	CHEM 358	2.5		

CHEM 355	3.0 CHEM 359	3.0 CHEM 422	3.0
CHEM 493	3.0 CHEM 493	3.0 CHEM 425	4.0
BIO 311 or 404**	4.0 Liberal Studies elective	3.0 CHEM 493	3.0
	Free elective	4.0 Free elective	3.0
15.5		15	15.5

Total Credits 190

Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

NOTE: Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

4 year, 1 co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
BIO 134	1.0 CIVC 101	1.0 ENGL 103 or 113	3.0	
CHEM 121	5.0 ENGL 102 or 112	3.0 MATH 123	4.0	
ENGL 101 or 111	3.0 MATH 122	4.0 PHYS 102	4.0	
MATH 121	4.0 PHYS 101	4.0		
UNIV S101	1.0			
18		17	16.5	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 BIO 214	4.0 Liberal Studies elective	3.0
CHEM 246	6.5 MATH 200	4.0 CHEM 249	7.0 Technical elective*	3.0
PHYS 201	4.0 Free elective	3.0 COOP 101**	1.0 Free electives	9.0
	Technical Elective*	3.0 MATH 210 or 201	4.0	
		Free elective	3.0	
16.5		16.5	19	15

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 253	4.0 CHEM 270	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 367	3.0 CHEM 357	2.5		
CHEM 421	3.0 CHEM 420	3.0		
CHEM 430	3.0 CHEM 431	4.0		
UNIV S201	1.0			
14		12.5	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
BIO 311 or 404***	4.0 BIO 306	2.0 CHEM 358	2.5
CHEM 346	5.5 CHEM 359	3.0 CHEM 422	3.0
CHEM 355	3.0 CHEM 493	3.0 CHEM 425	4.0
CHEM 493	3.0 Liberal Studies elective	3.0 CHEM 493	3.0
	Free elective	3.0 Free elective	3.0
15.5		14	15.5

Total Credits 190

Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

5 year, 3 co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
BIO 134	1.0 CIVC 101	1.0 COOP 101*	1.0	
CHEM 121	5.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 MATH 122	4.0 MATH 123	4.0	
MATH 121	4.0 PHYS 101	4.0 PHYS 102	4.0	
UNIV S101	1.0			
18		17	17.5	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 246	6.5 MATH 200	4.0		
PHYS 201	4.0 Free elective	3.0		
16.5		13.5	0	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 214	4.0 CHEM 270	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 249	7.0 CHEM 357	2.5		
CHEM 253	4.0 Technical elective**	3.0		

MATH 210 or 201	4.0 Liberal Studies Elective	3.0		
	Free elective	3.0		
19		14.5	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 355	3.0 CHEM 359	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 367	3.0 CHEM 420	3.0		
CHEM 421	3.0 CHEM 431	4.0		
CHEM 430	3.0 Technical elective **	3.0		
UNIV S201	1.0 Free elective	3.0		
13		16	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
BIO 311 or 404 ***	4.0 BIO 306	2.0 CHEM 422	3.0	
CHEM 346	5.5 CHEM 493	3.0 CHEM 425	4.0	
CHEM 358	2.5 Liberal Studies elective	3.0 CHEM 493	3.0	
CHEM 493	3.0 Free electives	6.0 Free electives	6.0	
15		14	16	
Total Credits 190				

*
COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**
Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

Biochemistry Requirement: The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, you should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 404, BIO 311) or CHEM 371) rather than a lecture/laboratory combination.

Biochemistry Concentration Requirements

General Education Requirements		
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV S101	The Drexel Experience	1.0
CIVC 101	Introduction to Civic Engagement	1.0

COOP 101	Career Management and Professional Development	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Technical electives *		6.0
Liberal Studies electives *		6.0
Chemistry Requirements		
CHEM 121	Majors Chemistry I	5.0
CHEM 122	Majors Chemistry II	5.0
CHEM 123	Majors Chemistry III	5.5
CHEM 230	Quantitative Analysis	4.0
CHEM 231 [WI]	Quantitative Analysis Laboratory	2.0
CHEM 246	Organic Chemistry for Majors I	6.5
CHEM 248	Organic Chemistry for Majors II	6.5
CHEM 249	Organic Chemistry for Majors III	7.0
CHEM 253	Thermodynamics and Kinetics	4.0
CHEM 270	Software Skills for Chemists	3.0
CHEM 346	Qualitative Organic Chemistry	5.5
CHEM 357 [WI]	Physical Chemistry Laboratory I	2.5
CHEM 367	Chemical Information Retrieval	3.0
CHEM 420	Molecular Symmetry and Group Theory Applied Chemistry	3.0
CHEM 421	Inorganic Chemistry I	3.0
CHEM 422	Inorganic Chemistry II	3.0
CHEM 425	Inorganic Chemistry Laboratory	4.0
CHEM 430	Analytical Chemistry I	3.0
CHEM 431 [WI]	Analytical Chemistry II	4.0
CHEM 493	Senior Research Project	9.0
Biology Requirements		
BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 214	Principles of Cell Biology	4.0
Biochemistry Requirements		
CHEM 371	Chemistry of Biomolecules	3.0
BIO 311	Biochemistry	4.0
BIO 306	Biochemistry Laboratory	2.0
BIO 404	Structure and Function of Biomolecules	4.0
Computer/Mathematics Requirements		
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
Physics Requirements		
PHYS 101	Fundamentals of Physics I	4.0
PHYS 102	Fundamentals of Physics II	4.0
PHYS 201	Fundamentals of Physics III	4.0
Free electives		
Free electives		21.0
Total Credits		188.5

*
Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Science. Liberal studies electives are defined as courses (at any level) from all other areas.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Biochemistry Concentration Sample Plan of Study

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131 & BIO 134	5.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
CHEM 121	5.0 CIVC 101	1.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 MATH 123	4.0	
MATH 121	4.0 MATH 122	4.0 PHYS 102	4.0	
UNIV S101	1.0 PHYS 101	4.0		
	18	17	16.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 BIO 214	4.0 VACATION	
CHEM 246	6.5 MATH 200	4.0 CHEM 249	7.0	
PHYS 201	4.0 Liberal Studies elective	3.0 MATH 201 or 210	4.0	
	Free elective *	4.0 Technical elective **	3.0	
	16.5	17.5	18	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 253	4.0 CHEM 270	3.0 BIO 311	4.0 VACATION	
CHEM 367	3.0 CHEM 357	2.5 CHEM 371	3.0	
CHEM 421	3.0 CHEM 420	3.0 Technical elective **	3.0	
CHEM 430	3.0 CHEM 431	4.0 Free electives	6.0	
UNIV S201	1.0			
	14	12.5	16	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
BIO 404	4.0 BIO 306	2.0 CHEM 422	3.0	
CHEM 346	5.5 CHEM 493	3.0 CHEM 425	4.0	
CHEM 493	3.0 Liberal Studies elective	3.0 CHEM 493	3.0	
Free elective	3.0 Free electives	6.0 Free elective	3.0	
	15.5	14	13	
Total Credits 188.5				

*

Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

**

Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131 & BIO 134	5.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
CHEM 121	5.0 CIVC 101	1.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 MATH 123	4.0	
MATH 121	4.0 MATH 122	4.0 PHYS 102	4.0	
UNIV S101	1.0 PHYS 101	4.0		
	18	17	16.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 BIO 214	4.0 Technical elective **	3.0
CHEM 246	6.5 MATH 200	4.0 CHEM 249	7.0 Liberal Studies elective	3.0
PHYS 201	4.0 Liberal Studies elective	3.0 COOP 101 *	1.0 Free electives	9.0
	Free elective	3.0 MATH 201 or 210	4.0	
		Free elective	3.0	
	16.5	16.5	19	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 253	4.0 CHEM 270	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 421	3.0 CHEM 357	2.5		
CHEM 430	3.0 CHEM 420	3.0		
CHEM 367	3.0 CHEM 431	4.0		
UNIV S201	1.0			
	14	12.5	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
CHEM 346	5.5 CHEM 493	3.0 CHEM 371	3.0	
CHEM 493	3.0 BIO 306	2.0 CHEM 422	3.0	
BIO 311	4.0 Liberal Studies elective	3.0 CHEM 425	4.0	
BIO 404	4.0 Technical elective **	3.0 CHEM 493	3.0	
	Free elective	3.0		
	16.5	14	13	
Total Credits 188.5				

★

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

★★

Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

5 year, 3 co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131 & BIO 134	5.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
CHEM 121	5.0 CIVC 101	1.0 COOP 101★	1.0	
ENGL 101 or 111	3.0 ENGL 102 or 102	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 MATH 122	4.0 MATH 123	4.0	
UNIV S101	1.0 PHYS 101	4.0 PHYS 102	4.0	
	18	17	17.5	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 246	6.5 MATH 200	4.0		
PHYS 201	4.0 Free elective	3.0		
	16.5	13.5	0	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 214	4.0 CHEM 270	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 249	7.0 CHEM 357	2.5		
CHEM 253	4.0 Technical elective★★	3.0		
MATH 201 or 210	4.0 Free elective	3.0		
	Liberal Studies elective	3.0		
	19	14.5	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 367	3.0 CHEM 420	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 421	3.0 CHEM 431	4.0		
CHEM 430	3.0 Technical elective★★	3.0		
BIO 311	4.0 Free elective	3.0		
UNIV S201	1.0			
	14	13	0	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
CHEM 346	5.5 CHEM 493	3.0 CHEM 371	3.0
CHEM 493	3.0 BIO 306	2.0 CHEM 422	3.0
BIO 404	4.0 Liberal Studies elective	3.0 CHEM 425	4.0

Free elective	3.0 Free electives	6.0 CHEM 493	3.0
		Free elective	3.0
	15.5	14	16

Total Credits 188.5

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

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Must be at a 200+ level. See Degree Requirements for more information on acceptable classes.

Co-op/Career Opportunities

Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. There is a remarkably high concentration of chemical and pharmaceutical companies in the Philadelphia region. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

Five-year and four-year co-op degrees are offered. When students complete their co-op job(s), they are asked to write an overview of their experience(s). These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic roots to the prescribed target. This would include the investigation of reactions which were going to be used...the position was very independent...great working environment. "

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis. "

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Facility

The department maintains a professionally supervised Mass Spectrometry Facility (located in Stratton 406) available to all members of the Drexel University community. Currently operating instrumentation consists of a Bruker Autoflex III matrix-assisted laser desorption ionization time-of-flight mass spectrometer (NSF CRIF-MU #0840273), a Bruker Ultraflex III MALDI TOF-TOF MS (NSF MRI #0820996 donated from the U PA Chemistry Department, located in Stratton 142), a Micromass Q-TOF Premier equipped with both electrospray ionization (ESI) and atmospheric-pressure chemical ionization (APCI) sources and a 2998 diode array detector (DAD), a Micromass Quattro Micro triple-quadrupole MS instrument equipped with an ESI source and a 2996 DAD, and a Waters ZQ single-quadrupole instrument with both ESI and APCI capability. The three Micromass instruments are each interfaced with a Waters Alliance model 2695 high-performance liquid chromatography (HPLC) system. The Facility also includes a Waters Xevo G2 Q-TOF equipped with both ESI and APCI sources and a Waters Acquity UPLC system and a manufacturer refurbished Thermo-Electron, Inc. Q-Exactive Orbitrap Mass Spectrometer equipped with both ESI and APCI sources interfaced to a Vanquish Ultra-Performance Liquid Chromatography (UPLC) system. The laboratory also houses a Sciex PACE MDQ Plus capillary electrophoresis system. Samples for MS analysis may be submitted for analysis or users may be trained in operation of the instruments for use in long-term projects.

Nuclear Magnetic Resonance Facility

The professionally staffed Chemistry department NMR facility is equipped with a 400 MHz Varian Mercury Plus and a 500 MHz Unity INOVA. The 400 MHz NMR is actively shielded and equipped with an AutoSwitchable broadband probe ($^1\text{H}/^{19}\text{F}/^{13}\text{C}/^{31}\text{P}$, $^1\text{H}/^{19}\text{F}/\{^{15}\text{N}-^{31}\text{P}\}$) and the 500 MHz NMR is equipped with a triple resonance probe ($^1\text{H}/\{^{13}\text{C}/^{15}\text{N}\}$). Both magnets are connected to a Cryomech helium recovery system.

Analytical Instrumentation Laboratory (AIL)

The professionally supervised Chemistry Department Analytical Instrumentation Laboratory is equipped with the usual array of open-access chemical analysis instrumentation, including: (in Disque 407) a Thermo Scientific Nanodrop One microvolume UV-visible spectrometer, a Shimadzu UV-1900 UV/visible absorption spectrometer, a Shimadzu UV-2600 UV/visible absorption spectrometer equipped with a Quantum Northwest temperature controller, a Shimadzu UV-3600 UV/visible/NIR absorption spectrometer with a 120mm diameter diffuse-reflectance integrating sphere, a Jasco J-1500 circular dichroism spectrometer, a Shimadzu Tracer-100 Fourier-transform infrared (FTIR) absorption spectrometer, a Shimadzu AIM-9000 FTIR Microscope system (including beamsplitters for near- mid- and far-IR capability), a Shimadzu RF-6000 fluorescence spectrophotometer, a Shimadzu SALD-7500 nano particle size analyzer, a Shimadzu Prominence-i LC-2030C 3D Plus HPLC (with both UV-visible diode array and refractive index detectors), a Shimadzu Nexera X2 Prominence modular ultraperformance liquid chromatograph (UPLC) equipped with a FRC-10A fraction collector, a SPD-M20A DAD and a Sedex 90 evaporative light scattering detector, a Shimadzu 8050 triple quadrupole LC-MS system including a Prominence binary HPLC pump and a SPD-M20A DAD, a Shimadzu Nexis GC-2030 capillary-column gas chromatograph (GC) equipped w/AOC-20i Plus Auto-injector/AOC-20s Plus Auto-sampler System, a Shimadzu GC-2010+ capillary-

column GC Shimadzu GC-MS QP-2020 GC/MS system w/AOC-6000 Autosampler, and a Shimadzu AA7000 flame atomic absorption spectrometer equipped with a GFA-7000A graphite-furnace accessory and a ASC-7000 auto-sampler capable of either macro or micro-sampling (between 5-90 μL of sample required).

Organic Instrumentation Laboratory

The Department Organic Instrumentation Laboratory (located in the Papadakis Integrated Sciences Building 502) is equipped with two PE Clarus 500 capillary-column GCs (one with dual flame ionization detectors, FIDs), the other with one FID and a thermal conductivity detector (TCD), two PE Spectrum 2 FTIRs, each equipped with a diamond ATR, a PE model 343 polarimeter, a CEM model X microwave synthesis system, an Anasazi, Inc. EFT-90 90MHz NMR with both C-13 and H-1 capability, and an Advion Expression Compact Mass Spectrometer (CMS) with ESI and APCI capability.

Vibrational Spectroscopy Laboratory

The Department Vibrational Spectroscopy Laboratory (located in Disque 112) is equipped with a PE Spectrum One FTIR (also equipped with a universal diamond ATR and transmission sampling accessories), a Horiba LB500 Dynamic Light Scattering Spectrometer with Peltier Temperature Controller, and a Renishaw Invia Raman Microscope system (equipped with three laser wavelengths: 514.5nm, 632.8nm and 785nm).

Analytical/Inorganic Teaching Laboratory

The Analytical/Inorganic Teaching Laboratory (located in Disque 409) is equipped with a Perkin-Elmer (PE) Spectrum One FTIR (equipped with a universal diamond ATR and transmission sampling accessories), a PE LS55B Luminescence spectrometer, a PE Lambda-2 UV/visible spectrometer, a BAS Epsilon Eclipse system with a RDE-2 rotating disk electrode head, a UCT Inc., Positive Pressure Manifold (for performing solid phase extraction), and a Biotage Turbo-Vac LV Concentration workstation.

Microscopy Laboratory

The department Microscopy Laboratory (located in Stratton 416) is equipped with a Leica DM IRBE Inverted Fluorescence Microscope, a Zeiss EpiFluorescence III RS Microscope, and a Bruker (formerly Veeco Metrology, Inc.), Multimode NanoScope IIId SPM System which performs all major SPM imaging techniques including contact and non-contact atomic force, lateral force, TappingMode (air), magnetic force and electric force microscopy. Additional instrumentation located there include a PE Lambda-950 UV/visible/NIR spectrometer equipped with a Labsphere, Inc., 60mm diameter diffuse-reflectance integrating sphere, A Camag Reprostart 3 Gel Imaging System, a Thermo Scientific (formerly Nicolet) 6700 FT-IR/Raman spectrometer, an ISS Chronos DFD fluorescence lifetime spectrometer with three laser sources and an ISS T-format steady-state fluorescence polarization spectrometer.

Polymer Analysis Laboratory

The Department Polymer Analysis Laboratory (located in Disque 210) is equipped with a Brookfield DV-II+ Pro Viscometer with cone/plate capabilities, a Brookfield CAP 2000+ viscometer, a Mettler-Toledo Thermal Gravimetric Analyzer/Differential Scanning Calorimeter (TGA/DSC) Star system, a Mettler-Toledo Polymer DSC system, and a modular Gel Permeation Chromatography system composed of a Waters 515 HPLC pump, 2414 refractive index detector and 2487 dual wavelength absorbance detector.

Program Level Outcomes

- Communicate scientific ideas effectively using scientifically relevant language
- Be resourceful and engage in critical and analytical thinking to solve problems
- Be facile with chemical computations
- Have an understanding of how atomic-and molecular-scale structure governs macroscopic properties and reactivity
- Have developed an appropriate set of laboratory skills
- Practice ethical and professional behavior as described in the American Chemical Society Guidelines

Chemistry Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Jason Cross, PhD (*University of Surrey (UK)*). Assistant Teaching Professor. Luminescent lanthanide complexes

Peter DeCarlo, PhD (*University of Colorado*). Assistant Professor. Outdoor air quality, particulate matter size and composition instrumentation and measurements, source apportionment of ambient particulate matter, climate impacts of particulate matter.

Aaron Fafarman, PhD (*Stanford University*). Assistant Professor. Photovoltaic energy conversion; solution-based synthesis of semiconductor thin films; colloidal nanocrystals; electromodulation and photomodulation spectroscopy.

Fraser Fleming, PhD (*University of British Columbia (Canada)*)
Department Head, Chemistry. Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Associate Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/ metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Assistant Teaching Professor.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Chemistry Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Daniel A. Kleier, PhD (*University of Notre Dame*). Associate Teaching Professor.

Molly O'Connor, PhD (*Drexel University*). Assistant Teaching Professor. Synthesis and characterization of chiral and achiral metal complexes with novel multidentate ligands.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Lynn S. Penn, PhD (*Bryn Mawr College*). Professor. Surface modification for specific applications: chemically derivatize metal and ceramic solid surfaces; designing and executing sequential chemical processes, building complex and layered structures on surfaces, with specific focus on behavior of polymer brushes (investigating the fundamental transport-selective behavior of polymer brushes because of potential in drug delivery, biomedical devices and as an explanation of some biological processes).

Reinhard Schweitzer-Stenner, PhD (*Universitat Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Chemistry Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Peter A. Wade, PhD (*Purdue University*). Associate Professor. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to α,β -unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new

therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Communication BA

Major: Communication

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 09.9999

Standard Occupational Classification (SOC) code: 11-2011; 11-2031; 27-3022; 27-3041; 27-3042; 27-3043

About the Program

The importance of being an effective communicator, in a diverse marketplace to a variety of audiences, is essential now more than ever. The Department of Communication is committed to nurturing future communication professionals by helping students gain expertise in a variety of communication theories, methods, and professional skills for ethical, creative problem solving.

With three different concentrations in Public Relations, Journalism, and Communication and Media Studies, our undergraduate curriculum features broad theoretical knowledge with hands-on experience that allow students to enter the industry with in-demand skills. Students will also learn to appreciate the vital role of media and communication in sustaining democratic institutions, civic engagement, and inclusive citizenry. Furthermore, communication students will gain real-world acumen through our renowned co-op program to effectively understand and prepare for professional challenges.

The field of communication is constantly evolving, and Drexel students are equipped with the knowledge and experiences to succeed in an ever-changing world.

The Drexel Co-op for Communication Students

The Drexel Co-op program allows students to work for up to three, six-month periods at companies or media outlets where they can apply their coursework and gain hands-on experience in their prospective careers.

Career Paths

Students in the Public Relations concentration take courses and pursue careers in public relations, social media analytics and management, corporate communication, and nonprofit communication. Journalism students take courses and pursue careers as reporters, copywriters, editors, and media specialists in an increasingly converging media environment. Students in the Communication and Media Studies concentration have the flexibility of crafting their path through the major to design an academically rigorous, inclusive program of study around expanding media's potential to positively transform the self and society.

Many communication graduates also go on to law school, business school, or graduate school after graduation.

Additional Information

If you would like to learn more about the Department of Communication, please visit the Department of Communication website (<http://drexel.edu/coas/academics/departments-centers/communication/>).

For undergraduate advising, please contact Florette Press at flp24@drexel.edu.

Degree Requirements: Journalism Concentration (BA)

Journalism provides students with the skills and theoretical perspective they need to be a journalist in today's swiftly changing media environment. An extension of the program's core curriculum, the concentration hones the student's ability to write, edit, and produce audiovisual content while at the same time exposing the student to new and evolving aspects of the field.

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Developing Quantitative Reasoning **	6.0-8.0
Two courses in MATH based on placement exams OR	
PHIL 111 or PHIL 121 Symbolic Logic II	
Engaging the Natural World **	6.0-8.0
Analyzing Cultures & Histories **	6.0-8.0
Understanding Society & Human Behavior **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Perspectives in Diversity **	3.0-4.0

Communication Major Requirements

Theory and Key Concepts	12.0
COM 101	Human Communication
COM 150	Mass Media and Society
COM 210	Theory and Models of Communication
LING 101 or LING 102 Language and Society	

Methods Sequence

COM 220	Qualitative Research Methods
COM 221	Quantitative Research Methods in Communication

Application Sequence

COM 491	Senior Project in Communication I
COM 492	Senior Project in Communication II

Journalism Concentration Requirements

COM 160 [WI]	Introduction to Journalism
COM 216	Sourcing Challenges in Journalism
COM 261 [WI]	Advanced Journalism
COM 263	Multiplatform Journalism
COM 266	Copy Editing for the Media
COM 315 [WI]	Investigative Journalism
COM 365	Journalists, the Courts, and the Law
COM 391	Critiques of Journalism and News Media

Communication Electives	18.0
Select an additional six COM (100-499) courses	
Free Electives	68.0
Total Credits	180.0-191.0

*

Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

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See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study: Journalism Concentration (BA)

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 216	3.0 VACATION	
COM 150	3.0 COM 160	3.0 COM 261	3.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Cultivating Global Competence	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Free Elective	3.0		
16-18		16-18	15-17	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 220	3.0 COM 221	3.0 VACATION	
Analyzing Cultures & Histories	3.0-4.0 COM 263	3.0 COM 266	3.0	
COM Elective	3.0 LING 101 or 102	3.0 COM Elective	3.0	
Engaging the Natural World	3.0-4.0 Free Electives	6.0 Free Electives	6.0	
Free Elective	3.0			
15-17		15	15	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM Elective	3.0 COM 315	3.0 COM Electives	6.0 VACATION	
Free Electives	6.0 UNIV H201	1.0 Free Electives	6.0	
Understanding Society & Human Behavior	3.0-4.0 COM Elective	3.0 Perspectives in Diversity	3.0-4.0	
	Free Electives	6.0		
	Understanding Society & Human Behavior	3.0-4.0		
12-13		16-17	15-16	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 391	3.0 COM 492	3.0 COM 365	3.0	
COM 491	3.0 COM Elective	3.0 Free Electives	12.0	
Free Electives	9.0 Free Electives	9.0		
15		15	15	

Total Credits 180-191

4 year, one co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 216	3.0 VACATION	
COM 150	3.0 COOP 101*	1.0 COM 261	3.0	
ENGL 101 or 111	3.0 COM 160	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 ENGL 102 or 112	3.0 Analyzing Cultures & Histories	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		
16-18		14-16	15-17	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 220	3.0 COM 221	3.0 COM Electives	6.0
Analyzing Cultures & Histories	3.0-4.0 LING 101 or 102	3.0 COM 266	3.0 Free Electives	6.0

COM Elective	3.0 Free Electives	9.0 Free Electives	9.0 Understanding Society & Human Behavior	3.0-4.0
Engaging the Natural World	3.0-4.0			
Free Elective	3.0			
15-17		15	15	15-16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 263	3.0 COM Elective	3.0
		UNIV H201	1.0 Free Electives	9.0
		COM Elective	3.0 Perspectives in Diversity	3.0-4.0
		Free Electives	6.0	
		Understanding Society & Human Behavior	3.0-4.0	
0		0	16-17	15-16
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 391	3.0 COM 492	3.0 COM 365	3.0	
COM 491	3.0 COM Elective	3.0 Free Electives	12.0	
Free Electives	8.0 Free Electives	9.0		
14		15	15	
Total Credits 180-191				

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 261	3.0 VACATION	
COM 150	3.0 COM 160	3.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 COOP 101 [*]	1.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 ENGL 102 or 112	3.0 COM Elective	3.0	
Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		
16-18		14-16	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 210	3.0 COM 220	3.0

	COM 266	3.0 COM Electives	6.0
	Analyzing Cultures and Histories	3.0-4.0 Free Elective	3.0
	Engaging the Natural World	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0
	Free Elective	3.0	
0		0	15-17
Third Year			
Fall	Credits Winter	Credits Spring	Credits Summer
COOP EXPERIENCE	COOP EXPERIENCE	COM 221	3.0 COM 263
		COM 315	3.0 COM Elective
		Free Electives	9.0 Free Electives
			Understanding Society & Human Behavior
0		0	15
Fourth Year			
Fall	Credits Winter	Credits Spring	Credits Summer
COOP EXPERIENCE	COOP EXPERIENCE	COM 391	3.0 COM 365
		UNIV H201	1.0 COM Elective
		COM Elective	3.0 Free Electives
		Free Electives	9.0 Perspective in Diversity
0		0	16
Fifth Year			
Fall	Credits Winter	Credits Spring	Credits
COM 491	3.0 COM 492	3.0 COM Elective	3.0
Free Electives	12.0 COM Elective	3.0 Free Electives	12.0
	Free Electives	8.0	
15		14	15
Total Credits 180-191			

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Degree Requirements: Communication and Media Studies Concentration (BA)

The Communication and Media Studies Concentration is a flexible option where students can design an academically rigorous, inclusive program of study around expanding media's potential to positively transform the self and society. Students are encouraged to explore widely and do the unconventional, becoming inclusive researchers, and intellectual leaders in all fields of Communication. Programs of study include a range of

electives that encourage students to develop their expertise in analysis of media and its impact on society.

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Developing Quantitative Reasoning **	6.0-8.0
Two courses in MATH based on placement exams OR	
PHIL 111 Symbolic Logic I or PHIL 121 Symbolic Logic II	
Engaging the Natural World **	6.0-8.0
Analyzing Cultures & Histories **	6.0-8.0
Understanding Society & Human Behavior **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Perspectives in Diversity **	3.0-4.0

Communication Major Requirements

Theory and Key Concepts

COM 101	Human Communication	3.0
COM 150	Mass Media and Society	3.0
COM 210	Theory and Models of Communication	3.0
LING 101 or LING 102	Introduction to Linguistics Language and Society	3.0

Methods Sequence

COM 220	Qualitative Research Methods	3.0
COM 221	Quantitative Research Methods in Communication	3.0

Application Sequence

COM 491	Senior Project in Communication I	3.0
COM 492	Senior Project in Communication II	3.0

Concentration Requirements

COM 215 [WI]	Communication Resources for Media Studies	3.0
COM 341	Communication Past and Present	3.0
Select five communication and media studies electives from the list below:		15.0

AFAS 255	Gender and Black Popular Culture	
AFAS 301	Politics of Hip Hop	
COM 200	Current Events in Media and Communication	
COM 211	Media and Youth Culture	
COM 246	Media and Identity	
COM 255	Fans, Fandom, and Audiences	
COM 250	Diversity in Media	
COM 290	Sports and the Media	
COM 318	Film, Celebrity and the Environmental Movement	
COM 325	Celebrity and Authenticity	
COM 342	English Worldwide	
COM 351	Emergent Media and Self	
COM 355	Ethnography of Communication	
COM 385	Media Effects	
COM T180	Special Topics in Communication Theory	
COM T380	Special Topics in Communication Theory	
GST 251	Introduction to Global Media, Arts, and Cultures	
COM T480	Special Topics in Communication Theory	
PHIL 305	Ethics and the Media	

Communication Electives

Select an additional seven COM courses	21.0
Free Electives	
Select any unrestricted 099-499 courses	68.0
Total Credits	180.0-191.0

*

Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum List (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

Sample Plan of Study: Communication and Media Studies Concentration (BA)

4 year, no co-op

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM 101	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0	VACATION	
COM 150	3.0	ENGL 102 or 112	3.0	COM Electives	6.0		
ENGL 101 or 111	3.0	COM Elective	3.0	Engaging the Natural World	3.0-4.0		
UNIV H101	1.0	Developing Quantitative Reasoning	3.0-4.0	Analyzing Cultures & Histories	3.0-4.0		
Developing Quantitative Reasoning	3.0-4.0	Cultivating Global Competence	3.0-4.0				
Cultivating Global Competence	3.0-4.0						
16-18		13-15		15-17		0	

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM 210	3.0	COM 220	3.0	COM 221	3.0	VACATION	
COM 215	3.0	LING 101 or 102	3.0	COM & Media Concentration Elective	3.0		
Analyzing Cultures & Histories	3.0-4.0	COM & Media Concentration Elective	3.0	Free Electives	9.0		
Engaging the Natural World	3.0-4.0	Free Electives	6.0				
Free Elective	3.0						
15-17		15		15		0	

Third Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM & Media Concentration Elective	3.0	COM 341	3.0	COM & Media Concentration Elective	3.0	VACATION	

COM Elective	3.0 UNIV H201	1.0 COM Elective	3.0
Understanding Society & Human Behavior	3.0-4.0 COM Elective	3.0 Perspectives in Diversity	3.0-4.0
Free Electives	6.0 Understanding Society & Human Behavior	3.0-4.0 Free Electives	6.0
	Free Electives	6.0	
15-16		16-17	15-16
0			
Fourth Year			
Fall	Credits Winter	Credits Spring	Credits
COM 491	3.0 COM 492	3.0 COM Elective	3.0
Free Electives	12.0 COM & Media Concentration Elective	3.0 Free Electives	12.0
	Free Electives	9.0	
15		15	15

Total Credits 180-191

Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

4 year, one co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
COM 150	3.0 COOP 101**	1.0 COM Electives	6.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 COM Elective	3.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		
Cultivating Global Competency	3.0-4.0 Cultivating Global Competency	3.0-4.0		
16-18		14-16	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 220	3.0 COM 221	3.0 COM & Media Concentration Elective	3.0
COM 215	3.0 LING 101 or 102	3.0 Com & Media Concentration Elective	3.0 COM Elective	3.0
Analyzing Cultures & Histories	3.0-4.0 Com & Media Concentration Elective	3.0 Free Electives	9.0 Understanding Society & Human Behavior	3.0-4.0
Engaging the Natural World	3.0-4.0 Free Electives	6.0	Free Electives	6.0

Free Elective	3.0			
15-17		15	15	15-16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 341	3.0 COM & Media Concentration Elective	3.0
		UNIV H201	1.0 COM Elective	3.0
		COM Elective	3.0 Free Electives	6.0
		Understanding Society & Human Behavior	3.0-4.0 Perspective in Diversity	3.0-4.0
		Free Electives	6.0	
0		0	16-17	15-16
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 491	3.0 COM 492	3.0 COM Elective	3.0	
Free Electives	12.0 COM & Media Concentration Elective	3.0 Free Electives	12.0	
	Free Electives	8.0		
15		14	15	
Total Credits 180-191				

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
COM 150	3.0 COOP 101**	1.0 COM Electives	6.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 Engaging the Natural World	3.0-4.0	
UNIV H101	1.0 COM Elective	3.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		
Cultivating Global Competency	3.0-4.0 Cultivating Global Competency	3.0-4.0		
16-18		14-16	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 210	3.0 COM 220	3.0

		COM 215	3.0 LING 101 or 102	3.0
		Engaging in the Natural World	3.0-4.0 COM & Media Concentration Elective	3.0
		Analyzing Cultures and Histories	3.0-4.0 Free Electives	6.0
		Free Elective	3.0	
	0	0	15-17	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 221	3.0 COM & Media Concentration Elective	3.0
		COM & Media Concentration Elective	3.0 COM Elective	3.0
		Free Electives	9.0 Understanding Society & Human Behavior	3.0-4.0
			Free Electives	6.0
	0	0	15	15-16
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 341	3.0 COM & Media Concentration Elective	3.0
		UNIV H201	1.0 COM Elective	3.0
		COM Elective	3.0 Perspectives in Diversity	3.0-4.0
		Understandi Society & Human Behavior	3.0-4.0 Free Electives	6.0
		Free Electives	6.0	
	0	0	16-17	15-16
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 491	3.0 COM 492	3.0 COM Elective	3.0	
Free Electives	12.0 COM & Media Concentration Elective	3.0 Free Electives	12.0	
	Free Electives	8.0		
	15	14	15	
Total Credits 180-191				

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Degree Requirements: Public Relations Concentration (BA)

The Public Relations concentration prepares students for careers focused on effective communication management on behalf of an organization, person or brand. With a comprehensive curriculum blending theoretical and practical knowledge, the program provides a strong foundation to understand the PR industry and its key players. Students will learn practical skills in areas such as PR writing, PR planning, reputation management and social media communication, and build an acute understanding of the importance of ethical, transparent PR practices as a form of public communication. In conjunction with Drexel's co-op program, this concentration prepares our students to enter the job market ready to excel as leading PR practitioners.

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Science Core Curriculum **

Developing Quantitative Reasoning **	6.0-8.0
Two courses in MATH based on placement exams OR	
PHIL 111 or PHIL 121 Symbolic Logic II	
Engaging the Natural World **	6.0-8.0
Analyzing Cultures & Histories **	6.0-8.0
Understanding Society & Human Behavior **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Perspectives in Diversity **	3.0-4.0

Communication Major Requirements

Theory and Key Concepts		12.0
COM 101	Human Communication	
COM 150	Mass Media and Society	
COM 210	Theory and Models of Communication	
LING 101 or LING 102 Language and Society	Introduction to Linguistics	
Methods Sequence		6.0
COM 220	Qualitative Research Methods	
COM 284	Public Relations Research, Measurement and Evaluation	
Application Sequence		6.0
COM 491	Senior Project in Communication I	
COM 492	Senior Project in Communication II	
Public Relations Concentration Requirements		21.0
COM 160 [WI]	Introduction to Journalism	
COM 181	Public Relations Principles and Theory	

COM 247	Strategic Social Media Communication	
COM 248	Reputation Management in Public Relations	
COM 282 [WI]	Public Relations Writing in the Digital Age	
COM 286	Public Relations Strategies and Tactics	
COM 386	Public Relations Campaign Planning	
Communication Electives		21.0
Select seven COM (100-499) courses		
Free Electives		68.0
Total Credits		180.0-191.0

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Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study: Public Relations Concentration (BA)

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 282	3.0 VACATION	
COM 150	3.0 COM 160	3.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 COM 181	3.0 Analyzing Cultures & Histories	3.0-4.0	

UNIV H101	1.0 ENGL 102 or 112	3.0 COM Elective	3.0	
Cultivating Global Competence	3.0-4.0	Cultivating Global Competence	3.0-4.0	Engaging the Natural World
Developing Quantitative Reasoning	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0	
16-18		16-18	15-17	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 247	3.0 COM Elective	3.0 VACATION	
COM 220	3.0 COM 284	3.0 Free Electives	9.0	
Analyzing Cultures & Histories	3.0-4.0	LING 101 or 102	3.0 Understanding Society & Human Behavior	3.0-4.0
COM Elective	3.0 COM Elective	3.0		
Engaging the Natural World	3.0-4.0	Understanding Society & Human Behavior	3.0-4.0	
15-17		15-16	15-16	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 286	3.0 COM 248	3.0 UNIV H201	1.0 VACATION	
Free Electives	9.0 Free Electives	12.0 COM Elective	3.0	
Perspectives in Diversity	3.0-4.0	Free Electives	12.0	
15-16		15	16	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 386	3.0 COM 492	3.0 COM Electives	6.0	
COM 491	3.0 COM Elective	3.0 Free Electives	9.0	
Free Electives	6.0 Free Electives	9.0		
12		15	15	

Total Credits 180-191

4 year, one co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 282	3.0 VACATION	
COM 150	3.0 COOP 101*	1.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 COM 160	3.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 COM 181	3.0 COM Elective	3.0	
Cultivating Global Competence	3.0-4.0	ENGL 102 or 112	3.0 Engaging the Natural World	3.0-4.0
Developing Quantitative Reasoning	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0	
16-18		14-15	15-17	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 247	3.0 COM Elective	3.0 Cultivating Global Competence	3.0-4.0
COM 220	3.0 COM 284	3.0 Free Electives	9.0 Free Electives	14.0
Analyzing Cultures & Histories	3.0-4.0 LING 101 or 102	3.0 Understanding Society & Human Behavior	3.0-4.0	
COM Elective	3.0 COM Elective	3.0		
Engaging the Natural World	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0		
	15-17	15-16	15-16	17-18

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 286	3.0 COM 248	3.0
		UNIV H201	1.0 COM Elective	3.0
		Free Electives	9.0 Free Electives	9.0
		Perspective: in Diversity	3.0-4.0	
	0	0	16-17	15

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
COM 386	3.0 COM 492	3.0 COM Electives	6.0
COM 491	3.0 COM Elective	3.0 Free Electives	6.0
Free Electives	9.0 Free Electives	9.0	
	15	15	12

Total Credits 180-191

*

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 COM 282	3.0 VACATION	
COM 150	3.0 COOP 101*	1.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 COM 160	3.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 COM 181	3.0 COM Elective	3.0	
Cultivating Global Competence	3.0-4.0 ENGL 102 or 112	3.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0		

Developing Quantitative Reasoning 3.0-4.0

	16-18	17-19	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 210	3.0 COM 247	3.0
		COM 220	3.0 COM 284	3.0
		Analyzing Cultures & Histories	3.0-4.0 LING 101 or 102	3.0
		COM Elective	3.0 COM Elective	3.0
		Engaging the Natural World	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0
	0	0	15-17	15-16

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 286	3.0 COM 248	3.0
		COM Elective	3.0 Free Electives	9.0
		Free Electives	6.0 Perspectives in Diversity	3.0-4.0
		Understanding Society & Human Behavior	3.0-4.0	
	0	0	15-16	15-16

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	COM 386	3.0 COM Elective	3.0
		UNIV H201	1.0 Free Electives	12.0
		Free Electives	9.0	
	0	0	13	15

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
COM 491	3.0 COM 492	3.0 COM Elective	3.0
Free Electives	12.0 COM Elective	3.0 Free Electives	11.0
	Free Electives	9.0	
	15	15	14

Total Credits 180-191

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op/Career Opportunities

Public Relations Concentration

Students with a concentration in public relations find employment in a wide variety of fields, including public relations, advertising, special events planning, writing and editing, and public information. In addition, the strong communication and management skills stressed by this concentration enable students to find positions in management, human resources, marketing, consulting, and publishing.

Although graduate study is not necessary for those who pursue careers in public relations, students have used the major as a basis for graduate work in a variety of areas, including communication, business, and law.

Co-op Experiences in Public Relations

Cooperative education opportunities are available with a variety of corporations and nonprofits in such positions as corporate communication specialist, public relations assistant, and newsletter writer. The following are samples of co-op experiences:

- *Advertising and Promotions Assistant*, CoreStates Bicycle Championships, Philadelphia.
- *Corporate Communications Co-op*, Philadelphia Electric Company, Philadelphia.
- *Advertising/ Promotions Co-op*, U.S. Marketing Division, Mobil Oil Corp., Fairfax, VA.
- *Assistant Coordinator*, Communications Bureau, United Way of Southeastern Pennsylvania, Philadelphia.

Journalism Concentration

Journalism students pursue careers in journalism, broadcast media, and news. Given the rapidly changing nature of these fields, graduates may also find work in new types of publishing platforms, such as social media or mobile, or involving audiovisual content creation. Journalism graduates may also choose to pursue graduate study, whether in journalism or another discipline.

Co-op Experiences in Journalism

Journalism students have held co-ops with a number of media, news, and information companies, including the following:

- *Production assistant*, WPVI-TV (Channel 6) Philadelphia
- *Staff writer*, Delaware County Daily Times
- *Promotions department*, WPLY-FM (Y-100)
- *Production assistant*, sports department, FOX-29 (WTFX-TV)

Communication and Media Studies Concentration

Students in the communication and media studies concentration develop a focus that fits their interests in the field of communication and will thus be ready for a variety of career options that require strong writing and research skills, as well as graduate or professional school.

Co-op Experiences in Communication

Students in this concentration can choose from the variety of co-op opportunities open to any student in communication.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Program Level Outcomes

- Demonstrate an understanding of how communication in a variety of contexts is central to the human experience
- Clearly and effectively develop, express, and defend their ideas in oral, written, visual, and electronic formats
- Demonstrate and apply major communication concepts and theories and be conversant in communication literature
- Demonstrate competence in applying major concepts and theories in the production of professional messages
- Interpret the impact that changes in technology have on thinking, learning, remembering, and creating; and adapt new technology for new applications
- Demonstrate fluency in a variety of communication methods; be able to locate, review, and evaluate existing literature; develop and hone research ideas; and conduct original research.
- Demonstrate literacy concerning mass media institutions and structures; appreciate the vital role of media in sustaining democracy and an informed citizenry
- Integrate awareness of diverse audiences, cultures, and contexts into students' learning and professional experiences--this should include globalization.

Communication Faculty

Ronald Bishop, III, PhD (*Temple University*). Professor. Investigative reporting, sports journalism, journalism history, journalism sourcing patterns, textual narrative and ideological analysis, cultural history of fame.

Joan W. Blumberg, BA (*Pennsylvania State University*). Instructor. Publishing, electronic publishing, publishing and communications, publishing and mass-media.

Karen Cristiano, MS (*Temple University*) *Assistant Department Head of Communication*. Associate Teaching Professor. Journalism, medical writing, feature writing, copy editing, mass media and society.

Richard Forney Instructor. Broadcast journalism technology and the effects of new technologies on personal and corporate communication skills.

Alexander Friedlander, PhD (*Carnegie Mellon University*) *Interim Department Head of Communication; Associate Dean for Undergraduate Education, College of Arts and Sciences*. Associate Professor. Rhetorical theory and practice, document design, writing and technology.

Ernest A. Hakanen, PhD (*Temple University*). Professor. Telecommunications policy, adolescent media use, communication theory and history, global media, and semiotics.

Barbara Hoekje, PhD (*University of Pennsylvania*) *Director, English Language Center*. Associate Professor. Sociolinguistic theory, discourse analysis, applied linguistics (language teaching, learning, and testing).

Frank Kelley, PhD (*Temple University*). Associate Teaching Professor. Corporate university systems online, power structure of media enterprises, public relations, event planning.

Julia May, PhD (*Drexel University*). Assistant Teaching Professor. Political communication; international politics and its news coverage; public opinion; transatlantic relations; war, torture and human rights; debate in the public sphere.

Jordan McClain, PhD (*Temple University*). Assistant Teaching Professor. Media framing and music journalism; relationship between television and music; American popular culture; celebrity, consumerism, and consumer behavior; branding, brand positioning, and advertising criticism.

Alexander Nikolaev, PhD (*Florida State University*) *Interim Director, Communication Undergraduate Programs*. Associate Professor. Public relations, political communication, organizational communication, mass communication, international communications and negotiations, communications theory.

Rosemary Rys, MA. Instructor. Public relations and marketing.

Lawrence Souder, PhD (*Temple University*). Associate Teaching Professor. Science and technical writing, communication ethics, nonprofit communication.

Allan Stegeman, MA (*University of Houston*). Teaching Professor. Communication, technology and mass media, video.

Susan Stein, PhD (*University of Wisconsin*) *Graduate Director*. Associate Teaching Professor. Science, environmental, and health communication

Asta Zelenkauskaitė, PhD (*Indiana University*). Assistant Professor. Social media; user-generated content; computer-mediated communication; interactivity; active audience analysis; mobile communication; gender and online identity; prosumer culture; internet of things; quantitative/qualitative research.

English BA

Major: English

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 23.0101

Standard Occupational Classification (SOC) code: 25-1123

About the Program

Students with a Bachelor of Arts in English move between literature, creative writing and practical publication as they prepare to master the literary and creative world of the future. The English curriculum focuses on three areas:

- A rich **Academic Core** grounded in disciplinary expertise that promotes literary exploration, sophisticated textual literacy, excellent writing, and other transferable skills;
- **Applied Learning** opportunities using skills in research, interpretation, analysis, and writing to solve real-world problems;
- Opportunities for **Civic Engagement**, connecting with community partners to promote social justice and the common good.

Our flexible curriculum offers four concentrations:

- Creative Writing (p. 46)
- Literary Studies (p. 49)
- Writing (p. 53)

- Secondary Education (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/english-secondaryeducation-concentration/>)

We study British, American, and World literatures, stressing the cultural, historical, and political contexts that shape literary production. Courses in creative and professional writing are reinforced by opportunities for hands-on experience in writing, editing, and publishing.

The Department of English and Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) offers an intellectually stimulating learning experience that embraces opportunities in Philadelphia, in our region, and across the world. Our dedicated and award-winning faculty enable creativity and rigor within a supportive environment.

Students develop solid techniques in critical inquiry as well as in writing, literary analysis, and research skills. We engage issues critical to success in the twenty-first century: the connection between oral, written, and digital modes; analytical, ethical, and critical thinking; the relevance and relation of the past to the present; the relations between and among cultures; the role of literary and philosophical texts in our attempts to explain human motives and behavior; issues of personal and communal identity; and the connection of the literary arts to social change.

For more information about this program, please visit the Department of English & Philosophy (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/>) web page.

Co-op/Career Opportunities

English majors pursue a range of professions. Many go on to law school or graduate studies. Others build careers in business, politics and government, education, digital and popular media, publishing, and communications. The critical thinking, analytical, and writing skills provided by our program are essential for high-level decision-making and problem solving in any professional situation.

At Drexel, English majors gain valuable work experience through co-op employment and internship opportunities. They work as writers, analysts, and researchers at major corporations, Philadelphia-area museums, city government and visitors' bureaus, television and radio stations, law firms, and nonprofit organizations.

Our students have worked with a number of publications and companies including *Marie Claire*, *Philadelphia Magazine* and the Philadelphia Tourist Bureau.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

English Faculty

Jan Armon, PhD (*University of Michigan*). Associate Teaching Professor. Academic functions of personal writing, composition.

Valarie Arms, PhD (*Temple University*). Professor. Rhetoric and Composition

Kenneth Bingham, MA (*Temple University*). Teaching Professor. First-year writing; engineering ethics; literature of baseball.

Valerie Booth, PhD (*Emory University*). Associate Teaching Professor.

Raymond Brebach, PhD (*University of Illinois*). Associate Professor. Modern British fiction; the novel; textual studies.

André Carrington, PhD (*New York University*). Assistant Professor. Cultural politics of race, gender and genre; feminism criticism; critical race theory.

Paula Marantz Cohen, PhD (*Columbia University*) *Distinguished Professor, Dean of the Pennoni Honors College*. Co-editor, *Journal of Modern Literature*; Host of the *Drexel Interview*. Nineteenth- and early twentieth-century English and American literature; film studies.

Albert DiBartolomeo, MA (*Temple University*). Teaching Professor. Co-Director, Drexel Publishing Group; Creative writing; first-year writing; non-fiction.

Dan Driscoll, MA (*Temple University*). Associate Teaching Professor. Associate Director, University Writing Center: Curricular Initiatives. Co-Director, Minor in Writing. First-year writing.

Anne Erickson, PhD (*Purdue University*). Assistant Teaching Professor. Online educational applications; the short story cycle.

Nomi Eve, MFA (*Brown University*). Assistant Teaching Professor.

Lisa Farley, MEd (*Temple University*). Associate Teaching Professor. English as a Second Language (ESL).

Robert Finegan, MFA (*University of Pittsburgh*). Associate Teaching Professor. First-year writing; technical and creative writing.

Alexis Finger, MS (*Queens College, CUNY*). Associate Teaching Professor. Speech; ESL; oral communication.

Valerie Fox, PhD (*SUNY at Binghamton*). Teaching Professor. Founding Editor, *Press 1*. Twentieth century drama; modern and contemporary American poetry; first-year writing.

Edward Fristrom, PhD (*State University of New York-Albany*). Associate Teaching Professor. Professional writing, creative writing, multimedia, and writing education.

Keunah Han, PhD (*Temple University*). Assistant Teaching Professor. English as a Second Language (ESL)

Cassandra Hirsch, MFA (*Rosemont College*). Assistant Teaching Professor. Fiction.

Gabriella Ibieta, PhD (*City University of New York*). Associate Professor. Comparative literature; Cuban and Latin American fiction.

Henry Israeli, MFA (*University of Iowa*) *Associate Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Founder and editor of *Saturnalia Books*, a publisher of contemporary poetry.

Miriam Kotzin, PhD (*New York University*). Professor. Founding Editor, *Per Contra*. American literature; genre studies; creative writing; communications.

Stephen Mandell, PhD (*Temple University*). Professor. First-year writing; technical writing; speech; American literature.

Deirdre McMahon, PhD (*University of Iowa*). Associate Teaching Professor. 19th-century British literature and culture: empire, critical race studies and analyses of material culture.

Marianaliet Mendez-Rivera, PhD (*University of Minnesota*). Assistant Teaching Professor. Use of the mass media to secure, maintain and enhance political power; international technical communication—including issues of translation v. localization.

Harriet Levin Millan, MFA (*University of Iowa*) *Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Poetry.

Jill Moses, MFA (*University of Oregon*). Assistant Teaching Professor. Dramatic literature; first-year writing.

Christopher T. Nielson, PhD (*Purdue University*) *Assistant Department Head; Director, Programs in English*. Teaching Professor. Shakespeare; Renaissance drama and literature; dramatic literature; first-year writing.

Karen Nulton, PhD (*Rutgers University*) *Director, Writing Assessment*. Associate Teaching Professor. Writing assessment, writing pedagogy, and writing across the curriculum.

Margene Peterson, MA (*Rhode Island School of Design*). Instructor. English as a Second Language (ESL); the learning styles and strategies of non-native speakers of English.

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures; Editor, *JALA, Journal of the African Literature Association*.

Donald Riggs, PhD (*University of North Carolina-Chapel Hill*). Teaching Professor. Cinematic monsters; science fiction and fantasy literature and film; Renaissance literature; creative writing; first-year writing.

Donna Rondolone, PhD (*University of Pennsylvania*). Associate Teaching Professor. Medieval literature; Arthurian legend; first-year writing.

Gail Rosen, JD (*Temple University*). Associate Teaching Professor. Literature and law; first-year writing.

Doreen Alvarez Saar, PhD (*SUNY Buffalo*) *American Literature Editor, Rocky Mountain Review of Language and Literature*. Professor. Early American literature; Eighteenth-century America; race and gender studies.

Sheila Sandapen, PhD (*Indiana University of Pennsylvania*). Assistant Teaching Professor. First-year writing; cultural studies; women's studies; history and film.

Fred A. Siegel, PhD (*New York University*) *Director, First-Year Writing Program*. Teaching Professor. Popular theater; dramatic literature, creative non-fiction; first-year writing.

Scott Stein, MFA (*University of Miami*). Teaching Professor. Creative writing; first-year writing; Founding Editor, *When Falls the Coliseum: A Journal of American Culture (Or Lack Thereof)*.

Elizabeth Thorpe, MFA (*Goddard College*). Assistant Teaching Professor. New England literature, illness/healing narratives, and the creative process.

Eva Thury, PhD (*University of Pennsylvania*). Associate Professor. Mythology; classical literature; drama; first-year writing; desktop publishing and software documentation.

Kathleen Volk Miller, MA (*Rutgers University*) *Director, Graduate Program in Publishing; Co-Director, Drexel Publishing Group*. Teaching Professor. Co-Editor, *Painted Bride Quarterly (PBQ)*; creative writing; first-year writing.

Maria Volynsky, EdD (*Temple University*) Associate Director, *First-Year Writing Program*; *ESL Coordinator*. Assistant Teaching Professor. English as a Second Language (ESL).

Scott Warnock, PhD (*Temple University*) Director, *Drexel Writing Center*; Director, *University Writing Program*. Associate Professor. Rhetoric and composition; medical writing; information technology and literacy.

Robert A. Watts, MA (*Temple University*). Associate Teaching Professor. Creative writing; first-year writing.

Rachel Wenrick, MFA (*Columbia University*) Associate Director, *University Writing Program: Strategic Initiatives*; Co-Director, *Minor in Writing*. Associate Teaching Professor. First-year writing.

Vincent Williams, PhD (*Temple University*). Assistant Teaching Professor. First-year writing; the intersection of race, gender, class and urbanism.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

Emeritus Faculty

Richard Astro, PhD (*University of Washington*) Distinguished Professor. Provost Emeritus. Twentieth-century American literature; literature and sports.

English BA

Major: English
Degree Awarded: Bachelor of Arts (BA)
Calendar Type: Quarter
Minimum Required Credits: 180.0
Co-op Options: Three Co-op (Five years); One Co-op (Four years)
Classification of Instructional Programs (CIP) code: 23.1302
Standard Occupational Classification (SOC) code: 27-3043.05

Creative Writing Concentration

English majors who select the concentration in Creative Writing benefit from the full range of courses and opportunities that we offer. These include core courses taken by all our majors, offering a strong foundation in textual and rhetorical analysis along with writing skills.

The concentration offers additional in-depth coursework in creative writing , backed up by opportunities for hands-on experience in writing, editing, and publishing. Students will complete a senior project in creative writing and may take full advantage of the opportunities for growth and experience offered by our Drexel Publishing Group, Writers Room, the Drexel Writing Center, campus publications, and local literary organization.

For more information about this program, please visit the Department of English & Philosophy (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/>) web page.

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	

ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Language Requirement		8.0
Select two consecutive courses in a foreign language, reaching at least 103 ***		
ENGLISH MAJOR REQUIREMENTS		
English Core Courses		
Seminars		
ENGL 195	English Freshman Seminar	3.0
ENGL 301	English Major Colloquium (1-credit course, take three times for 3 credits total)	3.0
ENGL 490	Seminar in English and American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
Language at Work		
WRIT 212	Intro to Rhetorical Theory	3.0
or ENGL 250	Intro to Digital Humanities	
Writing		
WRIT 195	Threshold Concepts in Writing Studies	3.0
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	3.0
WRIT 225 [WI]	Creative Writing	3.0
Literature		
ENGL 207 [WI]	African American Literature	3.0
ENGL 315 [WI]	Shakespeare	3.0
ENGL 325	Topics in World Literature	3.0
ENGL 355 [WI]	Women and Literature	3.0
Senior Project		
ENGL 495	Senior Project in Literature	3.0
Creative Writing Concentration Courses		
Required Workshops		
WRIT 220 [WI]	Creative Nonfiction Writing	3.0
WRIT 301 [WI]	Writing Poetry	3.0
WRIT 302 [WI]	Writing Fiction	3.0
Elective Workshops		9.0
Select three additional courses for a minimum of 9.0 credits (at least 2 must be WRIT courses)		
SCRIP 220	Playwriting I	
SCRIP 270 [WI]	Screenwriting I	
WRIT 226	Writing in Public Spaces	
WRIT 303	Writing Humor and Comedy	
WRIT 305	Life is Beautiful	
WRIT 306	Writing About the Media	
WRIT 310	Literary Editing & Publication	
WRIT 311	Writing and Reading the Memoir	
WRIT 308	Writing Your Novel	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
Advance Workshops		3.0
Select one course for 3.0 credits		

WRIT 401	Advanced Poetry Workshop	
WRIT 402	Advanced Fiction Workshop	
Publishing Internship		
WRIT 405	Internship in Publishing	3.0
Elective in ENGL or WRIT		
Choose any additional course in ENGL (300+) or WRIT (200+) for 3.0 credits		3.0
Free Electives		
Choose 60.0 credits from any discipline. Consider a second major or minor, or education certification.		60.0
Total Credits		180.0-191.0

Sample Plan of Study

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 207	3.0	
UNIV H101	1.0 WRIT 225	3.0 WRIT 195	3.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0 Analyzing Culture and Histories	3.0-4.0	
Foreign Language Course	4.0 Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Foreign Language Course	4.0		
	17-19	17-19	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 COOP 101*	1.0 ENGL 301	1.0 ENGL 325	3.0
WRIT 200	3.0 WRIT 301	3.0 ENGL 315	3.0 WRIT 302	3.0
WRIT 220	3.0 Analyzing Culture and Histories	3.0-4.0 WRIT 212 or ENGL 250	3.0 Elective Workshop	3.0
Cultivating Global Competence	3.0-4.0 Elective Workshop	3.0 Free Electives	9.0 Free Electives	6.0
Engaging the Natural World	3.0-4.0 Perspectives in Diversity	3.0-4.0		
Understanding Society and Human Behavior	3.0-4.0 Free Elective	3.0		
	16-19	16-18	16	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Free Electives	15.0
		WRIT 405	3.0	
		Free Electives	9.0	
	0	0	13	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0	

WRIT 401 or 402	3.0 ENGL 492	3.0 UNIV H201	1.0
Elective Workshop	3.0 English Elective (ENGL or WRIT)	3.0 Free Electives	9.0
Free Electives	6.0 Free Elective	3.0	
	15	12	13

Total Credits 180-191

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 WRIT 225	3.0 ENGL 207	3.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0 WRIT 195	3.0	
Foreign Language Course	4.0 Developing Quantitative Reasoning	3.0-4.0 Analyzing Culture and Histories	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Foreign Language Course	4.0 Engaging the Natural World	3.0-4.0	
	17-19	17-19	16-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 WRIT 301	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
WRIT 200	3.0 Analyzing Culture and Histories	3.0-4.0		
WRIT 220	3.0 Elective Workshop	3.0		
Cultivating Global Competence	3.0-4.0 Perspective in Diversity	3.0-4.0		
Engaging the Natural World	3.0-4.0 Free Elective	3.0		
Understanding Society and Human Behavior	3.0-4.0			
	16-19	15-17	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 ENGL 325	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
ENGL 315	3.0 WRIT 302	3.0		

WRIT 212 or ENGL 250	3.0 Elective Workshop	3.0		
Free Electives	9.0 Free Electives	6.0		
	16	15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 Free Electives	15.0 COOP EXPERIENCE	COOP EXPERIENCE	
WRIT 405	3.0			
Free Electives	9.0			
	13	15	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0	
WRIT 401 or 402	3.0 ENGL 492	3.0 UNIV H201	1.0	
Elective Workshop	3.0 English Elective (ENGL or WRIT)	3.0 Free Electives	9.0	
Free Electives	6.0 Free Elective	3.0		
	15	12	13	
Total Credits 180-191				

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate knowledge of major genres, authors and the cultural and historical contexts of literary periods.
- Demonstrate critical thinking, writing and textual analysis skills
- Demonstrate research skills and facility with terms and methods of critical analysis and synthesis
- Demonstrate strong analytical, communication, technological and writing skills that enable students to make intertextual connections between material in their coursework and examine the relationships between literature and the world.
- By virtue of their coursework, internship and coop experience, be prepared for careers or graduate work in the humanities, law, teaching, professional writing and other fields

English Faculty

Jan Armon, PhD (*University of Michigan*). Associate Teaching Professor. Academic functions of personal writing, composition.

Valarie Arms, PhD (*Temple University*). Professor. Rhetoric and Composition

Kenneth Bingham, MA (*Temple University*). Teaching Professor. First-year writing; engineering ethics; literature of baseball.

Valerie Booth, PhD (*Emory University*). Associate Teaching Professor.

Raymond Brebach, PhD (*University of Illinois*). Associate Professor. Modern British fiction; the novel; textual studies.

André Carrington, PhD (*New York University*). Assistant Professor. Cultural politics of race, gender and genre; feminism criticism; critical race theory.

Paula Marantz Cohen, PhD (*Columbia University*) *Distinguished Professor, Dean of the Pennoni Honors College*. Co-editor, Journal of Modern Literature Host of the Drexel Interview Nineteenth- and early twentieth-century English and American literature; film studies.

Albert DiBartolomeo, MA (*Temple University*). Teaching Professor. Co-Director, Drexel Publishing Group; Creative writing; first-year writing; non-fiction.

Dan Driscoll, MA (*Temple University*). Associate Teaching Professor. Associate Director, University Writing Center: Curricular Initiatives. Co-Director, Minor in Writing. First-year writing.

Anne Erickson, PhD (*Purdue University*). Assistant Teaching Professor. Online educational applications; the short story cycle.

Nomi Eve, MFA (*Brown University*). Assistant Teaching Professor.

Lisa Farley, MEd (*Temple University*). Associate Teaching Professor. English as a Second Language (ESL).

Robert Finegan, MFA (*University of Pittsburgh*). Associate Teaching Professor. First-year writing; technical and creative writing.

Alexis Finger, MS (*Queens College, CUNY*). Associate Teaching Professor. Speech; ESL; oral communication.

Valerie Fox, PhD (*SUNY at Binghamton*). Teaching Professor. Founding Editor, Press 1. Twentieth century drama; modern and contemporary American poetry; first-year writing.

Edward Fristrom, PhD (*State University of New York-Albany*). Associate Teaching Professor. Professional writing, creative writing, multimedia, and writing education.

Keunah Han, PhD (*Temple University*). Assistant Teaching Professor. English as a Second Language (ESL)

Cassandra Hirsch, MFA (*Rosemont College*). Assistant Teaching Professor. Fiction.

Gabriella Ibieta, PhD (*City University of New York*). Associate Professor. Comparative literature; Cuban and Latin American fiction.

Henry Israeli, MFA (*University of Iowa*) *Associate Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Founder and editor of <i>Saturnalia Books</i>, a publisher of contemporary poetry.

Miriam Kotzin, PhD (*New York University*). Professor. Founding Editor, Per Contra. American literature; genre studies; creative writing; communications.

Stephen Mandell, PhD (*Temple University*). Professor. First-year writing; technical writing; speech; American literature.

Deirdre McMahon, PhD (*University of Iowa*). Associate Teaching Professor. 19th-century British literature and culture: empire, critical race studies and analyses of material culture.

Marianaliet Mendez-Rivera, PhD (*University of Minnesota*). Assistant Teaching Professor. Use of the mass media to secure, maintain and enhance political power; international technical communication—including issues of translation v. localization.

Harriet Levin Millan, MFA (*University of Iowa*) *Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Poetry.

Jill Moses, MFA (*University of Oregon*). Assistant Teaching Professor. Dramatic literature; first-year writing.

Christopher T. Nielson, PhD (*Purdue University*) *Assistant Department Head; Director, Programs in English*. Teaching Professor. Shakespeare; Renaissance drama and literature; dramatic literature; first-year writing.

Karen Nulton, PhD (*Rutgers University*) *Director, Writing Assessment*. Associate Teaching Professor. Writing assessment, writing pedagogy, and writing across the curriculum.

Margene Peterson, MA (*Rhode Island School of Design*). Instructor. English as a Second Language (ESL); the learning styles and strategies of non-native speakers of English.

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures; Editor, JALA, Journal of the African Literature Association.

Donald Riggs, PhD (*University of North Carolina-Chapel Hill*). Teaching Professor. Cinematic monsters; science fiction and fantasy literature and film; Renaissance literature; creative writing; first-year writing.

Donna Rondolone, PhD (*University of Pennsylvania*). Associate Teaching Professor. Medieval literature; Arthurian legend; first-year writing.

Gail Rosen, JD (*Temple University*). Associate Teaching Professor. Literature and law; first-year writing.

Doreen Alvarez Saar, PhD (*SUNY Buffalo*) *American Literature Editor, Rocky Mountain Review of Language and Literature*. Professor. Early American literature; Eighteenth-century America; race and gender studies.

Sheila Sandapen, PhD (*Indiana University of Pennsylvania*). Assistant Teaching Professor. First-year writing; cultural studies; women's studies; history and film.

Fred A. Siegel, PhD (*New York University*) *Director, First-Year Writing Program*. Teaching Professor. Popular theater; dramatic literature, creative non-fiction; first-year writing.

Scott Stein, MFA (*University of Miami*). Teaching Professor. Creative writing; first-year writing; Founding Editor, When Falls the Coliseum: A Journal of American Culture (Or Lack Thereof).

Elizabeth Thorpe, MFA (*Goddard College*). Assistant Teaching Professor. New England literature, illness/healing narratives, and the creative process.

Eva Thury, PhD (*University of Pennsylvania*). Associate Professor. Mythology; classical literature; drama; first-year writing; desktop publishing and software documentation.

Kathleen Volk Miller, MA (*Rutgers University*) *Director, Graduate Program in Publishing; Co-Director, Drexel Publishing Group*. Teaching Professor. Co-Editor, Painted Bride Quarterly (PBQ); creative writing; first-year writing.

Maria Volynsky, EdD (*Temple University*) *Associate Director, First-Year Writing Program; ESL Coordinator*. Assistant Teaching Professor. English as a Second Language (ESL).

Scott Warnock, PhD (*Temple University*) *Director, Drexel Writing Center; Director, University Writing Program*. Associate Professor. Rhetoric and composition; medical writing; information technology and literacy.

Robert A. Watts, MA (*Temple University*). Associate Teaching Professor. Creative writing; first-year writing.

Rachel Wenrick, MFA (*Columbia University*) *Associate Director, University Writing Program: Strategic Initiatives; Co-Director, Minor in Writing*. Associate Teaching Professor. First-year writing.

Vincent Williams, PhD (*Temple University*). Assistant Teaching Professor. First-year writing; the intersection of race, gender, class and urbanism.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

Emeritus Faculty

Richard Astro, PhD (*University of Washington*) *Distinguished Professor*. Provost Emeritus. Twentieth-century American literature; literature and sports.

English BA

Major: English

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 23.0101

Standard Occupational Classification (SOC) code: 25-1123

Literary Studies Concentration

English majors who select the concentration in Literary Studies benefit from the full range of courses and opportunities that we offer. These include core courses taken by all our majors, offering a strong foundation in textual and rhetorical analysis along with writing skills.

The concentration offers additional in-depth study of British, American and World literatures. We develop skills in literary and cultural analysis and in related research. We take full advantage of our location to tap into the rich opportunities in literary and dramatic arts in Philadelphia.

For more information about this program, please visit the Department of English & Philosophy (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/>) web page.

Degree Requirements

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0

or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Language Requirement		8.0
Select two consecutive courses in a foreign language, reaching at least 103 ***		
ENGLISH MAJOR REQUIREMENTS		
English Core Courses		
Seminars		
ENGL 195	English Freshman Seminar	3.0
ENGL 301	English Major Colloquium (1-credit course, take three times for 3 credits total)	3.0
ENGL 490	Seminar in English and American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
Language at Work (choose 1)		3.0
WRIT 212	Intro to Rhetorical Theory	
or ENGL 25	Intro to Digital Humanities	
Writing		
WRIT 195	Threshold Concepts in Writing Studies	3.0
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	3.0
WRIT 225 [WI]	Creative Writing	3.0
Literature		
ENGL 207 [WI]	African American Literature	3.0
ENGL 315 [WI]	Shakespeare	3.0
ENGL 325	Topics in World Literature	3.0
ENGL 355 [WI]	Women and Literature	3.0
Senior Project		
ENGL 495	Senior Project in Literature	3.0
Literature Studies Concentration		
Surveys (choose 3)		9.0
ENGL 200 [WI] Classical to Medieval Literature		
ENGL 201 Renaissance to the Enlightenment		
ENGL 202 [WI] Romanticism to Modernism		
ENGL 203 [WI] Survey of World Literature		
ENGL 204 Post-Colonial Literature		
ENGL 205 [WI] American Literature I		
ENGL 206 [WI] American Literature II		
ENGL 211 [WI] British Literature I		
ENGL 212 British Literature II		
Authors and Periods (choose 1)		3.0
ENGL 310 [WI] Period Studies		
ENGL 320 [WI] Major Authors		
Literary Impacts (choose 1)		3.0
ENGL 300 [WI] Literature & Science		
ENGL 323 Literature and Other Arts		
ENGL 360 [WI] Literature and Society		
Literary Traditions (choose 1)		3.0

ENGL 330	The Bible as Literature	
ENGL 335	Mythology	
Theory		
ENGL 380	Literary Theory	3.0
Electives in ENGL or WRIT		6.0
Choose any additional two courses (300+) in WRIT or ENGL for a minimum of 6.0 credits		
Free Electives		60.0
Choose 60.0 credits from any discipline. Consider a second major or minor, or education certification.		
Total Credits		180.0-191.0

Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

See Core Curriculum List (p. 5) for complete list of course options.

Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN.

Language courses may count toward the College Core Curriculum requirements, in which case students may take a corresponding number of free electives.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student’s major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid “clustering” these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>)

Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, 1 co-op

First Year				
Fall	Credits	Winter	Credits	Spring
ENGL 101 or 111	3.0	CIVC 101	1.0	COOP 101*
			1.0	VACATION

ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 WRIT 200	3.0 ENGL 207	3.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0 WRIT 195	3.0	
Foreign Language Course	4.0 Developing Quantitative Reasoning	3.0-4.0 Analyzing Culture and Histories	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Foreign Language Course	4.0 Engaging the Natural World	3.0-4.0	
17-19		17-19	16-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 Analyzing Culture and Histories	3.0-4.0 ENGL 301 (2nd of 3)	1.0 ENGL 325	3.0
WRIT 225	3.0 Authors & Periods	3.0 ENGL 315	3.0 Free Electives	6.0
Cultivating Global Competence	3.0-4.0 Free Elective	3.0 WRIT 212 or ENGL 250	3.0 Literary Impacts	3.0
Engaging the Natural World	3.0-4.0 Literature Survey	3.0 Free Electives	9.0 Literature Survey	3.0
Literature Survey	3.0 Perspectives in Diversity	3.0-4.0		
Understanding Society and Human Behavior	3.0-4.0			
16-19		15-17	16	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Free Electives	15.0
		ENGL 380	3.0	
		Free Electives	9.0	
0		0	13	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0	
UNIV H201	1.0 ENGL 492	3.0 Free Electives	9.0	
English Elective (ENGL or WRIT)	3.0 English Elective (ENGL or WRIT)	3.0		
Free Electives	6.0 Free Elective	3.0		
Literary Traditions	3.0			
16		12	12	
Total Credits 180-191				

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 WRIT 200	3.0 ENGL 207	3.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0 WRIT 195	3.0	
Foreign Language Course	4.0 Developing Quantitative Reasoning	3.0-4.0 Analyzing Culture and Histories	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Foreign Language Course	4.0 Engaging the Natural World	3.0-4.0	
17-19		17-19	16-18	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Analyzing Culture and Histories	3.0-4.0
		WRIT 225	3.0 Free Electives	6.0
		Cultivating Global Competence	3.0-4.0 Literature Survey	3.0
		Engaging the Natural World	3.0-4.0 Perspective in Diversity	3.0-4.0
		Literature Survey	3.0	
		Understanding Society and Human Behavior	3.0-4.0	
0		0	16-19	15-17

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 ENGL 325	3.0
		ENGL 315	3.0 Free Electives	9.0
		WRIT 212 or ENGL 250	3.0 Literature Survey	3.0
		Authors and Periods	3.0	
		Free Electives	6.0	
0		0	16	15

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Free Electives	15.0
		ENGL 355	3.0	
		Free Elective	3.0	
		Literary Impacts	3.0	
		Literary Traditions	3.0	
	0	0	13	15

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
ENGL 380	3.0 ENGL 492	3.0 ENGL 495	3.0
ENGL 490	3.0 English Elective (ENGL or WRIT)	3.0 Free Electives	9.0
UNIV H201	1.0 Free Electives	6.0	
English Elective (ENGL or WRIT)	3.0		
Free Electives	6.0		
	16	12	12

Total Credits 180-191

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate knowledge of major genres, authors and the cultural and historical contexts of literary periods.
- Demonstrate critical thinking, writing and textual analysis skills
- Demonstrate research skills and facility with terms and methods of critical analysis and synthesis
- Demonstrate strong analytical, communication, technological and writing skills that enable students to make intertextual connections between material in their coursework and examine the relationships between literature and the world.
- By virtue of their coursework, internship and coop experience, be prepared for careers or graduate work in the humanities, law, teaching, professional writing and other fields

English Faculty

Jan Armon, PhD (*University of Michigan*). Associate Teaching Professor. Academic functions of personal writing, composition.

Valarie Arms, PhD (*Temple University*). Professor. Rhetoric and Composition

Kenneth Bingham, MA (*Temple University*). Teaching Professor. First-year writing; engineering ethics; literature of baseball.

Valerie Booth, PhD (*Emory University*). Associate Teaching Professor.

Raymond Brebach, PhD (*University of Illinois*). Associate Professor. Modern British fiction; the novel; textual studies.

André Carrington, PhD (*New York University*). Assistant Professor. Cultural politics of race, gender and genre; feminism criticism; critical race theory.

Paula Marantz Cohen, PhD (*Columbia University*) *Distinguished Professor, Dean of the Pennoni Honors College*. Co-editor, *Journal of Modern Literature*; Host of the *Drexel Interview*. Nineteenth- and early twentieth-century English and American literature; film studies.

Albert DiBartolomeo, MA (*Temple University*). Teaching Professor. Co-Director, Drexel Publishing Group; Creative writing; first-year writing; non-fiction.

Dan Driscoll, MA (*Temple University*). Associate Teaching Professor. Associate Director, University Writing Center: Curricular Initiatives. Co-Director, Minor in Writing. First-year writing.

Anne Erickson, PhD (*Purdue University*). Assistant Teaching Professor. Online educational applications; the short story cycle.

Nomi Eve, MFA (*Brown University*). Assistant Teaching Professor.

Lisa Farley, MEd (*Temple University*). Associate Teaching Professor. English as a Second Language (ESL).

Robert Finegan, MFA (*University of Pittsburgh*). Associate Teaching Professor. First-year writing; technical and creative writing.

Alexis Finger, MS (*Queens College, CUNY*). Associate Teaching Professor. Speech; ESL; oral communication.

Valerie Fox, PhD (*SUNY at Binghamton*). Teaching Professor. Founding Editor, *Press 1*. Twentieth century drama; modern and contemporary American poetry; first-year writing.

Edward Fristrom, PhD (*State University of New York-Albany*). Associate Teaching Professor. Professional writing, creative writing, multimedia, and writing education.

Keunah Han, PhD (*Temple University*). Assistant Teaching Professor. English as a Second Language (ESL)

Cassandra Hirsch, MFA (*Rosemont College*). Assistant Teaching Professor. Fiction.

Gabriella Ibieta, PhD (*City University of New York*). Associate Professor. Comparative literature; Cuban and Latin American fiction.

Henry Israeli, MFA (*University of Iowa*) *Associate Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Founder and editor of *Saturnalia Books*, a publisher of contemporary poetry.

Miriam Kotzin, PhD (*New York University*). Professor. Founding Editor, *Per Contra*. American literature; genre studies; creative writing; communications.

Stephen Mandell, PhD (*Temple University*). Professor. First-year writing; technical writing; speech; American literature.

Deirdre McMahon, PhD (*University of Iowa*). Associate Teaching Professor. 19th-century British literature and culture: empire, critical race studies and analyses of material culture.

Marianaliet Mendez-Rivera, PhD (*University of Minnesota*). Assistant Teaching Professor. Use of the mass media to secure, maintain and enhance political power; international technical communication—including issues of translation v. localization.

Harriet Levin Millan, MFA (*University of Iowa*) *Director, Certificate in Writing and Publishing*. Associate Teaching Professor. Poetry.

Jill Moses, MFA (*University of Oregon*). Assistant Teaching Professor. Dramatic literature; first-year writing.

Christopher T. Nielson, PhD (*Purdue University*) *Assistant Department Head; Director, Programs in English*. Teaching Professor. Shakespeare; Renaissance drama and literature; dramatic literature; first-year writing.

Karen Nulton, PhD (*Rutgers University*) *Director, Writing Assessment*. Associate Teaching Professor. Writing assessment, writing pedagogy, and writing across the curriculum.

Margene Peterson, MA (*Rhode Island School of Design*). Instructor. English as a Second Language (ESL); the learning styles and strategies of non-native speakers of English.

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures; Editor, *JALA, Journal of the African Literature Association*.

Donald Riggs, PhD (*University of North Carolina-Chapel Hill*). Teaching Professor. Cinematic monsters; science fiction and fantasy literature and film; Renaissance literature; creative writing; first-year writing.

Donna Rondolone, PhD (*University of Pennsylvania*). Associate Teaching Professor. Medieval literature; Arthurian legend; first-year writing.

Gail Rosen, JD (*Temple University*). Associate Teaching Professor. Literature and law; first-year writing.

Doreen Alvarez Saar, PhD (*SUNY Buffalo*) *American Literature Editor, Rocky Mountain Review of Language and Literature*. Professor. Early American literature; Eighteenth-century America; race and gender studies.

Sheila Sandapen, PhD (*Indiana University of Pennsylvania*). Assistant Teaching Professor. First-year writing; cultural studies; women's studies; history and film.

Fred A. Siegel, PhD (*New York University*) *Director, First-Year Writing Program*. Teaching Professor. Popular theater; dramatic literature, creative non-fiction; first-year writing.

Scott Stein, MFA (*University of Miami*). Teaching Professor. Creative writing; first-year writing; Founding Editor, *When Falls the Coliseum: A Journal of American Culture (Or Lack Thereof)*.

Elizabeth Thorpe, MFA (*Goddard College*). Assistant Teaching Professor. New England literature, illness/healing narratives, and the creative process.

Eva Thury, PhD (*University of Pennsylvania*). Associate Professor. Mythology; classical literature; drama; first-year writing; desktop publishing and software documentation.

Kathleen Volk Miller, MA (*Rutgers University*) *Director, Graduate Program in Publishing; Co-Director, Drexel Publishing Group*. Teaching Professor. Co-Editor, *Painted Bride Quarterly (PBQ)*; creative writing; first-year writing.

Maria Volynsky, EdD (*Temple University*) *Associate Director, First-Year Writing Program; ESL Coordinator*. Assistant Teaching Professor. English as a Second Language (ESL).

Scott Warnock, PhD (*Temple University*) *Director, Drexel Writing Center; Director, University Writing Program*. Associate Professor. Rhetoric and composition; medical writing; information technology and literacy.

Robert A. Watts, MA (*Temple University*). Associate Teaching Professor. Creative writing; first-year writing.

Rachel Wenrick, MFA (*Columbia University*) *Associate Director, University Writing Program: Strategic Initiatives; Co-Director, Minor in Writing*. Associate Teaching Professor. First-year writing.

Vincent Williams, PhD (*Temple University*). Assistant Teaching Professor. First-year writing; the intersection of race, gender, class and urbanism.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

Emeritus Faculty

Richard Astro, PhD (*University of Washington*) *Distinguished Professor*. Provost Emeritus. Twentieth-century American literature; literature and sports.

English BA

Major: English

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years)

Classification of Instructional Programs (CIP) code: 23.0101

Standard Occupational Classification (SOC) code: 25-1123

Writing Studies Concentration

English majors who select the concentration in Writing benefit from the full range of courses and opportunities that we offer. These include core courses taken by all our majors, offering a strong foundation in textual and rhetorical analysis along with writing skills.

The concentration offers additional in-depth coursework in creative and professional writing, backed up by opportunities for hands-on experience in writing, editing, and publishing. Students may take full advantage of the opportunities for growth and experience offered by our Drexel Publishing Group, the Writers Room, and the Drexel Writing Center.

For more information about this program, please visit the Department of English & Philosophy (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/>) web page.

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Language Requirement		
Select two consecutive courses in a foreign language, reaching at least 103 ***		8.0
English Major Requirements		
English Core Courses		
Seminars		
ENGL 195	English Freshman Seminar	3.0
ENGL 301	English Major Colloquium (1-credit course, take three times for 3 credits total)	3.0
ENGL 490	Seminar in English and American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
Language at Work		
WRIT 212	Intro to Rhetorical Theory	3.0
or ENGL 250	Intro to Digital Humanities	
Writing		
WRIT 195	Threshold Concepts in Writing Studies	3.0
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	3.0
WRIT 225 [WI]	Creative Writing	3.0
Literature		
ENGL 207 [WI]	African American Literature	3.0
ENGL 315 [WI]	Shakespeare	3.0
ENGL 325	Topics in World Literature	3.0
ENGL 355 [WI]	Women and Literature	3.0
Senior Project		
ENGL 495	Senior Project in Literature	3.0
Writing Concentration Courses		
Foundations		
WRIT 210 [WI]	The Peer Reader in Context	3.0
WRIT 211	Advanced Composition	3.0
Audience Awareness		
WRIT 312 [WI]	Writing for Target Audiences	3.0
or WRIT 315	Writing for Social Change	
Writing Practices (choose 6)		
Select six additional courses for a minimum of 18.0 credits (at least 4 must be WRIT or ENGL courses)		18.0
COM 160 [WI]	Introduction to Journalism	
COM 270 [WI]	Business Communication	
COM 310 [WI]	Technical Communication	
COM 375 [WI]	Grant Writing	

ENGL 312	Research Project Development
SCRP 220	Playwriting I
SCRP 270	Screenwriting I [WI]
WRIT 215 [WI]	Story Medicine
WRIT 212	Intro to Rhetorical Theory †
WRIT 220 [WI]	Creative Nonfiction Writing
WRIT 226	Writing in Public Spaces
SCRP 280	Writing the Short Film [WI]
SCRP 370	Screenplay Story Development
WRIT 290	Writers Room Experience
WRIT 295	Forms Seminar
WRIT 301 [WI]	Writing Poetry
WRIT 302 [WI]	Writing Fiction
WRIT 303	Writing Humor and Comedy
WRIT 305	Life is Beautiful
WRIT 306	Writing About the Media
WRIT 310	Literary Editing & Publication
WRIT 311	Writing and Reading the Memoir
WRIT 312 [WI]	Writing for Target Audiences
WRIT 315	Writing for Social Change
WRIT 320	Publishing Veterans' Memoirs for the Library of Congress
WRIT 330	Writing and Contexts
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web
WRIT 401	Advanced Poetry Workshop
WRIT 402	Advanced Fiction Workshop
WRIT 405	Internship in Publishing
WRIT T380	Special Topics in Writing
Free Electives	
Select 60 credits from any discipline. Consider a second major or minor, or education certification.	
Total Credits	
180.0-191.0	

★

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (p. 5) for complete list of course options.

★★★

Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN. Language courses may count toward the College Core Curriculum requirements in Cultivating Global Competence, in which case students may take a corresponding number of free electives.

†

Counts as an option for the English Core requirements; if the course is not counted toward the core requirement it can be counted as a Writing Practice course.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student’s major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the

sophomore year, and to avoid “clustering” these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 207	3.0	
UNIV H101	1.0 WRIT 200	3.0 WRIT 195	3.0	
Developing Quantitative Reasoning	3.0-4.0 Cultivating Global Competence	3.0-4.0 Analyzing Culture and Histories	3.0-4.0	
Foreign Language Course (1st consecutive course)	4.0 Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Foreign Language Course (2nd consecutive course, at least 103 level)	4.0		
17-19		17-19	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301 (1st of 3)	1.0 COOP 101*	1.0 ENGL 301	1.0 ENGL 325	3.0
WRIT 210 or 211	3.0 WRIT 211	3.0 ENGL 315	3.0 Free Electives	6.0
WRIT 225	3.0 WRIT 212 or ENGL 250	3.0 Free Electives	9.0 Writing Practice Course	3.0
Cultivating Global Competence	3.0-4.0 Analyzing Culture and Histories	3.0-4.0 Writing Practice Course	3.0 Writing Practice Course	3.0
Engaging the Natural World	3.0-4.0 Perspectives in Diversity	3.0-4.0		

Understanding Society and Human Behavior	3.0-4.0 Writing Practice Course	3.0		
16-19		16-18	16	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Free Electives	12.0
		WRIT 312 or 315	3.0 Writing Practice Course	3.0
		Free Electives	6.0	
		Writing Practice Course	3.0	
0		0	13	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0	
UNIV H201	1.0 ENGL 492	3.0 Free Electives	9.0	
Free Electives	9.0 Free Electives	9.0		
13		15	12	

Total Credits 180-191

*

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
ENGL 195	3.0 COOP 101*	1.0 ENGL 207	3.0	
UNIV H101	1.0 ENGL 102 or 112	3.0 WRIT 195	3.0	
Developing Quantitative Reasoning	3.0-4.0 WRIT 200	3.0 Analyzing Culture and Histories	3.0-4.0	
Foreign Language Course (1st consecutive course)	4.0 Cultivating Global Competence	3.0-4.0 Engaging the Natural World	3.0-4.0	
Understanding Society and Human Behavior	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		

	Foreign Language Course (2nd consecutive course, at least 103 level)	4.0		
	17-19	18-20	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 WRIT 211	3.0
		WRIT 210 or 211	3.0 WRIT 212 or ENGL 250	3.0
		WRIT 225	3.0 Analyzing Culture and Histories	3.0-4.0
		Cultivating Global Competency	3.0-4.0 Perspective in Diversity	3.0-4.0
		Engaging the Natural World	3.0-4.0 Writing Practice Course	3.0
		Understanding Society and Human Behavior	3.0-4.0	
	0	0	16-19	15-17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 ENGL 325	3.0
		ENGL 315	3.0 Free Electives	9.0
		Free Electives	6.0 Writing Practice Course	3.0
		Writing Practice Course	3.0	
		Writing Practice Course	3.0	
	0	0	16	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	ENGL 301	1.0 Free Electives	12.0
		ENGL 355	3.0 Writing Practice Course	3.0
		WRIT 312 or 315	3.0	
		Free Elective	3.0	
		Writing Practice Course	3.0	
	0	0	13	15
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
ENGL 490	3.0 ENGL 492	3.0 ENGL 495	3.0	
UNIV H201	1.0 Free Electives	12.0 Free Electives	9.0	

Free Electives	9.0		
	13	15	12
Total Credits 180-191			

*

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate knowledge of major genres, authors and the cultural and historical contexts of literary periods.
- Demonstrate critical thinking, writing and textual analysis skills
- Demonstrate research skills and facility with terms and methods of critical analysis and synthesis
- Demonstrate strong analytical, communication, technological and writing skills that enable students to make intertextual connections between material in their coursework and examine the relationships between literature and the world.
- By virtue of their coursework, internship and coop experience, be prepared for careers or graduate work in the humanities, law, teaching, professional writing and other fields

English Faculty

Jan Armon, PhD (*University of Michigan*). Associate Teaching Professor. Academic functions of personal writing, composition.

Valarie Arms, PhD (*Temple University*). Professor. Rhetoric and Composition

Kenneth Bingham, MA (*Temple University*). Teaching Professor. First-year writing; engineering ethics; literature of baseball.

Valerie Booth, PhD (*Emory University*). Associate Teaching Professor.

Raymond Brebach, PhD (*University of Illinois*). Associate Professor. Modern British fiction; the novel; textual studies.

André Carrington, PhD (*New York University*). Assistant Professor. Cultural politics of race, gender and genre; feminism criticism; critical race theory.

Paula Marantz Cohen, PhD (*Columbia University*) *Distinguished Professor, Dean of the Pennoni Honors College*. Co-editor, Journal of Modern Literature Host of the Drexel Interview Nineteenth- and early twentieth-century English and American literature; film studies.

Albert DiBartolomeo, MA (*Temple University*). Teaching Professor. Co-Director, Drexel Publishing Group; Creative writing; first-year writing; non-fiction.

Dan Driscoll, MA (*Temple University*). Associate Teaching Professor. Associate Director, University Writing Center: Curricular Initiatives. Co-Director, Minor in Writing. First-year writing.

Anne Erickson, PhD (*Purdue University*). Assistant Teaching Professor. Online educational applications; the short story cycle.

Nomi Eve, MFA (*Brown University*). Assistant Teaching Professor.

Lisa Farley, MEd (*Temple University*). Associate Teaching Professor. English as a Second Language (ESL).

Robert Finegan, MFA (*University of Pittsburgh*). Associate Teaching Professor. First-year writing; technical and creative writing.

Alexis Finger, MS (*Queens College, CUNY*). Associate Teaching Professor. Speech; ESL; oral communication.

Valerie Fox, PhD (*SUNY at Binghamton*). Teaching Professor. Founding Editor, *Press 1*. Twentieth century drama; modern and contemporary American poetry; first-year writing.

Edward Fristrom, PhD (*State University of New York-Albany*). Associate Teaching Professor. Professional writing, creative writing, multimedia, and writing education.

Keunah Han, PhD (*Temple University*). Assistant Teaching Professor. English as a Second Language (ESL)

Cassandra Hirsch, MFA (*Rosemont College*). Assistant Teaching Professor. Fiction.

Gabriella Ibieta, PhD (*City University of New York*). Associate Professor. Comparative literature; Cuban and Latin American fiction.

Henry Israeli, MFA (*University of Iowa*) Associate Director, *Certificate in Writing and Publishing*. Associate Teaching Professor. Founder and editor of *Saturnalia Books*, a publisher of contemporary poetry.

Miriam Kotzin, PhD (*New York University*). Professor. Founding Editor, *Per Contra*. American literature; genre studies; creative writing; communications.

Stephen Mandell, PhD (*Temple University*). Professor. First-year writing; technical writing; speech; American literature.

Deirdre McMahon, PhD (*University of Iowa*). Associate Teaching Professor. 19th-century British literature and culture: empire, critical race studies and analyses of material culture.

Marianaliet Mendez-Rivera, PhD (*University of Minnesota*). Assistant Teaching Professor. Use of the mass media to secure, maintain and enhance political power; international technical communication—including issues of translation v. localization.

Harriet Levin Millan, MFA (*University of Iowa*) Director, *Certificate in Writing and Publishing*. Associate Teaching Professor. Poetry.

Jill Moses, MFA (*University of Oregon*). Assistant Teaching Professor. Dramatic literature; first-year writing.

Christopher T. Nielson, PhD (*Purdue University*) Assistant Department Head; Director, *Programs in English*. Teaching Professor. Shakespeare; Renaissance drama and literature; dramatic literature; first-year writing.

Karen Nulton, PhD (*Rutgers University*) Director, *Writing Assessment*. Associate Teaching Professor. Writing assessment, writing pedagogy, and writing across the curriculum.

Margene Peterson, MA (*Rhode Island School of Design*). Instructor. English as a Second Language (ESL); the learning styles and strategies of non-native speakers of English.

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures; Editor, *JALA, Journal of the African Literature Association*.

Donald Riggs, PhD (*University of North Carolina-Chapel Hill*). Teaching Professor. Cinematic monsters; science fiction and fantasy literature and film; Renaissance literature; creative writing; first-year writing.

Donna Rondolone, PhD (*University of Pennsylvania*). Associate Teaching Professor. Medieval literature; Arthurian legend; first-year writing.

Gail Rosen, JD (*Temple University*). Associate Teaching Professor. Literature and law; first-year writing.

Doreen Alvarez Saar, PhD (*SUNY Buffalo*) *American Literature Editor, Rocky Mountain Review of Language and Literature*. Professor. Early American literature; Eighteenth-century America; race and gender studies.

Sheila Sandapen, PhD (*Indiana University of Pennsylvania*). Assistant Teaching Professor. First-year writing; cultural studies; women's studies; history and film.

Fred A. Siegel, PhD (*New York University*) Director, *First-Year Writing Program*. Teaching Professor. Popular theater; dramatic literature, creative non-fiction; first-year writing.

Scott Stein, MFA (*University of Miami*). Teaching Professor. Creative writing; first-year writing; Founding Editor, *When Falls the Coliseum: A Journal of American Culture (Or Lack Thereof)*.

Elizabeth Thorpe, MFA (*Goddard College*). Assistant Teaching Professor. New England literature, illness/healing narratives, and the creative process.

Eva Thury, PhD (*University of Pennsylvania*). Associate Professor. Mythology; classical literature; drama; first-year writing; desktop publishing and software documentation.

Kathleen Volk Miller, MA (*Rutgers University*) Director, *Graduate Program in Publishing*; Co-Director, *Drexel Publishing Group*. Teaching Professor. Co-Editor, *Painted Bride Quarterly (PBQ)*; creative writing; first-year writing.

Maria Volynsky, EdD (*Temple University*) Associate Director, *First-Year Writing Program*; ESL Coordinator. Assistant Teaching Professor. English as a Second Language (ESL).

Scott Warnock, PhD (*Temple University*) Director, *Drexel Writing Center*; Director, *University Writing Program*. Associate Professor. Rhetoric and composition; medical writing; information technology and literacy.

Robert A. Watts, MA (*Temple University*). Associate Teaching Professor. Creative writing; first-year writing.

Rachel Wenrick, MFA (*Columbia University*) Associate Director, *University Writing Program: Strategic Initiatives*; Co-Director, *Minor in Writing*. Associate Teaching Professor. First-year writing.

Vincent Williams, PhD (*Temple University*). Assistant Teaching Professor. First-year writing; the intersection of race, gender, class and urbanism.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

Emeritus Faculty

Richard Astro, PhD (*University of Washington*) *Distinguished Professor*. Provost Emeritus. Twentieth-century American literature; literature and sports.

Environmental Science BS

Major: Environmental Science

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 183.5

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 03.0104

Standard Occupational Classification (SOC) code: 19-2041

About the Program

The Department of Biodiversity, Earth and Environmental Science (BEES) is committed to support budding scientists who want to make a significant impact with their research and discoveries. The BEES motto is "Field Experience, Early and Often." This immersive approach, combined with the expert guidance of our faculty, supports the understanding of ecology, evolution, climatology, biodiversity, and bioremediation, among many other areas of study. All are vital to the understanding, conservation, and restoration of healthy ecosystems.

Drexel University's unique partnership with the Academy of Natural Sciences, America's oldest natural history museum, provides students with access to expansive plant, animal, and insect collections curated by nationally and internationally renowned faculty who thrive on working with students both in courses and on co-ops. Working side by side with faculty permits students to engage in research on everything from microbes to dinosaurs and volcanoes to wetlands. Urban ecology, paleontology, geology, and many other avenues for exploration take students across Philadelphia and the globe. Field courses offer students the opportunity to engage in research from the New Jersey coast and the Poconos to Hawai'i, Ecuador, Costa Rica, Equatorial Guinea, and Mongolia.

The program has an integrated curricular approach designed around student laboratory and field investigations. The goal of this program is to give students not only knowledge about environmental science but also the ability to use the tools and skills of a scientist. Students are given extensive laboratory and field experience. Students are also encouraged to take advantage of study abroad (<http://www.drexel.edu/studyabroad/>) options, including ENVS field courses. These programs often require early planning, so it is advisable for interested students to speak to their advisor about opportunities in their first year.

Concentrations are available in:

- Ecology & Evolution
- Applied Environmental Science

Additional Information

For more information about the program, visit the Department of Biodiversity, Earth and Environmental Science's (<http://www.drexel.edu/coas/academics/departments-centers/bees/>) webpage.

Laurie G. Zinberg, M.A.
Senior Academic Advisor
College of Arts and Science
Email: lgz23@drexel.edu

Or email bees@drexel.edu.

Degree Requirements

The program is designed to prepare students for careers in environmental science, environmental assessment, marine science, basic and applied ecology, biodiversity, evolutionary biology, and conservation and paleontology. The requirements for specific concentrations in Applied Environmental Science and Ecology and Evolution, are listed in the degree requirements.

Degree Requirements

Humanities and Social Science		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COM 310 [WI]	Technical Communication	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
PHIL 340	Environmental Ethics	3.0
or PHIL 341	Environmental Philosophy	
Humanities/Social Science electives		6.0
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Mathematics, Statistics & Computing		12.0
Select one of the following sequences:		
Calculus sequence		
MATH 121	Calculus I	
MATH 122	Calculus II	
MATH 123	Calculus III	
Analysis sequence		
MATH 101	Introduction to Analysis I	
MATH 102	Introduction to Analysis II	
MATH 239	Mathematics for the Life Sciences	
Additional required math & computing courses:		
CS 150	Computer Science Principles	3.0
or CS 171	Computer Programming I	
MATH 410	Scientific Data Analysis I	3.0
MATH 411	Scientific Data Analysis II	3.0
Physical Sciences		
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
Choose two chemistry electives from:		5.0-7.0
CHEM 241	Organic Chemistry I	
ENVS 302	Environmental Chemistry Laboratory	
ENVS 310	Introduction to Environmental Chemistry	

Physics sequence

PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0

Biological Sciences

BIO 131	Cells and Biomolecules	4.0
BIO 132	Genetics and Evolution	4.0
BIO 133	Physiology and Ecology	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 135	Genetics and Evolution Lab	1.0
BIO 136	Anatomy and Ecology Lab	1.0

Geoscience Requirements

GEO 101	Physical Geology	4.0
GEO 201 [WI]	Earth Systems Processes	3.0

Environmental Science Core Requirements

ENVS 101	Introduction to Environmental Science	5.0
ENVS 102	Natural History, Research and Collections	2.0
ENVS 201	Practical Identification of Plants and Animals	2.0
ENVS 212	Evolution	4.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 308	GIS and Environmental Modeling	3.0
ENVS 441 [WI]	Issues in Global Change I: Seminar	2.0
ENVS 442	Issues in Global Change II: Research	2.0
ENVS 443	Issues in Global Change III: Synthesis	2.0

Choose one of the following: 3.0-4.0

ENSS 283	Introduction to Environmental Policy
ENSS 348	Delaware River Issues and Policy
PSCI 284	Environmental Politics

Environmental Science Lab Requirements

Select 2.0 credits from the list below: 2.0

BIO 222	Microbiology Laboratory
BIO 225	Vertebrate Biology and Evolution Laboratory
BIO 257	Vertebrate Morphology & Physiology Lab
ENVS 323	Tropical Field Studies
ENVS 327	Molecular Ecology Laboratory
ENVS 353	Field Ornithology Lab
ENVS 382	Field Botany of the New Jersey Pine Barrens
ENVS 383	Ecology of the New Jersey Pine Barrens
ENVS 387	Restoration Ecology
ENVS 388	Marine Field Methods
ENVS 394	Entomology Laboratory

Environmental Concentration Requirements

See list of concentration requirements below. 14.0-15.0

Environmental Electives **

Select 12.0 credits from the list below: 12.0

BIO 221	Microbiology
BIO 224	Form, Function & Evolution of Vertebrates
BIO 256	Vertebrate Morphology and Physiology
BIO 436	Population Genetics
GEO 205	Dinosaurs and Their World
GEO 207	Introduction to Oceanography
GEO 215	Mineralogy
GEO 301	Advanced Field Methods in Earth Science
GEO 306	Environmental Geology
GEO 309	Geochemistry
GEO 312	Sedimentology and Stratigraphy
GEO 320	Invertebrate Paleobiology and Paleocology
GEO 322	Vertebrate Paleontology
GEO 325	Structural Geology
GEO 342	Geomorphology
GEO 346	Coastal Geology

GEO 348	Oceanography
GEO 350	Volcanology
GEO 375	Field Camp
GEO 401	Igneous and Metamorphic Petrology
GEO 412	Geology of Groundwater
GEO 418	Geophysics
GEO 444	Plate Tectonics
ENSS 244	Sociology of the Environment
ENSS 283	Introduction to Environmental Policy
ENSS 285	Introduction to Urban Planning
ENSS 341	Environmental Movements in America
ENSS 346	Environmental Justice
ENSS 348	Delaware River Issues and Policy
ENVS 247	Native Plants and Sustainability
ENVS 275	The Science of Climate Change
ENVS 289	Global Warming, Biodiversity and Your Future
ENVS 304	Energy and the Environment: Iceland
ENVS 312	Systematic Biology
ENVS 315	Plant Animal Interactions
ENVS 322	Tropical Ecology
ENVS 326	Molecular Ecology
ENVS 328	Conservation Biology
ENVS 330	Aquatic Ecology
ENVS 333	Wetland Ecology
ENVS 335	Aquatic Insects and Water Quality
ENVS 352	Ornithology
ENVS 354	Ichthyology
ENVS 355	Biogeography
ENVS 362	Urban Ecology
ENVS 364	Animal Behavior
ENVS 372	Environmental Assessment
ENVS 376	Environmental and Ecological Remediation
ENVS 382	Field Botany of the New Jersey Pine Barrens
ENVS 383	Ecology of the New Jersey Pine Barrens
ENVS 385	Systems Ecology
ENVS 387	Restoration Ecology
ENVS 388	Marine Field Methods
ENVS 390	Marine Ecology
ENVS 391	Freshwater and Marine Algae
ENVS 393	Entomology
ENVS 401	Chemistry of the Environment
ENVS 405	Atmospheric Chemistry
ENVS 410	Physiological Ecology
ENVS 415	Advanced Environmental GIS
ENVS 418	Coastal Biogeochemistry
ENVS 438	Biodiversity
ENVS 470	Advanced Topics in Evolution

Free Electives

Select any unrestricted 100-499 courses 24.0

Total Credits 183.5-187.5

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Students not participating in co-op will not take COOP 101; 1.0 credit of Free Elective will be added in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Up to two GEO or ENSS courses may count as ENVS electives.

Environmental Science Concentrations

Ecology & Evolution Concentration		
Select 5 from the list below:		14.0-15.0
ENVS 202	Tree of Life	
ENVS 312	Systematic Biology	
ENVS 328	Conservation Biology	
ENVS 470	Advanced Topics in Evolution	
BIO 244	Genetics I	
BIO 436	Population Genetics	
Total Credits		14.0-15.0

Applied Environmental Science Concentration		
Required Courses		
ENVS 203	The Watershed Approach	2.0
ENVS 275	The Science of Climate Change	3.0
ENVS 372	Environmental Assessment	3.0
Select 2 from the list below:		6.0-7.0
ENVS 376	Environmental and Ecological Remediation	
ENVS 401	Chemistry of the Environment	
GEO 306	Environmental Geology	
Total Credits		14.0-15.0

Notes about Environmental Science opportunities:

- Field experience electives include quantitative environmental measurements in local aquatic and terrestrial habitats, such as streams, lakes, the Delaware Bay, the Poconos, and the New Jersey Pine Barrens (for example, Field Botany: NJ Pine Barrens; Ecology of the Pine Barrens; Marine Field Methods).
- Students are required to consult frequently with their academic advisors for curriculum planning. Many of the graduate courses in environmental science are also open to qualified seniors who wish to become familiar with some of the applications in the field. Prerequisites and descriptions of available graduate courses appear in the graduate catalog.
- The Equatorial Guinea: Bioko Island Study Abroad Program offers a unique opportunity for undergraduates and recent graduates to study tropical biodiversity and its conservation, with an emphasis on field work that takes advantage of Bioko Island's pristine rainforests ranging from sea level to over 10,000 feet in altitude, its seven species of rare monkeys, and its four species of nesting sea turtles. For more information, please visit the Drexel Study Abroad Office (<http://www.drexel.edu/studyabroad/>).

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing

Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

The plan of study below is a generic plan, suited for all four concentrations. Contact the program advisor for additional details.

4 Year, No co-op

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CHEM 101	3.5	BIO 132	4.0	BIO 133	4.0	VACATION	
ENGL 101 or 111	3.0	BIO 135	1.0	BIO 136	1.0		
ENVS 101	5.0	CHEM 102	4.5	CHEM 103	4.5		
MATH 101 or 121	4.0	CIVC 101	1.0	ENGL 103 or 113	3.0		
UNIV S101	1.0	ENGL 102 or 112	3.0	MATH 239 or 123	4.0		
		MATH 102 or 122	4.0				
16.5		17.5		16.5		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	ENVS 286	3.0	ENVS 212	4.0	VACATION	
BIO 134	1.0	ENVS 308	3.0	GEO 101	4.0		
CS 150 or 171	3.0	GEO 201	3.0	PHYS 152	4.0		
ENVS 102	2.0	Concentration Course	3.0	Concentration Course	2.0-3.0		
ENVS 201	2.0	Free Elective	4.0				
ENVS 284	3.0						
15		16		14-15		0	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
MATH 410	3.0	ENSS 283, 348, or PSCI 284	3.0-4.0	COM 230	3.0	VACATION	
CHEM Elective	3.0-4.0	MATH 411	3.0	PHYS 154	4.0		
Concentration Course	3.0	PHYS 153	4.0	Concentration Course	3.0		
ENVS Elective	3.0	UNIV S201	1.0	Humanities/ Social Science Elective	3.0		
Free Elective	3.0	CHEM Elective	2.0-3.0	Free Elective	3.0		
15-16		13-15		16		0	
Fourth Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM 310	3.0	ENVS 442	2.0	ENVS 443	2.0		
ENVS 441	2.0	Environment Science (ENVS) Elective	3.0	Environment Science (ENVS) Electives	6.0		

PHIL 340 or 341	3.0 Humanities/ Social Science Elective	3.0 Environmental Science (ENVS) Lab Elective	2.0
Concentration Course	3.0 Free Electives	6.0 Free Electives	6.0
Free Elective	3.0		
	14	14	16
Total Credits 183.5-187.5			

4 Year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 BIO 132	4.0 BIO 133	4.0 VACATION	
ENGL 101 or 111	3.0 BIO 135	1.0 BIO 136	1.0	
ENVS 101	5.0 CHEM 102	4.5 CHEM 103	4.5	
MATH 101 or 121	4.0 CIVC 101	1.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 MATH 239 or 123	4.0	
	MATH 102 or 122	4.0		
	16.5	17.5	16.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 ENVS 286	3.0 ENVS 212	4.0 COM 230	3.0
BIO 134	1.0 ENVS 308	3.0 GEO 101	4.0 COOP 101*	1.0
CS 150 or 171	3.0 GEO 201	3.0 PHYS 152	4.0 PHYS 153	4.0
ENVS 102	2.0 UNIV S201	1.0 Concentration Course	2.0-3.0 ENVS Elective	3.0
ENVS 201	2.0 Concentration Course	3.0	Free Elective	3.0
ENVS 284	3.0 Free Elective	3.0		
	15	16	14-15	14
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 410	3.0 ENSS 283, 348, or PSCI 284	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PHYS 154	4.0 MATH 411	3.0		
Concentration Course	3.0 Concentration Course	3.0		
CHEM Elective	3.0-4.0 CHEM Elective	2.0-3.0		
Humanities/ Social Science Elective	3.0 Free Elective	3.0		
	16-17	14-16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 310	3.0 ENVS 442	2.0 ENVS 443	2.0	
ENVS 441	2.0 Environmen Science (ENVS) Elective	3.0 Environmen Science (ENVS) Electives	6.0	
PHIL 340 or 341	3.0 Humanities/ Social Science Elective	3.0 Environmental Science (ENVS) Lab Elective	2.0	

Concentration Course	3.0 Free Electives	6.0 Free Electives	6.0
Free Elective	3.0		
	14	14	16
Total Credits 183.5-187.5			

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Students not participating in co-op will take an extra Free Elective credit in place of COOP 101

5 Year, 3 Co-ops

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 BIO 132	4.0 BIO 133	4.0 VACATION	
ENGL 101 or 111	3.0 BIO 135	1.0 BIO 136	1.0	
ENVS 101	5.0 CHEM 102	4.5 CHEM 103	4.5	
MATH 101 or 121	4.0 CIVC 101	1.0 COOP 101*	1.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
	MATH 102 or 122	4.0 MATH 239 or 123	4.0	
	16.5	17.5	17.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 ENVS 286	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
BIO 134	1.0 ENVS 308	3.0		
CS 150 or 171	3.0 GEO 201	3.0		
ENVS 102	2.0 Concentration Course	3.0		
ENVS 201	2.0 Free Elective	3.0		
ENVS 284	3.0			
	15	15	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENVS 212	4.0 COM 230	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
GEO 101	4.0 PHYS 153	4.0		
PHYS 152	4.0 UNIV S201	1.0		
Concentration Course	2.0-3.0 ENVS Elective	3.0		
	Free Elective	3.0		
	14-15	14	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 410	3.0 ENSS 283, 348, or PSCI 284	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PHYS 154	4.0 MATH 411	3.0		
Concentration Course	3.0 Concentration Course	3.0		

CHEM Elective	3.0-4.0 CHEM Elective	2.0-3.0	
Humanities/Social Science Elective	3.0 Free Elective	3.0	
	16-17	14-16	0
Fifth Year			0
Fall	Credits Winter	Credits Spring	Credits
COM 310	3.0 ENVS 442	2.0 ENVS 443	2.0
ENVS 441	2.0 Environmental Science (ENVS) Elective	3.0 Environmental Science (ENVS) Electives	6.0
PHIL 340 or 341	3.0 Humanities/Social Science Elective	3.0 Environmental Science (ENVS) Lab Elective	2.0
Concentration Course	3.0 Free Electives	6.0 Free Electives	6.0
Free Elective	3.0		
	14	14	16

Total Credits 183.5-187.5

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Students not participating in co-op will take an extra Free Elective credit in place of COOP 101

Co-op/Career Opportunities

Environmental scientists pursue careers in environmental assessment, environmental health, ecology, conservation, marine science, and atmospheric science.

Through Drexel's renowned cooperative education program, students embark on up to three, six-month periods of full-time employment, exploring their career options, strengthening their resumes and building a professional network in the process. BEES students have experienced co-op positions at the Philadelphia Zoo, GEI Consultants, Inc., State of NJ Department of Environmental Protection, Food & Water Watch, and more.

Co-op and research opportunities will be available with the scientists at the Academy of Natural Sciences (<http://www.ansp.org/>). In addition, recent co-op experiences have included:

CHPlanning, Center City Philadelphia
Lakes Environmental Assn., Maine
US Environmental Protection Agency, Center City Philadelphia
Criterion Lab Inc, Philadelphia, PA Suburbs
Philadelphia Water Department, Philadelphia
Temple University, Philadelphia
Fairway Testing Co., NYC
University of Alaska, Fairbanks, Alaska
Bioko Biodiversity Protection Program, Equatorial Guinea
React Environmental Professional Services Group Inc., Philadelphia
Air Management Services, Philadelphia
Exelon Corporation, Philadelphia

Philadelphia Zoo, Philadelphia
GEI Consultants, Inc., Mt. Laurel, NJ
State of NJ Department of Environmental Protection
Food & Water Watch, Washington, D.C.

Graduate Opportunities

Graduates in this major typically work for government environmental agencies, in environmental consulting firms, and in environmental departments of various industries. Additional training at the graduate level is an option for many students.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Program Level Outcomes

- Attain a functional knowledge of general biodiversity, earth, and environmental sciences.
- Understand and be able to perform laboratory and field techniques relevant to modern biodiversity, earth, and environmental sciences.
- Critically read and analyze their own work and the biodiversity, earth, and environmental science literature with respect to global impact and experimental design.
- Communicate science effectively.
- Demonstrate an understanding of how to conduct science in an ethical manner.
- Be prepared effectively for a career and/or future schooling in environmental science or related fields.

Environmental Science Faculty

Walter F. Bien, PhD (*Drexel University*) *Director, Laboratory of Pinelands Research*. Research Professor. Natural resource management, restoration ecology, conservation biology, and New Jersey Pinelands community dynamics.

Elizabeth Burke Watson, PhD (*University of California, Berkeley*). Assistant Professor. The implications of global and regional environmental change, and unraveling the interacting effects of multiple anthropogenic stressors on coastal ecosystems to promote more informed management, conservation, and restoration.

Donald F. Charles, PhD (*Indiana University*) *Senior Scientist and Section Leader, Phycology Section, Academy of Natural Sciences*. Professor. Diatoms as water quality indicators; paleolimnological approaches for inferring change in biology and chemistry of lakes; lake management; assessment of perturbations in aquatic ecosystems due to municipal and industrial effluents, land-use change, acid deposition, eutrophication and climate change.

Carol Collier, FAICP, MRP (*University of Pennsylvania*) *Sr. Advisor, Watershed Management and Policy at the Academy of Natural Sciences; Director, Environmental Studies and Sustainability Program*. Water resources management, environmental planning, climate change policy, the intersection of science, policy and decision making.

Ted Daeschler, PhD (*University of Pennsylvania*) *Associate Curator of Vertebrate Zoology; Vice President for Systematic Biology and the Library: Academy of Natural Sciences*. Associate Professor. Vertebrate fauna of the Late Devonian Period in eastern North America; fossil

collecting; systematic work focusing on freshwater vertebrates; nature of early non-marine ecosystems.

Daniel P. Duran, PhD (*Vanderbilt University*). Assistant Teaching Professor. Phylogeography, systematics and taxonomy, population and conservation genetics, ecological niche modeling, focusing on insect systems to better understand fundamental evolutionary processes and maintain biodiversity.

Jon Gelhaus, PhD (*University of Kansas*) *Curator, Department of Entomology: Academy of Natural Sciences*. Professor. Systematic expertise in crane flies (Tipulidae); phylogenetic reconstruction; historical and ecological biogeography; biodiversity measures and evolution of morphological character systems.

Richard J. Horwitz, PhD (*University of Chicago*) *Senior Scientist; Fisheries Section Leader; Ruth Patrick Chair of Environmental Sciences*. Associate Professor. Reproductive ecology, life history and distribution of freshwater fishes; effects of land use, habitat structure and hydrology on population dynamics and species composition in aquatic systems; ecological modeling and biometry; anthropogenic contaminants in fishes.

Susan S. Kilham, PhD (*Duke University*). Professor. Aquatic ecology: phytoplankton; physiological ecology, especially of diatoms in freshwater and marine systems; large lakes; food webs; biogeochemistry.

Danielle Kreeger, PhD (*Oregon State University*). Research Associate Professor. Trophic interactions in aquatic ecosystems.

Tatyana Livshultz, PhD (*Cornell University*) *Assistant Curator of Botany*. Assistant Professor. Expertise of the milkweed and dogbane family (Apocynaceae); evolution and species diversity of the genus *Dischidia*; differences in floral form and function.

Richard McCourt, PhD (*University of Arizona*) *Associate Curator of Botany, Academy of Natural Sciences of Drexel University; 2010-2012: Program Director, Division of Graduate Education, National Science Foundation*. Professor. Biodiversity, evolution, ecology, and systematic of green algae, specifically charophyte algae.

Michael O'Connor, MD, PhD (MD, *Johns Hopkins University; PhD, Colorado State*). Associate Professor. Biophysical and physiological ecology, thermoregulation of vertebrates, ecological modeling.

Sean O'Donnell, PhD (*University of Wisconsin-Madison*). Professor. Tropical ecology, focusing on geographic variation and elevation effects on ecology and behavior of army ants and ant-bird interactions; neurobiology, focusing on brain plasticity and brain evolution in social insects.

Marina Potapova, PhD (*Russian Academy of Sciences*) *Assistant Curator*. Assistant Professor. Taxonomy, ecology, and biogeography of freshwater diatoms; methods of quantifying morphological characters of diatom frustules based on geometric morphometrics; systematic of monoraphid freshwater diatoms.

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Ron Smith, MS (*Rutgers University*). Instructor. Shorebird Ecology and Conservation; Amphibians of the NJ Pine Barrens; Restoration Ecology; Climate Change – Regional Effects and Education

James R. Spotila, PhD (*University of Arkansas*) *L. D. Betz Chair Professor*. Professor. Physiological and biophysical ecology, thermoregulation of aquatic vertebrates, biology of sea turtles.

Loyc Vanderkluysen, PhD (*University of Hawaii*). Assistant Professor. The cyclicity of volcanic eruptions, volcanic degassing processes, and large igneous provinces.

David J. Velinsky, PhD (*Old Dominion University*) *Department Head, Biodiversity, Earth and Environmental Science*. Professor. Geochemical cycling of organic and inorganic constituents of sediments and waters; Sedimentary diagenesis of major and minor elements; Isotope biogeochemistry of carbon, nitrogen and sulfur in marine and freshwater systems.

Jason Weckstein, PhD (*Louisiana State University*) *Associate Curator of Ornithology*. Associate Professor. Avian phylogenetics, comparative biology and evolutionary history; biodiversity surveys of birds and their parasites and pathogens; coevolutionary history of birds and their parasites.

Emeritus Faculty

John G. Lundberg, PhD (*University of Michigan*). Professor Emeritus. Diversity and diversification of fishes; documenting and interpreting the morphological, molecular, and taxonomic diversity of living and fossil fishes in the interrelated fields of systematic, faunistics and biogeography and paleobiology; exploration and collecting in poorly-known tropical freshwater habitats and regions.

Daniel Otte, PhD (*University of Michigan*) *Senior Curator, Systematics and Evolutionary Biology*. Professor Emeritus. Taxonomy and biogeography of Orthoptera (grasshoppers, crickets, katydids and their relatives).

Environmental Studies and Sustainability BA

Major: Environmental Studies and Sustainability

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 183.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 03.0103

Standard Occupational Classification (SOC) code: 19-2041

About the Program

The Bachelor of Arts in Environmental Studies and Sustainability (ENSS) is for students who want to address contemporary environmental issues from a perspective that foregrounds the social sciences and humanities. ENSS students learn from nationally and internationally acclaimed scholars in environmental politics, environmental sociology, environmental philosophy, global studies, and science and technology studies. As contributors to faculty-led, policy-relevant research projects, they engage with decision-makers, environmental advocates, and grassroots groups working to protect people and ecosystems from environmental hazards.

Housed in the Department of Biodiversity, Earth and Environmental Science (BEES), the B.A. in Environmental Studies and Sustainability equips students with the foundational scientific understandings necessary to communicate persuasively about environmental issues and promote

evidence-based environmental policies. ENSS students graduate as interdisciplinary thinkers, capable of translating across scientific, humanistic, and policy realms, and building diverse coalitions.

Additional Information

For more information about the program, visit the Department of Biodiversity, Earth and Environmental Science's (<http://www.drexel.edu/coas/academics/departments-centers/bees/>) webpage, or contact

Gwen Ottinger, Ph.D.
Director, B.A. in Environmental Studies and Sustainability
Professor, Politics and BEES
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Florette Press
Senior Academic Advisor
College of Arts and Sciences
Email: [f \(lgz23@drexel.edu\)lp24@drexel.edu](mailto:f (lgz23@drexel.edu)lp24@drexel.edu) (flp24@drexel.edu)

Degree Requirements

General Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
MATH 101	Introduction to Analysis I	4.0
MATH 107	Probability and Statistics for Liberal Arts	3.0
UNIV S101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

Social Science and Humanities Core

COM 317 [WJ]	Environmental Communication	3.0
or COM 320	Science Writing	
ENSS 120	Introduction to Environmental Studies	3.0
ENSS 244	Sociology of the Environment	4.0
ENSS 283	Introduction to Environmental Policy	3.0
ENSS 346	Environmental Justice	4.0
ENSS 356	Aspects of Environmental Justice	3.0
ENVS 260	Environmental Science and Society	3.0
GST 261	Introduction to Global Health and Sustainability	4.0
PHIL 340	Environmental Ethics	3.0
or PHIL 341	Environmental Philosophy	
PSCI 110	American Government	4.0
PSCI 284	Environmental Politics	4.0
PSCI 338	Cities and Climate Change	3.0
PSCI 371	Science, Technology, & Public Policy	4.0
SOC 101	Introduction to Sociology	3.0
or ANTH 101	Introduction to Cultural Diversity	
or GST 100	Introduction to Cultural Diversity	

Physical and Natural Sciences Core

BIO 109	Biological Diversity, Ecology & Evolution	3.0
BIO 110	Biological Diversity, Ecology and Evolution Laboratory	1.0
BIO 114	Climate Change and Human Health	3.0
CS 150	Computer Science Principles	3.0
or CS 171	Computer Programming I	
ENSS 275	Global Climate Change	3.0
or ENVS 289	Global Warming, Biodiversity and Your Future	

ENVS 101	Introduction to Environmental Science	5.0
ENVS 230	General Ecology	3.0
ENVS 308	GIS and Environmental Modeling	3.0
GEO 201 [WJ]	Earth Systems Processes	3.0

Social Science and Humanities Electives

Select at minimum of 30.0 credits from the list below: 30.0

COM 375 [WJ]	Grant Writing	
COM 376	Nonprofit Communication	
COM 377	Communication for Civic Engagement	
ECON 201	Principles of Microeconomics	
ECON 202	Principles of Macroeconomics	
ECON 301	Microeconomics	
ECON 334	Public Finance	
ECON 351	Resource and Environmental Economics	
ENGL 302	Environmental Literature	
ENSS 285	Introduction to Urban Planning	
ENTP 260	Curiosity, Ecology, Empathy & Ethic	
ENTP 375	3BL - Triple Bottom Line	
ENTP 390	Energy Entrepreneurship	
ENTP 445	GreenStart: Applying Entrepreneurship to Cultivate Sustainable Solutions	
FASH 200	Sustainable Practice in Fashion	
HIST 302	The Study of Science, Technology, and Environment in History	
MGMT 371	Nonprofit Business Consulting	
PBHL 314	Environmental and Occupational Health	
PBHL 317	The World's Water	
PBHL 319	Nature Prescription: Trees, Green Space, and Your Health	
PBHL 350	Introduction to Urban Health	
PBHL 362	Global Air Pollution and Health	
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations	
PSCI 229	Theories of Justice	
PSCI 305	Social Development: A Global Approach	
PSCI 334	Politics of Environment and Health	
PSCI 369	The Politics of Food	
PSCI 373	Animal Politics	
PSY 352	Psychology of Sustainability	
SCTS 101	Introduction to Science, Technology, and Society	
SCTS 208	Energy and Society	
SOC 241	Research Design: Qualitative Methods	
SOC 242	Research Design: Quantitative Methods	
SOC 278	Global Climate Change and Society	
SOC 313	Sociology of Global Health	
SOC 330	Development and Underdevelopment in the Global South	
SOC 339	Sociology of the Countryside	
SOC 340	Globalization	
SOC 342	Global Environmental Movements	
SOC 348	Plastics in Society	
SOC 355 [WJ]	Classical Social Theory	
SOC 356 [WJ]	Contemporary Social Theory	

Physical and Natural Science Electives

Select a minimum of 15.0 credits from the list below: 15.0

CHE 381	Solutions to Climate Change	
ENSS 348	Delaware River Issues and Policy	
ENVS 286	Community and Ecosystem Ecology	
ENVS 304	Energy and the Environment: Iceland	
ENVS 310	Introduction to Environmental Chemistry	
ENVS 323	Tropical Field Studies	
ENVS 328	Conservation Biology	
ENVS 330	Aquatic Ecology	
ENVS 333	Wetland Ecology	
ENVS 355	Biogeography	

ENVS 362	Urban Ecology	
ENVS 372	Environmental Assessment	
ENVS 376	Environmental and Ecological Remediation	
ENVS 383	Ecology of the New Jersey Pine Barrens	
ENVS 387	Restoration Ecology	
ENVS 390	Marine Ecology	
ENVS 401	Chemistry of the Environment	
ENVS 438	Biodiversity	
GEO 111	Natural Disasters	
GEO 207	Introduction to Oceanography	
GEO 306	Environmental Geology	
PHEV 145	Weather I: Climate and Global Change	
Senior Sequence		
ENVS 441 [WI]	Issues in Global Change I: Seminar	2.0
ENVS 442	Issues in Global Change II: Research	2.0
ENVS 443	Issues in Global Change III: Synthesis	2.0
Free Electives		37.0
Total Credits		183.0

*

Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

5 year, 3 co-op

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101	3.0	BIO 109	3.0	BIO 114	3.0	VACATION	
ENSS 120	3.0	BIO 110	1.0	COOP 101*	1.0		
ENVS 101	5.0	CIVC 101	1.0	ENGL 103	3.0		
MATH 101	4.0	ENGL 102	3.0	ENVS 260	3.0		

UNIV S101	1.0	SOC 101, GST 100, or ANTH 101	3.0	MATH 107	3.0		
		PSCI 110	4.0	Free Elective	3.0		
16		15		16		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
CS 150 or 171	3.0	ENSS 244	4.0	COOP EXPERIENCE	COOP EXPERIENCE		
ENSS 283	3.0	ENVS 230	3.0				
GST 261	4.0	ENVS 308	3.0				
Social Science/ Humanities Elective	3.0	Social Science/ Humanities Elective	3.0				
Free Elective	4.0	Free Elective	3.0				
17		16		0		0	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM 317 or 320	3.0	ENSS 356	3.0	COOP EXPERIENCE	COOP EXPERIENCE		
ENSS 346	4.0	GEO 201	3.0				
UNIV H201	1.0	PSCI 284	4.0				
Natural Science Elective	3.0	Natural Science Elective	3.0				
Social Science/ Humanities Elective	3.0	Social Science/ Humanities Elective	3.0				
14		16		0		0	
Fourth Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
PHIL 340 or 341	3.0	Natural Science Elective	3.0	COOP EXPERIENCE	COOP EXPERIENCE		
PSCI 371	4.0	Social Science/ Humanities Electives	6.0				
Natural Science Elective	3.0	Free Electives	6.0				
Free Elective	4.0						
14		15		0		0	
Fifth Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENVS 441	2.0	ENVS 442	2.0	ENSS 275 or ENVS 289	3.0		
Natural Science Elective	3.0	Social Science/ Humanities Electives	6.0	ENVS 443	2.0		
Social Science/ Humanities Elective	3.0	Free Electives	7.0	PSCI 338	3.0		
Free Elective	7.0			Social Science/ Humanities Elective	3.0		

	Free Electives	3.0
15	15	14
Total Credits 183		

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Students not participating in co-op will take an extra Free Elective credit in place of COOP 101

4 year, No co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101	3.0 BIO 109	3.0 BIO 114	3.0 VACATION	
ENSS 120	3.0 BIO 110	1.0 ENGL 103	3.0	
ENVS 101	5.0 CIVC 101	1.0 ENVS 260	3.0	
MATH 101	4.0 ENGL 102	3.0 MATH 107	3.0	
UNIV S101	1.0 PSCI 110	4.0 Free Elective	4.0	
	SOC 101, GST 100, or ANTH 101	3.0		
16	15	16	0	

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 171	3.0 ENSS 244	4.0 Social Science/ Humanities Electives	6.0 VACATION	
ENSS 283	3.0 ENVS 230	3.0 Free Electives	9.0	
GST 261	4.0 ENVS 308	3.0		
Social Science/ Humanities Elective	3.0 Social Science/ Humanities Elective	3.0		
Free Elective	4.0 Free Elective	3.0		
17	16	15	0	

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 317 or 320	3.0 ENSS 356	3.0 Social Science/ Humanities Elective	3.0 VACATION	
ENSS 346	4.0 GEO 201	3.0 Natural Science Elective	3.0	
UNIV H201	1.0 PSCI 284	4.0 Free Electives	9.0	
Natural Science Elective	3.0 Natural Science Elective	3.0		
Social Science/ Humanities Elective	3.0 Social Science/ Humanities Elective	3.0		
14	16	15	0	

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
ENVS 441	2.0 ENVS 442	2.0 ENSS 275 or ENVS 289	3.0
PHIL 340 or 341	3.0 Natural Science Elective	3.0 ENVS 443	2.0
PSCI 371	4.0 Social Science/ Humanities Electives	6.0 PSCI 338	3.0
Natural Science Elective	3.0 Free Elective	3.0 Social Science/ Humanities Elective	3.0
Free Elective	3.0	Free Elective	3.0
15	14	14	

Total Credits 183

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101	3.0 BIO 109	3.0 BIO 114	3.0 VACATION	
ENSS 120	3.0 BIO 110	1.0 ENGL 103	3.0	
ENVS 101	5.0 CIVC 101	1.0 ENVS 260	3.0	
MATH 101	4.0 ENGL 102	3.0 MATH 107	3.0	
UNIV S101	1.0 PSCI 110	4.0 Free Elective	3.0	
	SOC 101, GST 100, or ANTH 101	3.0		
16	15	15	0	

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 171	3.0 ENSS 244	4.0 Social Science/ Humanities Elective	3.0 COOP 101*	1.0
ENSS 283	3.0 ENVS 230	3.0 Natural Science Elective	3.0 Social Science/ Humanities Electives	6.0
GST 261	4.0 ENVS 308	3.0 Free Electives	9.0 Free Electives	9.0
Social Science/ Humanities Elective	3.0 Social Science/ Humanities Elective	3.0		
Free Elective	4.0 Free Elective	3.0		
17	16	15	16	

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 317 or 320	3.0 ENSS 356	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
ENSS 346	4.0 GEO 201	3.0		
UNIV H201	1.0 PSCI 284	4.0		
Natural Science Elective	3.0 Natural Science Elective	3.0		

Social Science/ Humanities Elective	3.0 Social Science/ Humanities Elective	3.0		
	14	16	0	0
Fourth Year				
Fall	Credits	Winter	Credits	Spring
ENVS 441	2.0	ENVS 442	2.0	ENSS 275 or ENVS 289
PHIL 340 or 341	3.0	Natural Science Elective	3.0	ENVS 443
PSCI 371	4.0	Social Science/ Humanities Electives	6.0	PSCI 338
Natural Science Elective	3.0	Free Elective	3.0	Social Science/ Humanities Elective
Free Elective	3.0		3.0	Free Elective
	15		14	14
Total Credits 183				

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Career Opportunities

Environmental Studies and Sustainability majors find work in a variety of sectors, including governmental agencies, non-profits, NGOs, consulting and assessment firms, and corporate sustainability offices. They work in fields such as environmental education, environmental communication and journalism, urban planning, conservation, community organizing, ecotourism, renewable energy, climate mitigation and adaptation, and environmental policy. ENSS majors are well prepared to pursue graduate study in social science and humanities disciplines (e.g., sociology, geography, philosophy) and interdisciplinary environmental programs, or to pursue professional degrees in fields such as planning, policy, law, and environmental health.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate an understanding of key environmental issues facing our planet: including global climate change; air, soil and water quality; human, plant and animal ecosystems; and sustainable land use, transportation, food-agricultural systems
- Distinguish larger, complex societal forces, including social, political and economic systems that affect environmental trends and policy responses to environmental problems
- Apply the skills and methods in social and environmental and research. These include basic scientific method in ecological and earth sciences; as well as the social sciences, including, public policy; economics, politics; law; sociology; communications; and

anthropology. Skills should include primary and secondary data collection, analysis, interpretation and the policy implications of data

- Communicate effectively, both orally and in writing, while demonstrating basic knowledge of information technology as applied to environmental research and practice
- Competently apply both the legal and professional standards that govern proper behavior and ethical responsibility in environmental employment settings
- Demonstrate a sensitivity to racial, ethnic, cultural, and gender diversity in our society at large and in the area of environmental justice specifically
- Identify, formulate, and solve problems both individually as well as part of group focused on specific problems or issues

Environmental Studies and Sustainability Faculty

Walter F. Bien, PhD (*Drexel University*) *Director, Laboratory of Pinelands Research*. Research Professor. Natural resource management, restoration ecology, conservation biology, and New Jersey Pinelands community dynamics.

Elizabeth Burke Watson, PhD (*University of California, Berkeley*). Assistant Professor. The implications of global and regional environmental change, and unraveling the interacting effects of multiple anthropogenic stressors on coastal ecosystems to promote more informed management, conservation, and restoration.

Donald F. Charles, PhD (*Indiana University*) *Senior Scientist and Section Leader, Phycology Section, Academy of Natural Sciences*. Professor. Diatoms as water quality indicators; paleolimnological approaches for inferring change in biology and chemistry of lakes; lake management; assessment of perturbations in aquatic ecosystems due to municipal and industrial effluents, land-use change, acid deposition, eutrophication and climate change.

Carol Collier, FAICP, MRP (*University of Pennsylvania*) *Sr. Advisor, Watershed Management and Policy at the Academy of Natural Sciences; Director, Environmental Studies and Sustainability Program*. Water resources management, environmental planning, climate change policy, the intersection of science, policy and decision making.

Ted Daeschler, PhD (*University of Pennsylvania*) *Associate Curator of Vertebrate Zoology; Vice President for Systematic Biology and the Library: Academy of Natural Sciences*. Associate Professor. Vertebrate fauna of the Late Devonian Period in eastern North America; fossil collecting; systematic work focusing on freshwater vertebrates; nature of early non-marine ecosystems.

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Jon Gelhaus, PhD (*University of Kansas*) *Curator, Department of Entomology: Academy of Natural Sciences*. Professor. Systematic expertise in crane flies (Tipulidae); phylogenetic reconstruction; historical and ecological biogeography; biodiversity measures and evolution of morphological character systems.

Richard J. Horwitz, PhD (*University of Chicago*) *Senior Scientist; Fisheries Section Leader; Ruth Patrick Chair of Environmental Sciences*. Associate

Professor. Reproductive ecology, life history and distribution of freshwater fishes; effects of land use, habitat structure and hydrology on population dynamics and species composition in aquatic systems; ecological modeling and biometry; anthropogenic contaminants in fishes.

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Danielle Kreeger, PhD (*Oregon State University*). Research Associate Professor. Trophic interactions in aquatic ecosystems.

Tatyana Livshultz, PhD (*Cornell University*) *Assistant Curator of Botany*. Assistant Professor. Expertise of the milkweed and dogbane family (Apocynaceae); evolution and species diversity of the genus *Dischidia*; differences in floral form and function.

Richard McCourt, PhD (*University of Arizona*) *Associate Curator of Botany, Academy of Natural Sciences of Drexel University; 2010-2012: Program Director, Division of Graduate Education, National Science Foundation*. Professor. Biodiversity, evolution, ecology, and systematic of green algae, specifically charophyte algae.

Michael O'Connor, MD, PhD (*MD, Johns Hopkins University; PhD, Colorado State*). Associate Professor. Biophysical and physiological ecology, thermoregulation of vertebrates, ecological modeling.

Sean O'Donnell, PhD (*University of Wisconsin-Madison*). Professor. Tropical ecology, focusing on geographic variation and elevation effects on ecology and behavior of army ants and ant-bird interactions; neurobiology, focusing on brain plasticity and brain evolution in social insects.

Marina Potapova, PhD (*Russian Academy of Sciences*) *Assistant Curator*. Assistant Professor. Taxonomy, ecology, and biogeography of freshwater diatoms; methods of quantifying morphological characters of diatom frustules based on geometric morphometrics; systematic of monoraphid freshwater diatoms.

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Jacob Russell, PhD (*University of Arizona*). Associate Professor. Microbiomes and metagenomics; ecology and evolution of symbiosis.

Ron Smith, MS (*Rutgers University*). Instructor. Shorebird Ecology and Conservation; Amphibians of the NJ Pine Barrens; Restoration Ecology; Climate Change – Regional Effects and Education

James R. Spotila, PhD (*University of Arkansas*) *L. D. Betz Chair Professor*. Professor. Physiological and biophysical ecology, thermoregulation of aquatic vertebrates, biology of sea turtles.

Loyc Vanderkluysen, PhD (*University of Hawaii*). Assistant Professor. The cyclicity of volcanic eruptions, volcanic degassing processes, and large igneous provinces.

Jason Weckstein, PhD (*Louisiana State University*) *Associate Curator of Ornithology*. Associate Professor. Avian phylogenetics, comparative biology and evolutionary history; biodiversity surveys of birds and their parasites and pathogens; coevolutionary history of birds and their parasites.

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John G. Lundberg, PhD (*University of Michigan*). Professor Emeritus. Diversity and diversification of fishes; documenting and interpreting the morphological, molecular, and taxonomic diversity of living and fossil fishes in the interrelated fields of systematic, faunistics and biogeography and paleobiology; exploration and collecting in poorly-known tropical freshwater habitats and regions.

Daniel Otte, PhD (*University of Michigan*) *Senior Curator, Systematics and Evolutionary Biology*. Professor Emeritus. Taxonomy and biogeography of Orthoptera (grasshoppers, crickets, katydids and their relatives).

Global Studies BA

Major: Global Studies

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No

Co-op (Four years)

Classification of Instructional Programs (CIP) code: 30.2001

Standard Occupational Classification (SOC) code: 19-3094

About the Program

Global Studies practices socially-responsible global citizenship through a unique combination of research-oriented and multilingual instruction, professional experience, and meaningful engagement with communities both here in Philadelphia and abroad. Global Studies teaches students to see the world differently as they learn essential skills needed to understand the impact of global political, social, economic and environmental dynamics. This experiential, interdisciplinary and language-based major immerses students in issues and emerging movements such as clean energy, climate action, economic growth, health equity, international relations and other challenges.

Global Studies majors may choose from one of four different degree concentrations (<https://drexel.edu/coas/academics/undergraduate-programs/global-studies/#concentrations>); Global Justice & Human Rights; Global Business, Economics and Development; Global Health and Sustainability; Global Media, Arts & Culture, a required language or regional studies minor (<https://drexel.edu/coas/academics/undergraduate-programs/global-studies/#minor>), and optional courses and certificates (<https://drexel.edu/coas/academics/undergraduate-programs/global-studies/#optional>) specially designed to deepen their knowledge and to prepare them to pursue careers (<https://drexel.edu/coas/academics/undergraduate-programs/global-studies/#careers>) across sectors: business, economics, law, policy, public health and media as well as in non-profit, government and international organizations. Students may also choose not to select a concentration when pairing Global Studies as a second major.

Our students experience Global Studies by:

- Examining the movement of peoples, goods, and cultures across countries and regions
- Studying global issues in concrete socio-economic, cultural, and geographical contexts
- Tackling structural inequalities from a variety of perspectives and disciplines

- Developing intercultural and language skills through unique pedagogical models
- Working with employers and communities in Philadelphia and around the world through Drexel's Co-Op opportunities

Drexel Co-op for Global Studies Students

Drexel's Global Studies co-op (<https://drexel.edu/scdc/co-op/international/>) gives students a distinct advantage in the world economy and makes them more attractive to prospective employers.

For additional information about Global Studies, contact Kate Hughes, Associate Director of Programming and Partnerships kfh28@drexel.edu

Degree Requirements

General Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Analyzing Cultures & Histories **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Developing Quantitative Reasoning **	6.0-8.0
Any two Math courses based on placement OR	
PHIL 111 Symbolic Logic I or PHIL 121 Symbolic Logic II	
Engaging the Natural World **	6.0-8.0
Perspectives in Diversity **	3.0-4.0
Understanding Society & Human Behavior **	6.0-8.0

Global Studies Core Requirements

GST 101	Becoming Global: Language and Cultural Context	4.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 105	Introduction to Research in Global Studies	4.0
Three 200+ level GST courses		12.0
GST 400	Senior Project in Global Studies	4.0
Language minor in Spanish, French, or Japanese, or minor in Asian Studies, European Studies, or Middle East and North Africa Studies ***		24.0-26.0
Free Electives OR Concentration (Select One) †		82.0-86.0
Total Credits		180.0-197.0

*

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

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See Core Curriculum List (https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/?_gl=1*shcg1p*_ga*OTM5NTEzMDc4LjE2MDYzMzg1MDM.*_ga_6KJ1PNLE19*MTY)

for complete list of options. Note: any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement

Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

†

Any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement.

If choosing a concentration, additional free electives will be required to meet the 82.0 credit minimum.

Global Media, Arts, and Cultures Concentration Requirements

ENGL 325	Topics in World Literature	3.0
LING 102 or ENGL 323	Language and Society Literature and Other Arts	3.0
PHIL 305	Ethics and the Media	3.0

Select one of the following:

ARTH 301	Asian Art and Culture	3.0
ARTH 302	Art of India	
ARTH 303	Art of China	
ARTH 304	Art of Japan	
ARTH 312	Early Modernism (1850-1900)	
ARTH 313	20th Century Modernism	
ARTH 314	Contemporary Art	
ARTH 315	History of African-American Art	
ARTH 316	African Art	
ARTH 318	Latin American Art	

Global Media, Arts, and Cultures Distribution Options 15.0

Students must complete at least 15.0 distribution credits from the approved list

ANTH 330	Media Anthropology	
ANTH 375	Digital Ethnography	
ARCH 141	Architecture and Society I	
ARTH 331 [WI]	Global Material Culture	
COM 200	Current Events in Media and Communication	
COM 210	Theory and Models of Communication	
COM 246	Media and Identity	
COM 250	Diversity in Media	
COM 342	English Worldwide	
COM 345	Intercultural Communication	
COM 355	Ethnography of Communication	
COM 360	Strategic International Communication	
COM 375 [WI]	Grant Writing	
COM 376	Nonprofit Communication	
COM 377	Communication for Civic Engagement	
COM 385	Media Effects	
CULA 405 [WI]	Culture and Gastronomy I	
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 300 [WI]	Literature & Science	
ENGL 323	Literature and Other Arts	
ENGL 325	Topics in World Literature	
ENGL 335	Mythology	
ENGL 355 [WI]	Women and Literature	

ENGL 360 [WI]	Literature and Society	
FMST 2280	Special Topics in Film Studies	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
GST T380	Special Topics in Global Studies	
MUSC 130	Introduction to Music	
MUSC 331	World Musics	
MUSC 333	Afro-American Music USA	
PHIL 211	Metaphysics: Philosophy of Reality	
PHIL 231	Aesthetics: Philosophy of Art	
PHIL 241	Social & Political Philosophy	
PHIL 335	Global Ethical Issues	
PHIL 391	Philosophy of Religion	
PSCI 120	History of Political Thought	
PSCI 335	Political Communication	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 340	Globalization	
WEST 100	Introduction to Digital Design Tools	
WGST 240	Women and Society in a Global Context	
WRIT 310	Literary Editing & Publication	
Electives		40.0-44.0
Total Credits		67.0-71.0

Global Business, Economics, and Development Concentration Requirements

ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
PHIL 301	Business Ethics	3.0
Select one of the following:		4.0
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	
Global Business, Economics, and Development Distribution Options		15.0

Students must complete at least 15.0 distribution credits from the approved list

BLAW 340	International Business Law	
COM 270 [WI]	Business Communication	
COM 345	Intercultural Communication	
COM 360	Strategic International Communication	
COM 362	International Negotiations	
COM 375 [WI]	Grant Writing	
ECON 270	Using Big Data to Solve Economic and Social Problems	
ECON 301	Microeconomics	
ECON 321	Macroeconomics	
ECON 326 [WI]	Economic Ideas	
ECON 331	International Macroeconomics	
ECON 342	Economic Development	
ECON 351	Resource and Environmental Economics	
ENGL 308 [WI]	The Literature of Business	
ENGL 325	Topics in World Literature	
ENGL 360 [WI]	Literature and Society	
ENTP 270	Social Entrepreneurship	
ENTP 370	Global Entrepreneurship	
ENTP 375	3BL - Triple Bottom Line	

ENTP 390	Energy Entrepreneurship	
FIN 301	Introduction to Finance	
FIN 346	Global Financial Management	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
GST T380	Special Topics in Global Studies	
HIST 315	History of Capitalism	
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	
INTB 338	Regional Studies in Economic Policies and International Business	
MGMT 370	For-Profit Business Consulting	
MGMT 371	Nonprofit Business Consulting	
MGMT 380	International Business Consulting	
MKTG 201	Introduction to Marketing Management	
MKTG 322	Advertising & Integrated Marketing Communications	
MKTG 351	Marketing for Non-Profit Organizations	
MKTG 357	Global Marketing	
PSCI 255	International Political Economy	
PSCI 336	Political Economy of Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
SOC 220	Wealth and Power	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 355 [WI]	Classical Social Theory	
SOC 410	Imagining Multiple Democracies	
STAT 201	Introduction to Business Statistics	
STAT 202	Business Statistics II	
WGST 240	Women and Society in a Global Context	
Electives		35.0-39.0
Total Credits		65.0-69.0

Global Health and Sustainability Concentration Requirements

PBHL 101	Public Health 101	3.0
Select one of the following:		3.0-4.0
PBHL 303	Overview of Issues in Global Health (Choose one of the following classes)	
PSCI 334	Politics of Environment and Health	
SOC 244	Sociology of the Environment	
SOC 340	Globalization	
SOC 346	Environmental Justice	
Choose one of the following English courses:		3.0
ENGL 300 [WI]	Literature & Science	
ENGL 302	Environmental Literature	
ENGL 370	Topics in Literature and Medicine	
Choose one of the following Ethics courses:		3.0
PBHL 309	Public Health Ethics	
PHIL 321	Biomedical Ethics	
PHIL 340	Environmental Ethics	
Global Health and Sustainability Distribution Options		15.0
Students must complete at least 15.0 distribution credits from the approved list		

BIO 109	Biological Diversity, Ecology & Evolution
BIO 264	Ethnobotany
CJS 373	Environmental Crime
COM 316	Campaigns for Health & Environment
COM 317 [WI]	Environmental Communication
COM 320 [WI]	Science Writing
COM 375 [WI]	Grant Writing
CULA 426	The Kitchen Garden: Summer
CULA 427	The Kitchen Garden: Fall
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 351	Resource and Environmental Economics
ENGL 300 [WI]	Literature & Science
ENGL 302	Environmental Literature
ENGL 370	Topics in Literature and Medicine
ENSS 285	Introduction to Urban Planning
ENSS 326	Cities and Sustainability
ENTP 390	Energy Entrepreneurship
ENVS 169	Environmental Science
ENVS 247	Native Plants and Sustainability
ENVS 275	The Science of Climate Change
ENVS 289	Global Warming, Biodiversity and Your Future
ENVS 328	Conservation Biology
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
HIST 287	History of Science: Ancient to Medieval
HIST 288	History of Science: Medieval to Enlightenment
HIST 289	History of Science: Enlightenment to Modernity
HIST 321	Themes in Global Environmental History
HIST 322	Empire and Environment
HSAD 312	Development of World Health Care
HSAD 316	Health Care across Cultures
NFS 345	Foods and Nutrition of World Cultures
PBHL 301	Epidemiology in Public Health
PBHL 302	History of Public Health
PBHL 303	Overview of Issues in Global Health
PBHL 304	Introduction to Health & Human Rights
PBHL 305	Women and Children: Health & Society
PBHL 306	Introduction to Community Health
PBHL 317	The World's Water
PBHL 321	Disease Outbreak Investigations
PBHL 333	Health Inequality
PHIL 321	Biomedical Ethics
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations
PHIL 335	Global Ethical Issues
PHIL 340	Environmental Ethics
PHIL 341	Environmental Philosophy
PHIL 351	Philosophy of Technology
PHIL 361	Philosophy of Science
PSCI 252	Global Governance
PSCI 284	Environmental Politics

PSCI 305	Social Development: A Global Approach	
PSCI 334	Politics of Environment and Health	
PSCI 336	Political Economy of Climate Change	
PSCI 338	Cities and Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
PSCI 353	International Human Rights	
PSY 352	Psychology of Sustainability	
SCTS 202	Innovation and Social Justice	
SOC 235	Sociology of Health and Illness	
SOC 244	Sociology of the Environment	
SOC 313	Sociology of Global Health	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	
WGST 240	Women and Society in a Global Context	
WGST 275	Women's Health and Human Rights	
Electives		38.0-42.0
Total Credits		65.0-70.0

Global Justice and Human Rights Concentration Requirements

ENGL 360 [WI]	Literature and Society	3.0
or ENGL 325	Topics in World Literature	
PHIL 335	Global Ethical Issues	3.0-4.0
or PSCI 352	Ethics and International Relations	
PSCI 150	International Politics	4.0
Select one of the following:		4.0

PSCI 120	History of Political Thought
PSCI 229	Theories of Justice
PSCI 351	The United Nations in World Politics
PSCI 353	International Human Rights
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization

Global Justice and Human Rights Distribution Options 15.0

Students must complete at least 15.0 distribution credits from the approved list

AFAS T280	Special Topics in Africana Studies (Course must have a global theme)
CJS 210	Race, Crime, and Justice
CJS 260	Justice in Our Community
CJS 261	Prison, Society and You
CJS 262	Places of Justice
CJS 289	Terrorism
CJS 320	Comparative Justice Systems
COM 360	Strategic International Communication
COM 362	International Negotiations
COM 375 [WI]	Grant Writing
CULA 426	The Kitchen Garden: Summer
or CULA 42	The Kitchen Garden: Fall
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 342	Economic Development
ECON 351	Resource and Environmental Economics
ENGL 325	Topics in World Literature
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance ((Model Organization of American States))

GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
LAW 304	Comparative Legal Institutions
LAW 312	Immigration Law
PBHL 303	Overview of Issues in Global Health
PBHL 304	Introduction to Health & Human Rights
PHIL 241	Social & Political Philosophy
PHIL 335	Global Ethical Issues
PHIL 341	Environmental Philosophy
PHIL 385	Philosophy of Law
PHIL 391	Philosophy of Religion
PSCI 120	History of Political Thought
PSCI 229	Theories of Justice
PSCI 240	Comparative Politics II
PSCI 250	American Foreign Policy
PSCI 252	Global Governance
PSCI 255	International Political Economy
PSCI 260 [WI]	Power in Protest: Social Movements in Comparative Perspective
PSCI 305	Social Development: A Global Approach
PSCI 310	Civilians in Armed Conflict
PSCI 351	The United Nations in World Politics
PSCI 352	Ethics and International Relations
PSCI 353	International Human Rights
SCTS 202	Innovation and Social Justice
SOC 210	Race, Ethnicity and Social Inequality
SOC 220	Wealth and Power
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization
SOC 346	Environmental Justice
SOC 355 [WI]	Classical Social Theory
SOC 444	Social Movements
WGST 240	Women and Society in a Global Context
WGST T280	Special Topics in Women's and Gender Studies (Course must have a global theme)
Electives	36.0-41.0
Total Credits	65.0-71.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses

with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, 1 co-op

First Year									
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits		
ENGL 101 or 111	3.0	ENGL 102 or 112	3.0	CIVC 101	1.0	VACATION			
GST 101	4.0	GST 102	4.0	ENGL 103 or 113	3.0				
UNIV H101	1.0	Language course	4.0	GST 105	4.0				
Language course	4.0	Developing Quantitative Reasoning	3.0-4.0	Language course	4.0				
Developing Quantitative Reasoning	3.0-4.0			Understanding Society & Human Behavior	3.0-4.0				
		15-16			14-15			15-16	0
Second Year									
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits		
GST 200+ level course	4.0	COOP 101*	1.0	GST 200+ level course	4.0	Free Elective or Concentration Courses	12.0		
Free Elective or Concentration course	3.0	Analyzing Cultures & Histories	3.0-4.0	Analyzing Cultures & Histories	3.0-4.0	Engaging the Natural World	3.0-4.0		
Language course	4.0	Engaging the Natural World	3.0-4.0	Free Elective or Concentration Courses	6.0				
Understanding Society & Human Behavior	3.0-4.0	Free Elective or Concentration Courses	6.0	Language Course	4.0				
		14-15			13-15			17-18	15-16
Third Year									
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits		
COOP EXPERIENCE**	COOP EXPERIENCE**	Free Elective or Concentration courses	6.0	Cultivating Global Competence	3.0-4.0				
		Cultivating Global Competence	3.0-4.0	Free Elective or Concentration courses	12.0				
		Language Course	4.0						
		Perspective: in Diversity	3.0-4.0						
		0			0			16-18	15-16
Fourth Year									
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits		
UNIV H201	1.0	GST 400	4.0	Free Elective or Concentration courses	16.0				
GST 200+ level course	4.0	Free Elective or Concentration courses	12.0						

Free Elective or Concentration courses	9.0		
	14	16	16
Total Credits 180-191			

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-ops

First Year				
Fall	Credits	Winter	Credits	Spring
ENGL 101 or 111	3.0	COOP 101*	1.0	CIVC 101
GST 101	4.0	ENGL 102 or 112	3.0	ENGL 103
UNIV H101	1.0	GST 102	4.0	GST 105
Developing Quantitative Reasoning	3.0-4.0	Language course	4.0	Language course
Language course	4.0	Developing Quantitative Reasoning	3.0-4.0	Understanding Society & Human Behavior
	15-16	15-16	15-16	0

Second Year				
Fall	Credits	Winter	Credits	Spring
COOP EXPERIENCE**	COOP EXPERIENCE**	GST 200+ course	4.0	Engaging the Natural World
		Analyzing Cultures & Histories	3.0-4.0	Free Elective or Concentration courses
		Free Elective or Concentration courses	6.0	
		Language course	4.0	
	0	0	17-18	15-16

Third Year				
Fall	Credits	Winter	Credits	Spring
COOP EXPERIENCE**	COOP EXPERIENCE**	Free Elective or Concentration courses	6.0	Free Elective or Concentration courses
		Cultivating Global Competence	3.0-4.0	Cultivating Global Competence
		Language course	4.0	
		Perspective: in Diversity	3.0-4.0	
	0	0	16-18	15-16

Fourth Year				
Fall	Credits	Winter	Credits	Spring
COOP EXPERIENCE**	COOP EXPERIENCE**	GST 200+ level course	4.0	Analyzing Cultures & Histories
		Free Elective or Concentration course	3.0	Free Elective or Concentration courses
		Language course	4.0	Engaging the Natural World
		Understanding Society & Human Behavior	3.0-4.0	
	0	0	14-15	12-14

Fifth Year				
Fall	Credits	Winter	Credits	Spring
UNIV H201	1.0	GST 400	4.0	Fall Elective or Concentration courses
GST 200+ level course	4.0	Free Elective or Concentration courses	12.0	
Free Elective or Concentration courses	9.0			
	14	16	16	
Total Credits 180-191				

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

4 year, no co-op

First Year				
Fall	Credits	Winter	Credits	Spring
ENGL 101 or 111	3.0	ENGL 102 or 112	3.0	CIVC 101
GST 101	4.0	GST 102	4.0	ENGL 103 or 113
UNIV H101	1.0	Language course	4.0	GST 105
Developing Quantitative Reasoning	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0	Language course
Language course	4.0		Understanding Society & Human Behavior	3.0-4.0
	15-16	14-15	15-16	0

Second Year				
Fall	Credits	Winter	Credits	Spring
GST 200+ level course	4.0	Analyzing Cultures & Histories	3.0-4.0	GST 200+ level course
			4.0	VACATION

Free Elective or Concentration course	3.0 Free Elective or Concentration courses	8.0 Analyzing Cultures & Histories	3.0-4.0	
Language course	4.0 Engaging the Natural World	3.0-4.0 Free Elective or Concentration courses	6.0	
Understanding Society & Human Behavior	3.0-4.0	Language course	4.0	
14-15		14-16	17-18	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Free Elective or Concentration courses	12.0 Free Elective or Concentration courses	12.0 Free Elective or Concentration courses	6.0 VACATION	
Engaging the Natural World	3.0-4.0 Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0	
		Language course	4.0	
		Perspective: in Diversity	3.0-4.0	
15-16		15-16	16-18	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 GST 400	4.0 Free Elective or Concentration courses	15.0	
GST 200+ level course	4.0 Free Elective or Concentration courses	12.0		
Free Elective or Concentration courses	9.0			
14		16	15	
Total Credits 180-191				

Program Level Outcomes

- Engage civically and professionally with world communities abroad and/or in the U.S. through experiences such as study abroad, civic engagement, or co-op abroad.
- Analyze from multidisciplinary perspectives both transnational relations (trade, migration, supranational entities, global movements) and area studies (specific countries or regions of the world united by language and culture or through political alliances).
- Critically analyze the position of the United States in the larger global context.
- Demonstrate proficiency in at least one modern language other than English.
- Conduct academic research on issues related to global studies.

Students in the Global Business, Economics, and Development Concentration:

- Demonstrate basic business skills in a cross-cultural context, e.g., international marketing
- Apply basic business and economics concepts to explain international business trends

- Explain the key challenges faced by corporations seeking to expand globally or invest in foreign economies
- Discuss the ethical and cultural issues facing global corporations

Students in the Global Justice and Human Rights Concentration:

- Demonstrate basic knowledge of international human rights law and practice
- Explain and analyze the role of development agencies in promoting global economic growth and helping developing world economies
- Apply social and political theory to key issues of international humanitarian crises and the divide between wealth and developing countries
- Apply a knowledge of social and political theory to the particular country or region where they have language and cultural competence

Students in the Global Media, Arts, and Culture Concentration:

- Examine different forms of media (print, audiovisual, digital) from the perspective of production, consumption, and representation
- Demonstrate a broad knowledge of world literature, art, and culture, and be able to apply cultural theory to draw connections and make contrasts
- Write effective, persuasive, and well-composed essays on literary or artistic topics, and demonstrate the ability to apply this writing and composition skill to other forms of writing, for example effective business writing, or academic prose
- Show expertise in the literature or cultural movements of a particular region through having lived there for study abroad, or by writing papers focused on that region

Students in the Global Health and Sustainability Concentration:

- Demonstrate exposure to the fields of international environmental science, international public health, or international education, in a way that prepares them either for work or graduate studies in one or more of these areas
- Demonstrate knowledge of the environmental, health, and/or educational challenges facing developing regions, particularly in respect to balancing these concerns with the need for economic growth
- Speak and write authoritatively about the environmental, health, and/or educational challenges facing the country or region where they speak the language and about which they have done study abroad or otherwise focused their work
- Analyze and solve problems related to international development with an emphasis on environmental science, sustainability, health, or education

Global Studies Faculty

Anne C. Cecil, MA (*University of the Arts*). Assistant Teaching Professor. Web designer, product designer, merchandising and artist.

George Ciccariello-Maher, PhD (*University of California, Berkeley*). Associate Professor. Colonialism, social movements, political theory.

Rose Corrigan, PhD (*Rutgers University*). Associate Professor. Women, public law, American politics and policy.

Brenda Dyer, MA (*University of Pennsylvania*). Associate Teaching Professor. Language acquisition pedagogy, teaching writing, seventeenth and eighteenth century French literature, women writers, translation.

Mary Ebeling, PhD (*University of Surrey*) *Director, Women's and Gender Studies*. Associate Professor. Science and technology studies; emerging technologies and biocapital; media and democratic cultures; radical social movements; sociology of markets; political sociology; and ethnographic methodologies.

David Fryer, PhD (*Brown University*). Assistant Teaching Professor. Gender theory; psychoanalysis; ethics; queer theory; genderqueer theory; Phenomenology; Africana thought; secular Jewish thought.

Christian Hunold, PhD (*University of Pittsburgh*). Associate Professor. Environmental policy; comparative politics; urban wildlife; political theory.

Gabriella Ibieta, PhD (*City University of New York*). Associate Professor. Comparative literature; Cuban and Latin American fiction.

Emmanuel F. Koku, PhD (*University of Toronto*). Associate Professor. Social network analysis; qualitative/quantitative research; medical sociology; social epidemiology; social demography; sociology of development; communication and information technology; community and urban sociology.

Christopher A. Laincz, PhD (*Duke University*). Associate Professor. Economic development, technological change, and growth, industrial organization, macroeconomics and monetary economics.

Joanna Lyskowitz, MA (*UAM Poznan, Poland*). Instructor. Comparative linguistics, translation, business Spanish, medical Spanish, modern Spanish literature, XXth cent. Spanish poetry, magical realism in Latin American literature.

Maria delaluz Matus-Mendoza, PhD (*Temple University*) *Language Program Coordinator*. Associate Professor. Spanish Linguistic variation in the US; the relationship between language variation and mobility (social and geographical) among the Mexican communities in Mexico and in the United States; second language acquisition; language variation in media.

Usha Menon, PhD (*University of Chicago*). Professor. Self, identity & personhood, emotional functioning, Hindu morality, gender relations in Hindu society, adult development, popular Hinduism, post-colonial feminism, Hindu religious nationalism and Islamic radicalism.

Rogelio Minana, PhD (*Penn State*) *Department Head, Global Studies and Modern Languages*. Professor. The role of classic cultural icons, particularly Don Quixote, in 21st century political and social justice discourse; the interplay between the traditional humanities, youth organizations, and digital storytelling.

Julie Mostov, PhD (*New York University*) *Vice Provost for Global Initiatives*. Professor. Modern political thought, democratic theory, nationalism, gender studies, South Eastern Europe and the Balkans.

Joel E. Oestreich, PhD (*Brown University*) *Director of the Global Studies major*. Associate Professor. International organizations, international finance, development, and human rights.

Emilie Passow, PhD. Associate Teaching Professor. Medical Humanities, Jewish Studies

Rakhmiel Peltz, PhD (*Columbia University, Linguistics; University of Pennsylvania, Biological Sciences*) *Director of Judaic Studies Program*. Professor. Sociolinguistics, ethnography of communication, social history

of Yiddish language and culture, Yiddish culture of Eastern Europe, language planning, language and ethnic identity, language and group memory, aging and ethnicity, history of urban neighbors.

Abioseh Porter, PhD (*University of Alberta, Canada*). Professor. Comparative literature; postcolonial literatures; Editor, JALA, Journal of the African Literature Association.

Robert Powell, PhD (*Temple University*). Assistant Teaching Professor. Early and Middle Bronze Age Crete; archaeoastronomy; early state formation; archaeology and anthropology of frontiers; mass communication.

Rachel R. Reynolds, PhD (*University of Illinois at Chicago*). Associate Professor. Sociolinguistics, ethnography of communication, intercultural communication, globalization and the rhetoric of community, political economy of immigration, race and ethnicity, new African immigrants in the United States, Igbo studies.

Simone Schlichting-Artur, EdD (*University of Pennsylvania*) *Senior Assistant Dean of Global Initiatives*. Teaching Professor. International business communication (Germany and the U.S.), public health policy and languages, German post-war history through film and literature, development of writing assessment tools for German minor.

Natsumi Shor, MA. Assistant Teaching Professor. Business and professional Japanese; Japanese film and culture; interrelation between Japanese language to the nation's culture and thought.

Wesley Shumar, PhD (*Temple University*) *Department Head, Anthropology*. Professor. Ethnography of cyberspace, online learning communities, political economy of higher education, globalization, activity theory, semiotics, critical realism, psychoanalysis, identity and the self.

Judith Storniolo, PhD (*University of Pennsylvania*). Teaching Professor. Historical and comparative linguistics, Mesoamerican languages and culture, applied anthropology, public policy, oral traditions and narratives, ideology and ritual, Mesoamerican ethnohistory; and pre-Columbian literature.

Alden Young, PhD (*Princeton University*) *Director of the Program in Africana Studies*. Assistant Professor. African history; economic history and the history of Arab and African interactions.

Jennifer Yusin, PhD (*Emory University*). Associate Professor. Postcolonial literature; trauma theory; literary theory; psychoanalysis, and memory studies in contemporary literature in English.

History BA

Major: History

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 54.0101

Standard Occupational Classification (SOC) code: 19-3093

About the Program

The history program reflects the strengths of Drexel University, including specialization in transnational history and in the history of science, technology and the environment. A series of required courses in history

build skills in research and interpretation of the past while elective courses within and outside the history program allow students to shape their curriculum to meet their needs and interests. Our history graduates go to graduate school in history, to professional schools in law, medicine, and business, and to work in business, government agencies, and non-profit organizations.

We apply Drexel's experiential, research-intensive approach to the discipline of history. Using the extensive historical resources of Philadelphia, the region, and the digital world, students develop a profound understanding of history and the ways it is made. We also encourage students to enrich their education through co-op, study abroad, and summer research projects working alongside department faculty.

Degree Offered

The Bachelor of Arts (BA) provides a course of study that includes a broad grounding in the liberal arts, with the opportunity for students to choose courses to fulfill humanities, social science, foreign language, math and science requirements according to their overall educational and career plans. The program requirements also leave room for students to take electives of interest or to add a minor or a double-major in another course of study.

The Minor in History (p. 241) allows students in other majors to explore the historical background of their discipline, to better understand the origins of the contemporary world, and to build the knowledge and skills needed to understand the development of human societies over time and to understand historical episodes into their proper contexts. The minor in History is highly flexible and allows students to choose those History courses which appeal to them and which will contribute to their broader education. To complete the minor, students must take a total of six History courses (24.0 credits), five of which must be at the 200-level or above.

The Minor in War and Society (p. 252) is an interdisciplinary minor offered by history in which students examine the history and politics of warfare, the military, and related institutions. In the Minor in the History of Capitalism (p. 241), students explore capitalism and the emergence of the modern world economy from a global, historical perspective.

Drexel Co-op for History majors

History majors at Drexel embark on up to three, six-month periods of employment — exploring their career options, strengthening their résumés and building a professional network in the process. Our curriculum has students complete courses in historical methods before they go on co-op, allowing them to hone their research, analytical and communication skills while adding value to their employer.

Additional Information

For more information about this program, please visit the Department of History (<http://drexel.edu/history/>) website or contact:

Jonathan Seitz, PhD
Assistant Department Head
Teaching Professor of History
jwseitz@drexel.edu

Degree Requirements

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0

or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts & Sciences Requirements **		
Developing Quantitative Reasoning **		6.0-8.0
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Department of History Requirements		
Core History Sequence ***		24.0
HIST 101	Introductory Seminar in History ***	
HIST 296	Research Methods in History ***	
HIST 301 [WI]	The Study of History ***	
HIST 380 [WI]	Advanced History Seminar ***	
HIST 490 [WI]	Senior Seminar I ***	
HIST 491 [WI]	Senior Seminar II ***	
History Distribution Courses †		
Any 1 Global History course from the list below: †		4.0
HIST 206	Race and Islam in Africa and the Middle East	
HIST 227	History of Antisemitism	
HIST 229	Pirates, Planters, Traders: The Jewish Atlantic World	
HIST 235	The Great War, 1914-1918	
HIST 236	World War II	
HIST 239	The Pacific War	
HIST 248	History of the Holocaust	
HIST 249 [WI]	Modern Jewish History	
HIST 251	Fascism	
HIST 253	Jewish Life and Culture in the Middle Ages	
HIST 254	Russian History Before 1900	
HIST 255	Twentieth Century Russia & the USSR	
HIST 257	The Reformation Age	
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
HIST 303	The Study of Global History	
HIST 315	History of Capitalism	
HIST 321	Themes in Global Environmental History	
HIST 322	Empire and Environment	
HIST 338 [WI]	The Vietnam War	
HIST 355 [WI]	Venice and the Mediterranean from the Middle Ages to Napoleon	
HIST 358	Witches, Demons, and Witch-hunters in European History	
HIST 365	Science and State Power: Colonialism	
HIST 366	The Black Atlantic: Slave Societies of the Americas	
HIST 368	Silences in African History	
Any 1 Africana History course from the list below: †		4.0
HIST 206	Race and Islam in Africa and the Middle East	
HIST 212	Themes in African-American History	
HIST 214	United States Civil Rights Movement	
HIST 215	American Slavery	
HIST 216	Freedom in America	
HIST 219	History of Policing Homosexuality	
HIST 366	The Black Atlantic: Slave Societies of the Americas	
HIST 368	Silences in African History	
Any 1 History of Science, Technology, and Environment course from the list below: †		4.0

HIST 118	History of Modern Biology	
HIST 181	Religion, Science, and Medicine in History	
HIST 278	Medicine Before Germs	
HIST 279	History of Modern Medicine	
HIST 283	Technology and Identity	
HIST 285	Technology in Historical Perspective	
HIST 287	History of Science: Ancient to Medieval	
HIST 288	History of Science: Medieval to Enlightenment	
HIST 289	History of Science: Enlightenment to Modernity	
HIST 302	The Study of Science, Technology, and Environment in History	
HIST 321	Themes in Global Environmental History	
HIST 322	Empire and Environment	
HIST 323	The History of Climate Change	
HIST 341	Disabilities in History	
HIST 342	Madness, Mental Health and Psychiatry in the Modern West	
Any 1 History course covering pre-1700 history from the list below: †		4.0
HIST 155	The Historical Jesus	
HIST 161	Themes in World Civilization I	
HIST 162	Themes in World Civilization II	
HIST 253	Jewish Life and Culture in the Middle Ages	
HIST 257	The Reformation Age	
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
HIST 287	History of Science: Ancient to Medieval	
HIST 288	History of Science: Medieval to Enlightenment	
HIST 355 [WI]	Venice and the Mediterranean from the Middle Ages to Napoleon	
HIST 358	Witches, Demons, and Witch-hunters in European History	
HIST 366	The Black Atlantic: Slave Societies of the Americas	
History Elective or Concentration Courses ‡		20.0-23.0
Any 5 History courses ‡		
Department Language Requirement ^		0.0-12.0
Foreign Language ^		
Free electives ^^		74.0
Total Credits		180.0-206.0

★

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See the CoAS Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for a complete list of course options.

★★★

These courses must be taken in sequence. (It is recommended but not required that HIST 380 [WI] fall between HIST 301 [WI] and HIST 490 [WI] .)

†

The History Distribution courses must be at least 200-level, and a course may not fulfill more than one Distribution category.

‡

The History electives may be applied to fulfill an optional concentration (either in the History of Science, Technology, and Environment or in Global History). At least two of the History electives/Concentration electives must be 300-level or above; another two must be at least 200-level or above.

^

Students must complete a department language requirement. They may *either* successfully complete 103 in one language (including the option to test out of it, if the university offers the language of the student's competence), *or* they may take 12.0 credits of language distributed across more than one language.

- Students may count one Study Abroad or international co-op experience (minimum one quarter) in a non-English speaking country toward their language requirement. Students should consult with their advisor to ensure this credit is properly recorded.
- Students may count one language course toward the CoAS "cultivating global competence" distribution requirement.

^^

The number of Free Electives will vary depending on the number of credits in other course selections; the total need not be 74.0 credits to reach 180.0 credits for the degree.

Optional History Concentrations

Students may select one of the two following concentrations in the History BA, or they may elect not to undertake a concentration. The courses in the required History Core Sequence and used to fulfill the History Distribution categories may not count toward the 20.0 credits in the concentration.

History of Science, Technology, and Environment Concentration

HIST 302	The Study of Science, Technology, and Environment in History	4.0
Concentration Electives (select four from the following list): *		16.0
HIST 278	Medicine Before Germs	
HIST 279	History of Modern Medicine	
HIST 283	Technology and Identity	
HIST 285	Technology in Historical Perspective	
HIST 287	History of Science: Ancient to Medieval	
HIST 288	History of Science: Medieval to Enlightenment	
HIST 289	History of Science: Enlightenment to Modernity	
HIST 321	Themes in Global Environmental History	
HIST 322	Empire and Environment	
HIST 341	Disabilities in History	
HIST 344	History of the AIDS Pandemic	
HIST 365	Science and State Power: Colonialism	
HIST T280	Special Topics in History (with approval when appropriate topic offered)	
HIST T380	Special Topics in History (with approval when appropriate topic offered)	
Total Credits		20.0

Global History Concentration

HIST 303	The Study of Global History	4.0
Global Engagement Course **		4.0
Concentration Electives (select three from the following list) *		12.0
HIST 235	The Great War, 1914-1918	
HIST 236	World War II	
HIST 251	Fascism	
HIST 254	Russian History Before 1900	
HIST 255	Twentieth Century Russia & the USSR	
HIST 257	The Reformation Age	
HIST 315	History of Capitalism	
HIST 321	Themes in Global Environmental History	
HIST 322	Empire and Environment	

HIST 355 [W]	Venice and the Mediterranean from the Middle Ages to Napoleon	
HIST 365	Science and State Power: Colonialism	
HIST 368	Silences in African History	
HIST T280	Special Topics in History (with approval when appropriate topic offered)	
HIST T380	Special Topics in History (with approval when appropriate topic offered)	
One Additional Foreign Language Course ***		3.0-4.0
Total Credits		23.0-24.0

*
At least two courses must be 300-level and above.

**
Courses that fulfill the Global Engagement requirement include designated travel-integrated courses, Study Abroad courses (with approval), Global Classroom courses in history, or independent study courses (with approval.)

In addition to the Department of History foreign language requirements, students in the global history concentration must take one more foreign language course.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid “clustering” these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op - No concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 Developing Quantitative Reasoning [†]	3.0-4.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Foreign Language/Free elective ^{††}	3.0-4.0	

Cultivating Global Competence	3.0-4.0 Foreign Language/Free elective ^{††}	3.0-4.0 Global History course [*]	4.0	
History elective [*]	4.0 Free elective	3.0-4.0		
15-16		13-16	13-15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Analyzing Cultures & Histories [†]	3.0-4.0 VACATION	
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0 History elective [*]	4.0	
History course covering pre-1700 history ^{**}	4.0 History of Science, Technology and Environment course [*]	4.0 Understanding Society & Human Behavior [†]	3.0-4.0	
Free electives	3.0-4.0 Understanding Society & Human Behavior [†]	3.0-4.0 Free electives	6.0-8.0	
	Free elective	3.0-4.0		
14-16		16-20	16-20	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 HIST 380	4.0 History electives [*]	8.0 VACATION	
Cultivating Global Competence	3.0-4.0 UNIV H201	1.0 Free electives	9.0-12.0	
Perspectives in Diversity [†]	3.0 Africana history course [*]	4.0		
Free elective	4.0 Free electives	7.0-8.0		
14-15		16-17	17-20	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
HIST 490	4.0 HIST 491	4.0 Free electives	15.0-16.0	
History elective [*]	4.0 Free electives	12.0		
Free electives	7.0-8.0			
15-16		16	15-16	
Total Credits 180-203				

4 year, 1 co-op - No concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101	1.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Developing Quantitative Reasoning [†]	4.0	
Cultivating Global Competence	3.0-4.0 Foreign Language course/Free elective ^{††}	3.0-4.0 Foreign Language/Free elective ^{††}	3.0-4.0	

History elective*	4.0 Free elective	3.0-4.0 Global history course*	4.0	
	15-16	13-16	15-16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Analyzing Cultures & Histories [†]	3.0-4.0 History electives*	8.0
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0 History elective*	4.0 Free electives	9.0-12.0
History course covering pre-1700 history**	4.0 History of Science, Technology and Environment course*	4.0 Understanding Society & Human Behavior [†]	3.0-4.0	
Free elective	3.0-4.0 Understanding Society & Human Behavior [†]	3.0-4.0 Free electives	6.0-8.0	
	Free elective	3.0-4.0		
	14-16	16-20	16-20	17-20
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 HIST 380	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Cultivating Global Competency	3.0-4.0 UNIV H201	1.0		
Perspectives in Diversity [†]	3.0-4.0 Africana History course*	4.0		
Free elective	3.0-4.0 Free electives	6.0-8.0		
	13-16	15-17	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 490	4.0 HIST 491	4.0 Free electives	15.0-16.0	
History elective*	4.0 Free electives	12.0		
Free electives	7.0-8.0			
	15-16	16	15-16	

Total Credits 180-205

5 year, 3 co-ops - No concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101	1.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Developing Quantitative Reasoning [†]	3.0-4.0	
Cultivating Global Competency	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0	

History elective*	4.0 Free elective	3.0-4.0 Global History course*	4.0	
	15-16	13-16	14-16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0		
History course covering pre-1700 history**	4.0 History of Science, Technology, and Environment course*	4.0		
Free elective	3.0-4.0 Understanding Society & Behavior [†]	3.0-4.0		
	Free elective	3.0-4.0		
	14-16	16-20	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 History electives*	8.0 COOP EXPERIENCE	COOP EXPERIENCE	
Analyzing Cultures & Histories [†]	3.0-4.0 Free electives	9.0-12.0		
Understanding Society & Human Behavior [†]	3.0-4.0			
Free electives	6.0-8.0			
	16-20	17-20	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Cultivating Global Competency [†]	3.0-4.0 HIST 380	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
History electives*	4.0 UNIV H201	1.0		
Perspectives in Diversity [†]	3.0-4.0 Africana History course*	4.0		
Free elective	4.0 Free electives	6.0-8.0		
	14-16	15-17	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 490	4.0 HIST 491	4.0 Free electives	15.0-16.0	
History elective*	4.0 Free electives	12.0		
Free electives	7.0-8.0			
	15-16	16	15-16	

Total Credits 180-205				
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The History Distribution courses must be at least 200-level. (The pre-1700 History Distribution course must be at least 200-level but may not be HIST 201.)

**

The History electives/Concentration electives must include at least two 300-level courses and at least two 200-level courses.

†

See the CoAS Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for a list of course options for this distribution.

††

See the degree requirements (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/history/#degreerequirementsbatest>) for the department foreign language requirement. One language course may count toward the "Cultivating Global Competence" College of Arts & Sciences requirement.

4 year, no co-op - Science, Technology, and Environment Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 Developing Quantitative Reasoning [†]	3.0-4.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Foreign language/ Free elective ^{††}	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Global History course [*]	4.0	
Concentration History [*] elective	4.0 Free elective	3.0-4.0		
15-16		13-16	13-15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Analyzing Cultures & Histories [†]	3.0-4.0 VACATION	
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0 Concentration history elective [*]	4.0	
History course covering pre-1700 ^{**}	4.0 History of Science, Technology, and Environment course [*]	4.0 Understanding Society & Human Behavior [†]	3.0-4.0	
Free elective	3.0-4.0 Understanding Society & Human Behavior [†]	3.0-4.0 Free electives	6.0-8.0	
	Free elective	3.0-4.0		
14-16		16-20	16-20	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 HIST 380	4.0 Concentration History electives [*]	8.0 VACATION	
Cultivating Global Competence	3.0-4.0 UNIV H201	1.0 History elective [*]	4.0	

Perspectives in Diversity [†]	3.0-4.0 Africana History course [*]	4.0 Free electives	6.0-8.0	
Free elective	4.0 Free electives	7.0-8.0		
14-16		16-17	18-20	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
HIST 490	4.0 HIST 491	4.0 Free electives	15.0-16.0	
Free electives	11.0-12.0 Free electives	11.0		
15-16		15	15-16	
Total Credits 180-203				

4 year, 1 co-op - Science, Technology, and Environment Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101	1.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Developing Quantitative Reasoning [†]	3.0-4.0	
Cultivating Global Competence	3.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Foreign Language/ free elective ^{††}	4.0	
Concentration History [*] elective	4.0 Free elective	3.0-4.0 Global History course [*]	4.0	
15		13-16	15-16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Concentration History electives [*]	8.0
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural History [†]	3.0-4.0 Concentration History elective [*]	4.0 Free electives	9.0-12.0
History course covering pre-1700 ^{**}	4.0 History of Science, Technology, and Environment course [*]	4.0 Understanding Society & Human Behavior [†]	3.0-4.0	
Free elective	4.0 Understanding Society & Human Behavior [†]	3.0-4.0 Free electives	6.0-8.0	
	Free elective	3.0-4.0		
15-16		16-20	16-20	17-20
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 HIST 380	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Cultivating Global Competence	3.0-4.0 UNIV H201	1.0		
Perspectives in Diversity [†]	3.0-4.0 Africana History course [*]	4.0		

Free elective	4.0 Free electives	6.0-8.0		
	14-16	15-17	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
HIST 302	4.0 HIST 491	4.0 Free electives	15.0-16.0	
HIST 490	4.0 Free electives	11.0-12.0		
Free electives	6.0-8.0			
	14-16	15-16	15-16	
Total Credits 180-204				

5 year, 3 co-ops - Science, Technology, and Environment Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101	1.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Developing Quantitative Reasoning [†]	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Foreign Language/ Free elective ^{††}	3.0-4.0	
Concentration History elective [*]	4.0 Free elective	3.0-4.0 Global History course [*]	4.0	
	15-16	13-16	14-16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0		
History Course covering pre-1700 ^{**}	4.0 History of Science, Technology, and Environment course [*]	4.0		
Free elective	3.0-4.0 Understanding Society & Human Behavior [†]	3.0-4.0		
	Free elective	3.0-4.0		
	14-16	16-20	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 301	4.0 Concentration History electives [*]	8.0 COOP EXPERIENCE	COOP EXPERIENCE	
Analyzing Cultures & Histories [†]	3.0-4.0 Free electives	9.0-12.0		
Understanding Society & Human Behavior [†]	3.0-4.0			

Free electives	6.0-8.0			
	16-20	17-20	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Concentration History elective [*]	4.0 HIST 380	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Cultivating Global Competence	3.0-4.0 UNIV H201	1.0		
Perspectives in Diversity [†]	3.0-4.0 Africana History course [*]	4.0		
Free elective	4.0 Free electives	6.0-8.0		
	14-16	15-17	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
HIST 302	4.0 HIST 491	4.0 Free electives	15.0-16.0	
HIST 490	4.0 Free electives	12.0		
Free electives	7.0-8.0			
	15-16	16	15-16	
Total Credits 180-205				

All History Distribution and History Elective courses must be at least 200-level. At least two must be 300-level.

The pre-1700 History Distribution course must be at least 200-level but may not be HIST 201.

†

See the CoAS Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for a list of course options for this distribution.

††

See the degree requirements for the department foreign language requirement. One language course may count toward the "Cultivating Global Competence" College of Arts & Sciences Core Curriculum requirement.

4 year, no co-op - Global History Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 Global History course [*]	4.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Developing Quantitative Reasoning [†]	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Foreign Language/ Free elective ^{††}	3.0-4.0	
Concentration History elective [*]	4.0 Free elective	4.0		
	15-16	14-16	13-15	0

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 296	4.0	History of Science, Technology, and Environment ⁺	4.0	Concentration Foreign Language ⁺⁺	4.0	VACATION		
Engaging the Natural World [†]	3.0-4.0	Engaging the Natural World [†]	3.0-4.0	Analyzing Cultures & Histories [†]	3.0-4.0			
History course covering pre-1700 ^{**}	4.0	Analyzing Cultures & Histories [†]	3.0-4.0	Understanding Society & Human Behavior [†]	3.0-4.0			
Free elective	3.0-4.0	Understanding Society & Human Behavior [†]	3.0-4.0	Free electives	6.0-8.0			
		Free elective	3.0-4.0					
14-16		16-20		16-20		0		

Third Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 301	4.0	HIST 380	4.0	Concentration Global Engagement Course ⁺⁺⁺	4.0	VACATION		
Cultivating Global Competency	3.0-4.0	UNIV H201	1.0	Concentration History elective [*]	4.0			
Perspectives in Diversity [†]	3.0-4.0	Africana History course [*]	4.0	Free electives	9.0-12.0			
Free elective	4.0	Free electives	6.0-8.0					
14-16		15-17		17-20		0		

Fourth Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 490	4.0	HIST 491	4.0	Free electives	15.0-16.0			
HIST 303	4.0	Free electives	12.0					
Free electives	7.0-8.0							
15-16		16		15-16				

Total Credits 180-204

4 year, one co-op - Global History Concentration

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
ENGL 101 or 111	3.0	CIVC 101	1.0	COOP 101	1.0	VACATION		
HIST 101	4.0	ENGL 102 or 112	3.0	ENGL 103 or 113	3.0			
UNIV H101	1.0	Developing Quantitative Reasoning [†]	3.0-4.0	Developing Quantitative Reasoning [†]	3.0-4.0			
Cultivating Global Competency	3.0-4.0	Foreign language course/ Free elective ⁺⁺	3.0-4.0	Foreign Language/ Free elective ⁺⁺	3.0-4.0			
Concentration History Elective [*]	4.0	Free elective	3.0-4.0	Global History Course [*]	4.0			

	Free electives	3.0-4.0	
15-16	13-16	17-20	0

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 296	4.0	History of Science, Technology, and Environment course [*]	4.0	Concentration Foreign Language ⁺⁺	3.0-4.0	Concentration History elective [*]	4.0	
Engaging the Natural World [†]	3.0-4.0	Engaging the Natural World [†]	3.0-4.0	Analyzing Cultures & Histories [†]	3.0-4.0	Concentration Global Engagemen	4.0	
History course covering pre-1700 ^{**}	4.0	Analyzing Cultures & Histories [†]	3.0-4.0	Understanding Society & Human Behavior [†]	3.0-4.0	Free electives	9.0-12.0	
Free elective	3.0-4.0	Understanding Society & Human Behavior [†]	3.0-4.0	Free electives	6.0-8.0			
		Free elective	3.0-4.0					
14-16		16-20		15-20		17-20		

Third Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 301	4.0	HIST 380	4.0	COOP EXPERIENCE	COOP EXPERIENCE			
Cultivating Global Competency	3.0-4.0	UNIV H201	1.0					
Perspectives in Diversity [†]	3.0-4.0	Africana History course [*]	4.0					
Free elective	3.0-4.0	Free electives	6.0-8.0					
13-16		15-17		0		0		

Fourth Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
HIST 303	4.0	HIST 491	4.0	Free electives	14.0-15.0			
HIST 490	4.0	Free electives	12.0					
Free electives	7.0-8.0							
15-16		16		14-15				

Total Credits 180-208

5 year, three co-ops - Global History Concentration

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits	
ENGL 101 or 111	3.0	CIVC 101	1.0	COOP 101	1.0	VACATION		
HIST 101	4.0	ENGL 102 or 112	3.0	ENGL 103 or 113	3.0			
UNIV H101	1.0	Developing Quantitative Reasoning [†]	3.0-4.0	Developing Quantitative Reasoning [†]	3.0-4.0			
Cultivating Global Competency	3.0-4.0	Foreign Language course/ Free elective ⁺⁺	3.0-4.0	Foreign Language course/ Free elective ⁺⁺	3.0-4.0			

Concentration History elective*	4.0 Free elective	4.0 Global History course*	4.0	
	15-16	14-16	14-16	0
Second Year				
Fall	Credits	Winter	Credits	Spring
HIST 296	4.0	History of Science, Technology, and Environment course*	4.0	COOP EXPERIENCE
Engaging the Natural World†	3.0-4.0	Engaging the Natural World†	3.0-4.0	
History course covering pre-1700**	4.0	Analyzing Cultures & Histories†	3.0-4.0	
Free elective	3.0-4.0	Understanding Society & Human Behavior†	3.0-4.0	
		Free elective	3.0-4.0	
	14-16	16-20	0	0
Third Year				
Fall	Credits	Winter	Credits	Spring
HIST 301	4.0	Concentration History elective*	4.0	COOP EXPERIENCE
Analyzing Cultures & Histories†	3.0-4.0	Concentration Foreign Language††	3.0-4.0	
Understanding Society & Human Behavior†	3.0-4.0	Free electives	9.0-12.0	
Free electives	6.0-8.0			
	16-20	16-20	0	0
Fourth Year				
Fall	Credits	Winter	Credits	Spring
Concentration Global Engagement†††	4.0	HIST 380	4.0	COOP EXPERIENCE
Cultivating Global Competence	3.0-4.0	UNIV H201	1.0	
Perspectives in Diversity†	3.0-4.0	Africana History course*	4.0	
Free elective	4.0	Free electives	6.0-8.0	
	14-16	15-17	0	0
Fifth Year				
Fall	Credits	Winter	Credits	Spring
HIST 303	4.0	HIST 491	4.0	Free electives
HIST 490	4.0	Free electives	12.0	
Free electives	7.0-8.0			
	15-16	16	15-16	
Total Credits 180-205				

*

All History Distribution and History Elective courses must be at least 200-level. At least two must be 300-level.

**

The pre-1700 History Distribution course must be at least 200-level but may not be HIST 201.

†

See the CoAS Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for a list of course options for this distribution.

††

See the degree requirements (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/history/#degreerequirementsbtext>) for the department foreign language requirement. One language course may count toward the "Cultivating Global Competence" College of Arts & Sciences Core Curriculum requirement. Note that the Global Concentration requires one additional foreign language course beyond the department's requirement for the major.

†††

Courses that fulfill the Global Engagement requirement include designated travel-integrated courses, Study Abroad courses (with approval), Global Classroom courses in history, or independent study courses (with approval.)

Co-Op/Career Opportunities

Co-Op Experiences

History majors have a wide variety of co-op experiences from which to choose. Businesses offer many possibilities, as do local, state, and federal governments or non-profit organizations including museums and archives. Pre-law students, for example, may be especially eager to work in a law firm, whether the co-op job they receive is clerical or a more challenging paralegal assignment. These practical experiences in the "real" world can reinforce the lessons of the classroom, sharpen skills, and establish important contacts. Sample co-op positions include:

- Law clerk/paralegal, Joe Davidson, Attorney-at-Law, Philadelphia
- Archival digitization assistant, The Athenaeum of Philadelphia
- Archives and library intern, Redemptorist Fathers Archive
- Legislative intern, Corporate Public Affairs Division, Philadelphia Electric Company
- Research analyst, Legislative Office for Research Liaison, Harrisburg, PA
- Education intern, Philadelphia Museum of Art
- Programs intern, Collegium Institute, Philadelphia
- Assistant, Office of the Governor, Harrisburg, PA

Career Opportunities

The flexible programs allow students to shape a curriculum that meets their needs, whether they are preparing for the business world, graduate school in history or political science, an MBA or other business program, or law school.

Program Level Outcomes

- Demonstrate chronologically, geographically, and thematically broad historical knowledge.

- Identify, synthesize, and critique academic and nonacademic historical arguments.
- Choose appropriate tools and methods to find and interpret historical source materials.
- Design and carry out a substantial project of original historical research.
- Communicate research findings clearly, accurately, and effectively in appropriate formats.
- Understand historical phenomena in their contexts and in relation to contemporary issues.
- Apply ethical principles in historical research and communication; develop understanding of the history and implications of systemic bias and structural racism.

History Faculty

Lloyd Ackert, PhD (*Johns Hopkins University*). Associate Teaching Professor. History of science and technology; ecology; Russian science.

Debjani Bhattacharyya, PhD (*Emory University*). Assistant Professor. Modern South Asian history; urban environmental history; history of economic thought; and post-colonial theory.

Scott G. Knowles, PhD (*Johns Hopkins University*) *Interim Department Head, History*. Associate Professor. Urban history, history of technology, history of disasters, modern history.

Sharon Ku, PhD (*University of Cambridge, UK*). Assistant Research Professor. History and sociology of science; nanotechnology; scientific standardization.

Jonson Miller, PhD (*Virginia Tech*). Associate Professor. Science and technology, American history, military history.

Tiago Saraiva, PhD (*Universidad Autónoma de Madrid*). Assistant Professor. History of science and technology; transnational history; environmental history

Jonathan Seitz, PhD (*University of Wisconsin*) *Assistant Department Head, History*. Associate Teaching Professor. History of religion, science, medicine, witchcraft, early modern Europe, Italy.

Amy Slaton, PhD (*University of Pennsylvania*). Professor. History of science and technology; history of standards and metrology; intersectionality, race, labor.

Kathryn Steen, PhD (*University of Delaware*). Associate Professor. History of technology, history of industry and business, and comparative history.

Donald F. Stevens, PhD (*University of Chicago*). Associate Professor. Modern Latin American history.

Alden Young, PhD (*Princeton University*) *Director of the Program in Africana Studies*. Assistant Professor. African history; economic history and the history of Arab and African interactions.

Michael Yudell, MPH, MPhil, PhD (*Columbia University*) *Chair, Department of Community Health and Prevention*. Associate Professor. Public health genomics; bioethics; history of public health; addiction.

Robert Zaller, PhD (*Washington University*). Professor. English history and early modern European history.

Emeritus Faculty

Eric Dorn Brose, PhD (*Ohio State University*). Professor Emeritus. German and European history.

Mathematical Statistics BS

Major: Mathematical Statistics

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No

Co-op (Four years)

Classification of Instructional Programs (CIP) code: 27.0502

Standard Occupational Classification (SOC) code: 15-2041

About the Program

Statistics concerns itself primarily with the collection and analysis of data using mathematical and computational methods. It is an invaluable asset in a vast array of industries: agriculture, medicine, engineering, politics, education, pharmaceuticals, public health, the technology sector, manufacturing, media and finance all employ statisticians. From a streaming service using viewer data to determine which programs to produce, to a school district deciding if its math curriculum is working, statisticians play a key role in identifying problems and finding solutions to the same. Classical methods, for instance linear regression and principal component analysis, continue to be essential tools across many fields. Moreover, statistics is an exciting and ever-evolving subject, playing a major role in the rise of modern data science and machine learning.

Mathematical Statistics majors will learn both the theoretical grounding of modern statistical analysis and also the details of how such analysis is applied in practice across a number of industries and careers. Applied electives, drawn from classes across the University, permit students the flexibility to see how statistics is used in a field of their choosing, positioning them for a career in that area. Theoretical courses, taken in the Mathematics Department, will provide students with a deep understanding of how and why modern statistical analysis works, giving them the skills to adapt and extend existing tools to new settings along with a strong foundation to develop novel quantitative tools to tackle tomorrow's problems.

Additional Information

For more information about this program, contact the Department of Mathematics at mathinfo@drexel.edu.

Degree Requirements

General Education Requirements:

CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Engaging the Natural World **	6.0-8.0
Analyzing Culture & Histories **	6.0-8.0
Understanding Society & Human Behavior **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Perspectives in Diversity **	3.0-4.0
Developing Quantitative Reasoning ^	6.0-8.0

Computer Science sequence: 9.0

CS 150	Computer Science Principles
or CS 164	Introduction to Computer Science
CS 171	Computer Programming I
CS 172	Computer Programming II

Any BIO, CHEM, PHYS, or PHEV course 3.0-4.0

Mathematics & Statistics required courses:

MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
MATH 220 [WI]	Introduction to Mathematical Reasoning	3.0
MATH 222 [WI]	Combinatorics	3.0
MATH 311	Probability and Statistics I	4.0
MATH 312	Probability and Statistics II	4.0
MATH 313	Probability and Statistics III	3.0
MATH 318 [WI]	Mathematical Applications of Statistical Software	3.0
MATH 401	Elements of Modern Analysis I	3.0
STAT 335	Introduction to Experimental Design	4.0

Applied Quantitative Methods course: 3.0-4.0

Select one for a minimum of 3.0 credits

CJS 250	Research Methods & Analytics I
COM 221	Quantitative Research Methods in Communication
PSCI 232	Quantitative Research Methods in Political Science
SOC 242	Research Design: Quantitative Methods

Mathematics (MATH) Electives: † 15.0

Select a minimum of 15.0 credits from the following:

MATH 210	Differential Equations
MATH 250	Mathematics of Investment and Credit
MATH 285	Differential Equations II
MATH 300	Numerical Analysis I
MATH 301	Numerical Analysis II
MATH 305	Introduction to Optimization Theory
MATH 319	Techniques of Data Analysis
MATH 320	Actuarial Mathematics
MATH 321	Vector Calculus
MATH 322	Complex Variables
MATH 323	Partial Differential Equations
MATH 331	Abstract Algebra I
MATH 332	Abstract Algebra II
MATH 387	Linear Algebra II
MATH 402	Elements of Modern Analysis II
MATH 422	Introduction to Topology
MATH 449	Mathematical Finance
MATH 450	Introduction to Graph Theory
MATH 475	Cryptography
MATH 483	Introduction to Monte Carlo Methods

Applied Electives: ‡ 15.0

Select a minimum of 15.0 credits from the following:

BIO 331	Bioinformatics I
BIO 332	Bioinformatics II
BIO 333	Bioinformatics Laboratory
CJS 270	Crime Analysis Using Open Data
CJS 300	Research Methods and Analytics II
CJS 310	Crime Prediction Using Open Data

CJS 330	Crime Mapping I Using Geographic Information Systems
COM 379	Focus Groups
DSCI 471	Applied Deep Learning
ECES 441	Bioinformatics
ECES 450	Statistical Analysis of Metagenomics
ECON 270	Using Big Data to Solve Economic and Social Problems
ECON 350 [WI]	Applied Econometrics
ECON 360	Time Series Econometrics
ECON 370	Experiments and Causality in Economics
ENVS 308	GIS and Environmental Modeling
ENVS 415	Advanced Environmental GIS
INFO 202	Data Curation
INFO 212	Data Science Programming I
INFO 213	Data Science Programming II
INFO 250	Information Visualization
INFO 371	Data Mining Applications
INFO 440	Social Media Data Analysis
OPR 320	Linear Models for Decision Making
OPR 330	Advanced Decision Making and Simulation
PBHL 453	Longitudinal Data Analysis
PHYS 440	Big Data Physics
Free Electives	39.0

Total Credits 180.0-193.0

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 (<https://catalog.drexel.edu/search/?P=COOP%20101>) registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 (<https://catalog.drexel.edu/search/?P=COOP%20001>) in place of COOP 101 (<https://catalog.drexel.edu/search/?P=COOP%20101>).

★★

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

★★★

Math majors must pass MATH 121 (<https://catalog.drexel.edu/search/?P=MATH%20121>) with a grade of B or higher.

†

MATH special topics courses may be substituted for Math Major Electives with departmental permission.

‡

At least 3 credits of these electives must be at the 400-level and another 3 credits must be either at the 300-level or the 400-level.

^

any required or elective MATH course taken cannot also be used to fulfill a Quantitative Reasoning Core requirement

MATH 100 (<https://catalog.drexel.edu/search/?P=MATH%20100>), MATH 101 (<https://catalog.drexel.edu/search/?P=MATH%20101>), MATH 102 (<https://catalog.drexel.edu/search/?P=MATH%20102>), MATH 110 (<https://catalog.drexel.edu/search/?P=MATH%20110>), MATH 119 (<https://catalog.drexel.edu/search/?P=MATH%20119>), MATH 180 (<https://catalog.drexel.edu/search/?P=MATH%20180>), MATH 171 (<https://catalog.drexel.edu/search/?P=MATH%20171>), MATH 172 (<https://catalog.drexel.edu/search/?P=MATH%20172>),

%20172), MATH 173 (<https://catalog.drexel.edu/search/?P=MATH%20173>), and MATH 239 (<https://catalog.drexel.edu/search/?P=MATH%20239>) do not count towards the degree unless approved by the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
CS 150 or 164	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
14-15		14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 201	4.0 MATH 313	3.0 VACATION	
MATH 220	3.0 MATH 312	4.0 Applied Quantitative Methods	3.0-4.0	
MATH 311	4.0 Analyzing Culture & Histories	3.0-4.0 Cultivating Global Competence	3.0-4.0	
UNIV S201	1.0 Free Electives	3.0 Free Electives	6.0	
Perspectives in Diversity	3.0-4.0			
Free Electives	3.0			
17-18		14-15	15-17	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 222	3.0 MATH 318	3.0 Applied Elective	3.0 VACATION	
MATH 401	3.0 MATH Electives	3.0 Cultivating Global Competence	3.0-4.0	
STAT 335	4.0 Understanding Society & Human Behavior	3.0-4.0 MATH Elective	3.0	
Analyzing Culture & Histories	3.0-4.0 Free Elective	5.0 Free Electives	5.0	
Applied Electives	3.0			
16-17		14-15	14-15	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Applied Electives	3.0 Applied Electives	3.0 Applied Elective	3.0	
MATH Elective	3.0 Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0	
Understanding Society & Human Behavior	3.0-4.0 MATH Elective	3.0 MATH Elective	3.0	
Free Electives	6.0 Free Electives	6.0 Free Electives	6.0	
15-16		15-16	15-16	
Total Credits 180-193				

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
14-15		14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 201	4.0 COOP 101*	1.0 Applied Elective	3.0
MATH 220	3.0 MATH 312	4.0 MATH 313	3.0 Cultivating Global Competence	3.0-4.0
MATH 311	4.0 Analyzing Culture & Histories	3.0-4.0 Applied Quantitative Methods	3.0-4.0 Free Electives	9.0
UNIV S201	1.0 Free Elective	4.0 Cultivating Global Competence	3.0-4.0	
Perspectives in Diversity	3.0-4.0	MATH Elective	3.0	
Free Elective	3.0	Free Elective	3.0	
17-18		15-16	16-18	15-16

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 222	3.0 MATH 318	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 401	3.0 Applied Elective	3.0		
STAT 335	4.0 MATH Elective	3.0		
Analyzing Culture & Histories	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0		
Free Elective	3.0 Free Elective	3.0		
16-17		15-16	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
Applied Elective	3.0 Applied Elective	3.0 Applied Elective	3.0
MATH Elective	3.0 Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0
Understanding Society & Human Behavior	3.0-4.0 MATH Elective	3.0 MATH Elective	3.0
Free Electives	6.0 Free Electives	3.0 Free Electives	5.0
15-16		12-13	14-15

Total Credits 180-193

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op**First Year**

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 CS 172	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 MATH 122	4.0 MATH 123	4.0	
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 MATH 200	4.0	
		Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
14-15		14-15	18-19	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 201	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 220	3.0 MATH 312	4.0		

MATH 311	4.0 Analyzing Culture and Histories	3.0-4.0
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Perspective: in Diversity	3.0-4.0 Free Elective	3.0
Free Elective	3.0	
16-17		14-15
		0
		0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 222	3.0 MATH 318	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 313	3.0 Applied Elective	3.0		
Analyzing Culture and Histories	3.0-4.0 MATH Elective	3.0		
Applied Elective	3.0 Understanding Society & Human Behavior	3.0-4.0		
Free Electives	6.0 Free Elective	3.0		
18-19		15-16	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401	3.0 Applied Quantitative Methods	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
STAT 335	4.0 Cultivating Global Competence	3.0-4.0		
UNIV S201	1.0 Free Electives	8.0		
Cultivating Global Competence	3.0-4.0			
MATH Elective	3.0			
14-15		14-16	0	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
Applied Elective	3.0 Applied Elective	3.0 Applied Elective	3.0
MATH Elective	3.0 Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0
Understanding Society & Human Behavior	3.0-4.0 MATH Elective	3.0 MATH Elective	3.0
Free Electives	6.0 Free Electives	6.0 Free Electives	4.0
15-16		15-16	13-14

Total Credits 180-193

★

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Mathematics Faculty

David M. Ambrose, PhD (*Duke University*) Associate Department Head, *Mathematics*. Associate Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

Jason Aran, MS (*Drexel University*). Assistant Teaching Professor.

Jonah D. Blasiak, PhD (*University of California at Berkeley*). Associate Professor. Algebraic combinatorics, representation theory, and complexity theory.

Robert P. Boyer, PhD (*University of Pennsylvania*) Associate Head of the *Mathematics Department*. Professor. Functional analysis, C^* -algebras and the theory of group representations.

Patrick Clarke, PhD (*University of Miami*). Assistant Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (*Drexel University*). Assistant Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (*Drexel University*). Assistant Teaching Professor.

Carlo Fazioli, PhD (*University of Illinois at Chicago*). Assistant Teaching Professor. Computational Fluid Dynamics, Free Boundary Problems.

Pavel Grinfeld, PhD (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (*University of California at Berkeley*). Assistant Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Robert Immordino, MS (*Drexel University*). Assistant Teaching Professor.

Ryan Kaliszewski, PhD (*The University of North Carolina at Chapel Hill*). Visiting Assistant Professor. Algebraic Combinatorics and Algebraic Geometry--specifically positivity results for generating polynomials.

Dmitry Kaliuzhnyi-Verbovetskyi, PhD (*Kharkov University*). Associate Professor. Operator theory, systems theory, complex analysis, C^* -algebras and harmonic analysis.

Hwan Yong Lee, PhD (*University of Utah*). Assistant Teaching Professor. Electromagnetic wave propagation in composite media, optimization and inverse problem.

Georgi S. Medvedev, PhD (*Boston University*). Associate Professor. Ordinary and partial differential equations, mathematical neuroscience.

Taoufik Meklachi, PhD (*University of Houston*). Visiting Assistant Professor. Inverse Problems

Jennifer Morse, PhD (*University of California, San Diego*) Undergraduate Advisor. Professor. Algebraic combinatorics.

Shari Moskow, PhD (*Rutgers University*) Department Head. Professor. Partial differential equations and numerical analysis, including homogenization theory, numerical methods for problems with rough coefficients, and inverse problems.

Marna A. Mozeff, MS (*Drexel University*). Associate Teaching Professor. Working with Freshmen

Oksana P. Odintsova, PhD (*Omsk State University*). Associate Teaching Professor. Math education; geometrical modeling.

Dimitrios Papadopoulos, MS (*Drexel University*). Instructor.

Ronald K. Perline, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (*Columbia University*). Assistant Professor. Partial differential equations, scientific computing and applied mathematics.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Xiaoming Song, PhD (*University of Kansas*). Assistant Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (*Boston University*). Assistant Teaching Professor.

Kenneth P. Swartz, PhD (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

Vaishalee T. Wadke, MS (*Columbia University*). Instructor.

Richard D. White, MS (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (*Boston University*) *Graduate Advisor*. Associate Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (*Cornell University*). Assistant Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Emeritus Faculty

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C*-algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Mathematics BA

Major: Mathematics

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 27.0101

Standard Occupational Classification (SOC) code: 15-2021

About the Program

The mathematics major at Drexel provides a supportive learning environment in which students obtain a firm grounding in the core areas of mathematics and apply this knowledge to problems encountered in a technological society. The Department of Mathematics (<http://drexel.edu/coas/academics/departments-centers/mathematics/>) offers students the option of either a BA or a BS degree.

The Mathematics Department takes pride in offering a balanced and flexible curriculum. Three very different kinds of skills are emphasized in the mathematics major:

Abstract Reasoning

All students majoring in mathematics take courses that emphasize abstract reasoning. Students read and write proofs, and graduate well prepared to enter a PhD program in mathematics.

Computing

All students majoring in mathematics take a series of computing courses. This emphasis on computing is one of the distinctive features of the mathematics program at Drexel, and provides students with a competitive advantage in the job market.

Mathematical Modeling

All students majoring in mathematics take multidisciplinary courses that focus on the interplay between mathematics and an area of application. Students often use electives to focus on an area of personal interest. The Department of Mathematics encourages students to minor in a subject where mathematics is applied. The Department provides an advisor to assist students in selecting electives and planning career paths.

Additional Information

For additional information about Mathematics, contact Academic Advisor Paige Chmielewski pr37@drexel.edu.

Degree Requirements (BA)

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum

Engaging the Natural World *	6.0-8.0
Analyzing Cultures & Histories *	6.0-8.0
Understanding Society & Human Behavior *	6.0-8.0
Cultivating Global Competence *	6.0-8.0
Perspectives in Diversity *	3.0-4.0

Computer Science sequence:

CS 150	Computer Science Principles	
or CS 164	Introduction to Computer Science	
CS 171	Computer Programming I	
CS 172	Computer Programming II	
Any BIO, CHEM, PHYS, or PHEV course		3.0-4.0
Free Electives **		66.0

Core Mathematics Requirements

MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0

MATH 210	Differential Equations	4.0
MATH 220 [WI]	Introduction to Mathematical Reasoning	3.0
MATH 331	Abstract Algebra I	3.0-4.0
or MATH 401	Elements of Modern Analysis I	
Math Major Electives [†]		30.0
Select a minimum of 30 credits from the following:		
MATH 205	Survey of Geometry	
MATH 221	Discrete Mathematics	
MATH 222	Combinatorics [WI]	
MATH 235	Math Competition Problem Solving Seminar	
MATH 238	History of Mathematics	
MATH 250	Mathematics of Investment and Credit	
MATH 285	Differential Equations II	
MATH 300	Numerical Analysis I	
MATH 301	Numerical Analysis II	
MATH 305	Introduction to Optimization Theory	
MATH 311	Probability and Statistics I	
MATH 312	Probability and Statistics II	
MATH 313	Probability and Statistics III	
MATH 316	Mathematical Applications of Symbolic Software	
MATH 318	Mathematical Applications of Statistical Software [WI]	
MATH 319	Techniques of Data Analysis	
MATH 320	Actuarial Mathematics	
MATH 321	Vector Calculus	
MATH 322	Complex Variables	
MATH 323	Partial Differential Equations	
MATH 332	Abstract Algebra II	
MATH 387	Linear Algebra II	
MATH 401	Elements of Modern Analysis I	
or MATH 331	Abstract Algebra I	
MATH 402	Elements of Modern Analysis II	
MATH 422	Introduction to Topology	
MATH 449	Mathematical Finance	
MATH 450	Introduction to Graph Theory	
MATH 475	Cryptography	
MATH 483	Introduction to Monte Carlo Methods	
MATH 489	Tensor Calculus	
Total Credits		181.0-192.0

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See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

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Students not participating in co-op, will take one additional credit of Free Elective instead of COOP 101.

★★★

Math majors must pass MATH 121 with a grade of B or higher.

†

If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study (BA)

4 year, no co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121*	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 220	3.0	
Engaging the Natural World***	3.0-4.0 Engaging the Natural World***	3.0-4.0 Understanding Society & Human Behavior***	3.0-4.0	
14-15		14-15	16-17	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 Mathematics (MATH) courses**	6.0 MATH 210	4.0 VACATION	
MATH 200	4.0 Free electives	6.0 Mathematic: (MATH) course	3.0	
MATH 201	4.0 Analyzing Cultures & Histories***	3.0-4.0 Understanding Society & Human Behavior***	3.0-4.0	
Perspective: in Diversity***	3.0-4.0	Analyzing Cultures & Histories***	3.0-4.0	
Cultivating Global Competence***	3.0-4.0	Free elective	3.0	
17-19		15-16	16-18	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Mathematics (MATH) course**	3.0 MATH 401 or 331	3.0-4.0 UNIV S201	1.0 VACATION	

Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0 Mathematics: (MATH) course**	3.0 Mathematics: (MATH) course**	4.0
Free electives	9.0 Free electives	6.0 Free electives	10.0
	Cultivating Global Competence	3.0-4.0	
15-16		15-17	15

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
Mathematics (MATH) course**	4.0 Mathematics (MATH) course	3.0 Mathematics (MATH) course**	4.0
Free electives	12.0 Free electives	11.0 Free electives	10.0
16		14	14

Total Credits 181-192

*

Math majors must pass MATH 121 with a grade of B or higher.

**

If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

4 year, 1 co-op**First Year**

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 COOP 101**	1.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 CS 172	3.0	
MATH 121*	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 MATH 122	4.0 MATH 123	4.0	
Engaging the Natural World†	3.0-4.0 Engaging the Natural World†	3.0-4.0 MATH 220	3.0	
		Understandi Society & Human Behavior†	3.0-4.0	
14-15		14-15	17-18	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 Analyzing Cultures & Histories†	3.0-4.0 MATH 210	4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0
MATH 200	4.0 Mathematic: (MATH) courses***	6.0 Analyzing Cultures & Histories†	3.0-4.0 Mathematic: (MATH) course***	3.0

MATH 201	4.0 Free electives	6.0 Mathematics (MATH) course***	3.0 Free elective	9.0
Cultivating Global Competence	3.0-4.0	Understandi Society & Human Behavior†	3.0-4.0	
Perspectives in Diversity†	3.0-4.0	Free elective	3.0	
17-19		15-16	16-18	15-16

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401 or 331	3.0-4.0 UNIV S201	1.0 COOP EXPERIENCE	COOP EXPERIENCE	
Cultivating Global Competence	3.0-4.0 Mathematics: (MATH) course***	4.0		
Mathematics (MATH) course***	3.0 Free electives	9.0		
Free electives	6.0			

15-17 **14** **0** **0****Fourth Year**

Fall	Credits Winter	Credits Spring	Credits
Mathematics (MATH) course***	4.0 Mathematics (MATH) course***	3.0 Mathematics (MATH) course***	4.0
Free electives	12.0 Free electives	11.0 Free electives	10.0
16		14	14

Total Credits 181-192

*

Math majors must pass MATH 121 with a grade of B or higher.

**

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

†

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

5-year, 3 co-op**First Year**

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 COOP 101**	1.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 CS 172	3.0	
MATH 121*	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 MATH 122	4.0 MATH 123	4.0	

Engaging the Natural World [†]	3.0-4.0 Engaging the Natural World [†]	3.0-4.0 MATH 220	3.0	
		Understandi Society & Human Behavior [†]	3.0-4.0	
	14-15	14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 Analyzing Cultures & Histories [†]	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 200	4.0 Mathematic: (MATH) courses ^{***}	6.0		
MATH 201	4.0 Free electives	6.0		
Cultivating Global Competenci	3.0-4.0			
Perspectives in Diversity [†]	3.0-4.0			
	17-19	15-16	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 210	4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Analyzing Cultures & Histories [†]	3.0-4.0 Mathematic: (MATH) course ^{***}	3.0		
Mathematics (MATH) course ^{***}	3.0 Free electives	9.0		
Understandi Society & Human Behavior [†]	3.0-4.0			
Free elective	3.0			
	16-18	15-16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401 or 331	3.0-4.0 UNIV S201	1.0 COOP EXPERIENCE	COOP EXPERIENCE	
Cultivating Global Competenci	3.0-4.0 Mathematic: (MATH) courses ^{***}	4.0		
Mathematics (MATH) course ^{***}	3.0 Free electives	9.0		
Free electives	6.0			
	15-17	14	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
Mathematics (MATH) course ^{***}	4.0 Mathematics (MATH) course ^{***}	3.0 Mathematics (MATH) course ^{***}	4.0	
Free electives	12.0 Free electives	11.0 Free electives	10.0	
	16	14	14	
Total Credits 181-192				

*

Math majors must pass MATH 121 with a grade of B or higher.

**

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to 3 mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

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Co-op/Career Opportunities

Mathematicians are employed in a variety of capacities in business, industry, and government. Students can combine courses in economics or finance and mathematics to prepare for careers in the actuarial field, banks, stock exchanges, or finance departments of large corporations or other financial institutions. Students interested in science careers may focus on probability and statistics in order to work for industries like pharmaceutical manufacturers. Many others combine math studies with computer science courses to prepare for careers in information systems or engineering.

Teacher certification is also a career option available through a joint program in mathematics and teacher education.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Dual Degree Bachelor's Programs

Since applied mathematics plays an important role in many different disciplines, mathematics majors often choose to pursue specialization in a second field of study. Students may choose a dual major that involves completing the requirements of two separate majors or they can opt for a minor, which involves completing the major in one field and a smaller set of courses in another.

Dual majors are common in mathematics/computer science and mathematics/physics. Students interested in a dual major should consult with their advisor or contact the assistant department head. Dual majors in other fields are also possible, but early planning and discussions with advisors is essential.

Program Level Outcomes

- Demonstrate problems-solving skills in a broad range of significant mathematical contexts
- Understand what constitutes mathematical thinking, and be able to produce and judge the validity of mathematical arguments
- Produce clear and valid proofs
- Demonstrate substantial computer programming skills

- Interact effectively with collaborators in other disciplines
- Present mathematical information clearly, both orally and in writing, in a way that is appropriate for the audience

Mathematics Faculty

David M. Ambrose, PhD (*Duke University*) Associate Department Head, *Mathematics*. Associate Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

Jason Aran, MS (*Drexel University*). Assistant Teaching Professor.

Jonah D. Blasiak, PhD (*University of California at Berkeley*). Associate Professor. Algebraic combinatorics, representation theory, and complexity theory.

Robert P. Boyer, PhD (*University of Pennsylvania*) Associate Head of the *Mathematics Department*. Professor. Functional analysis, C^* -algebras and the theory of group representations.

Patrick Clarke, PhD (*University of Miami*). Assistant Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (*Drexel University*). Assistant Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (*Drexel University*). Assistant Teaching Professor.

Carlo Fazioli, PhD (*University of Illinois at Chicago*). Assistant Teaching Professor. Computational Fluid Dynamics, Free Boundary Problems.

Pavel Grinfeld, PhD (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (*University of California at Berkeley*). Assistant Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Robert Immordino, MS (*Drexel University*). Assistant Teaching Professor.

Ryan Kaliszewski, PhD (*The University of North Carolina at Chapel Hill*). Visiting Assistant Professor. Algebraic Combinatorics and Algebraic Geometry--specifically positivity results for generating polynomials.

Dmitry Kaliuzhnyi-Verbovetskyi, PhD (*Kharkov University*). Associate Professor. Operator theory, systems theory, complex analysis, C^* -algebras and harmonic analysis.

Hwan Yong Lee, PhD (*University of Utah*). Assistant Teaching Professor. Electromagnetic wave propagation in composite media, optimization and inverse problem.

Georgi S. Medvedev, PhD (*Boston University*). Associate Professor. Ordinary and partial differential equations, mathematical neuroscience.

Taoufik Meklachi, PhD (*University of Houston*). Visiting Assistant Professor. Inverse Problems

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Dimitrios Papadopoulos, MS (*Drexel University*). Instructor.

Ronald K. Perline, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (*Columbia University*). Assistant Professor. Partial differential equations, scientific computing and applied mathematics.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Xiaoming Song, PhD (*University of Kansas*). Assistant Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (*Boston University*). Assistant Teaching Professor.

Kenneth P. Swartz, PhD (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

Vaishalee T. Wadke, MS (*Columbia University*). Instructor.

Richard D. White, MS (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (*Boston University*) *Graduate Advisor*. Associate Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (*Cornell University*). Assistant Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Emeritus Faculty

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C*-algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Mathematics BS

Major: Mathematics

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 181.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 27.0101

Standard Occupational Classification (SOC) code: 15-2021

About the Program

The mathematics major at Drexel provides a supportive learning environment in which students obtain a firm grounding in the core areas of mathematics and apply this knowledge to problems encountered in a technological society. The Department of Mathematics (<http://drexel.edu/coas/academics/departments-centers/mathematics/>) offers students the option of either a BA or a BS degree.

The Mathematics Department takes pride in offering a balanced and flexible curriculum. Three very different kinds of skills are emphasized in the mathematics major:

Abstract Reasoning

All students majoring in mathematics take courses that emphasize abstract reasoning. Students read and write proofs, and graduate well prepared to enter a PhD program in mathematics.

Computing

All students majoring in mathematics take a series of computing courses. This emphasis on computing is one of the distinctive features of the mathematics program at Drexel, and provides students with a competitive advantage in the job market.

Mathematical Modeling

All students majoring in mathematics take multidisciplinary courses that focus on the interplay between mathematics and an area of application. Students often use electives to focus on an area of personal interest. The Department of Mathematics encourages students to minor in a subject where mathematics is applied. The Department provides an advisor to assist students in selecting electives and planning career paths.

Additional Information

For more information about this program, please visit the Mathematics (<https://drexel.edu/coas/academics/undergraduate-programs/mathematics/>) web page.

Degree Requirements

General Education Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
COM 230	Techniques of Speaking	3.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum		
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Computer Science sequence:		9.0
CS 150	Computer Science Principles	
or CS 164	Introduction to Computer Science	
CS 171	Computer Programming I	
CS 172	Computer Programming II	
Any BIO, CHEM, PHYS, or PHEV course		3.0-4.0
Free electives		45.0
Mathematics Requirements		
MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0

MATH 201	Linear Algebra	4.0
MATH 210	Differential Equations	4.0
MATH 220 [WI]	Introduction to Mathematical Reasoning	3.0
MATH 331	Abstract Algebra I	4.0
MATH 332	Abstract Algebra II	3.0
MATH 401	Elements of Modern Analysis I	3.0
MATH 402	Elements of Modern Analysis II	3.0

Math Major Electives † **40.0**

Select a minimum of 40.0 credits from the following:

MATH 222 [WI]	Combinatorics
MATH 235	Math Competition Problem Solving Seminar
MATH 250	Mathematics of Investment and Credit
MATH 285	Differential Equations II
MATH 300	Numerical Analysis I
MATH 301	Numerical Analysis II
MATH 305	Introduction to Optimization Theory
MATH 311	Probability and Statistics I
MATH 312	Probability and Statistics II
MATH 313	Probability and Statistics III
MATH 316	Mathematical Applications of Symbolic Software
MATH 318 [WI]	Mathematical Applications of Statistical Software
MATH 319	Techniques of Data Analysis
MATH 320	Actuarial Mathematics
MATH 321	Vector Calculus
MATH 322	Complex Variables
MATH 323	Partial Differential Equations
MATH 387	Linear Algebra II
MATH 422	Introduction to Topology
MATH 449	Mathematical Finance
MATH 450	Introduction to Graph Theory
MATH 475	Cryptography
MATH 483	Introduction to Monte Carlo Methods
MATH 489	Tensor Calculus

Total Credits **180.0-190.0**

*

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

Math majors must pass MATH 121 with a grade of B or higher.

†

MATH special topics courses may be substituted for Math Major Electives with departmental permission.

MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no coop

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	
Engaging the Natural World*	3.0-4.0 Engaging the Natural World*	3.0-4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
14-15		14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 210	4.0 MATH 331	4.0 VACATION	
MATH 201	4.0 Analyzing Cultures & Histories*	3.0-4.0 Cultivating Global Competence*	3.0-4.0	
MATH 220	3.0 Mathematics (MATH) elective**	3.0 Mathematics (MATH) elective***	4.0	
Analyzing Cultures & Histories*	3.0-4.0 Perspective: in Diversity*	3.0-4.0 Understanding Society & Human Behavior*	3.0-4.0	
Free electives	3.0			
16-17		13-15	14-16	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 332	3.0 MATH 401	3.0 MATH 402	3.0 VACATION	
Mathematic: (MATH) elective***	4.0 Cultivating Global Competence*	3.0-4.0 UNIV S201	1.0	

Understanding Society & Human Behavior*	3.0-4.0 Mathematics (MATH) elective***	3.0 Mathematics (MATH) electives***	7.0	
Free electives	6.0 Free electives	6.0 Free electives	6.0	
16-17		15-16	17	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Mathematics (MATH) electives***	6.0 Mathematics (MATH) electives***	7.0 Mathematics (MATH) electives***	6.0	
Free electives	8.0 Free electives	8.0 Free electives	9.0	
14		15	15	
Total Credits 180-190				

*

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4 year, 1 coop

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 COOP 101**	1.0 ENGL 103 or 113	3.0	
MATH 121*	4.0 CS 171	3.0 MATH 123	4.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 MATH 200	4.0	
Engaging the Natural World†	3.0-4.0 MATH 122	4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
	Engaging the Natural World†	3.0-4.0		
14-15		15-16	17-18	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 210	4.0 MATH 331	4.0 MATH 332	3.0
MATH 201	4.0 Analyzing Cultures & Histories†	3.0-4.0 Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0
MATH 220	3.0 Mathematics (MATH) elective***	3.0 Mathematics (MATH) elective***	4.0 Mathematics (MATH) elective***	4.0

Analyzing Cultures & Histories****	3.0-4.0 Perspective: in Diversity†	3.0-4.0 Understanding Society & Human Behavior†	3.0-4.0 Free electives	6.0
13-14		13-15	14-16	16-17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401	3.0 MATH 402	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
Mathematic: (MATH) elective***	3.0 UNIV S201	1.0		
Understanding Society & Human Behavior†	3.0-4.0 Mathematics (MATH) electives***	7.0		
Free electives	6.0 Free electives	6.0		
15-16		17	0	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Mathematics (MATH) electives***	7.0 Mathematics (MATH) electives***	6.0 Mathematics (MATH) electives***	6.0	
Free electives	9.0 Free electives	9.0 Free electives	9.0	
16		15	15	
Total Credits 180-190				

*

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**

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5 year, 3 coop

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 COOP 101**	1.0 ENGL 103 or 113	3.0	
MATH 121*	4.0 CS 171	3.0 MATH 123	4.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 MATH 200	4.0	

Engaging the Natural World [†]	3.0-4.0 MATH 122	4.0 Any BIO, CHEM, PHYS, or PHEV course****	3.0-4.0	
	Engaging the Natural World [†]	3.0-4.0		
	14-15	15-16	17-18	0
Second Year				
Fall	Credits	Winter	Credits	Spring
COM 230	3.0	MATH 210	4.0	COOP EXPERIENCE
MATH 201	4.0	Analyzing Cultures & Histories [†]	3.0-4.0	
MATH 220	3.0	Cultivating Global Competence [†]	3.0-4.0	
Analyzing Cultures & Histories [†]	3.0-4.0	Mathematic: (MATH) elective***	3.0	
Perspectives in Diversity [†]	3.0-4.0			
	16-18	13-15	0	0
Third Year				
Fall	Credits	Winter	Credits	Spring
MATH 331	4.0	MATH 332	3.0	COOP EXPERIENCE
Mathematic: (MATH) elective***	4.0	Cultivating Global Competence	3.0-4.0	
Understanding Society & Human Behavior [†]	3.0-4.0	Mathematics (MATH) elective***	3.0	
Free electives	4.0	Understanding Society & Human Behavior [†]	3.0-4.0	
		Free elective	3.0	
	15-16	15-17	0	0
Fourth Year				
Fall	Credits	Winter	Credits	Spring
MATH 401	3.0	MATH 402	3.0	COOP EXPERIENCE
Mathematic: (MATH) electives***	3.0	UNIV S201	1.0	
Free electives	9.0	Mathematics (MATH) electives***	7.0	
		Free electives	4.0	
	15	15	0	0
Fifth Year				
Fall	Credits	Winter	Credits	Spring
Mathematics (MATH) electives***	7.0	Mathematics (MATH) electives***	7.0	Mathematics (MATH) electives***
Free electives	8.0	Free electives	8.0	Free electives
	15	15	15	
Total Credits 180-190				

*

Math majors must pass MATH 121 with a grade of B or higher.

**

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Co-op/Career Opportunities

Mathematicians are employed in a variety of capacities in business, industry, and government. Students can combine courses in economics or finance and mathematics to prepare for careers in the actuarial field, banks, stock exchanges, or finance departments of large corporations or other financial institutions. Students interested in science careers may focus on probability and statistics in order to work for industries like pharmaceutical manufacturers. Many others combine math studies with computer science courses to prepare for careers in information systems or engineering.

Teacher certification is also a career option available through a joint program in mathematics and teacher education.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Dual Degree Bachelor's Programs

Since applied mathematics plays an important role in many different disciplines, mathematics majors often choose to pursue specialization in a second field of study. Students may choose a dual major that involves completing the requirements of two separate majors or they can opt for a minor, which involves completing the major in one field and a smaller set of courses in another.

Dual majors are common in mathematics/computer science and mathematics/physics. Students interested in a dual major should consult with their advisor or contact the assistant department head. Dual majors in other fields are also possible, but early planning and discussions with advisors is essential.

Program Level Outcomes

- Demonstrate problems-solving skills in a broad range of significant mathematical contexts
- Understand what constitutes mathematical thinking, and be able to produce and judge the validity of mathematical arguments
- Produce clear and valid proofs
- Demonstrate substantial computer programming skills
- Interact effectively with collaborators in other disciplines
- Present mathematical information clearly, both orally and in writing, in a way that is appropriate for the audience

Mathematics Faculty

David M. Ambrose, PhD (*Duke University*) Associate Department Head, *Mathematics*. Associate Professor. Applied analysis and computing for systems of nonlinear partial differential equations, especially free-surface problems in fluid dynamics.

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Robert P. Boyer, PhD (*University of Pennsylvania*) Associate Head of the *Mathematics Department*. Professor. Functional analysis, C^* -algebras and the theory of group representations.

Patrick Clarke, PhD (*University of Miami*). Assistant Professor. Homological mirror symmetry, Landau-Ginzburg models, algebraic geometry, symplectic geometry.

Daryl Falco, MS (*Drexel University*). Assistant Teaching Professor. Discrete mathematics and automata theory.

Raymond Favocci, MS (*Drexel University*). Assistant Teaching Professor.

Carlo Fazioli, PhD (*University of Illinois at Chicago*). Assistant Teaching Professor. Computational Fluid Dynamics, Free Boundary Problems.

Pavel Grinfeld, PhD (*Massachusetts Institute of Technology*). Associate Professor. Intersection of physics, engineering, applied mathematics and computational science.

Anatolii Grinshpan, PhD (*University of California at Berkeley*). Assistant Teaching Professor. Function theory and operator theory, harmonic analysis, matrix theory.

Yixin Guo, PhD (*University of Pittsburgh*). Associate Professor. Biomathematics, dynamical systems, ordinary and partial differential equations and math education.

R. Andrew Hicks, PhD (*University of Pennsylvania*). Professor. Geometry; optics; computer vision.

Pawel Hitczenko, PhD (*Warsaw University*). Professor. Probability theory and its applications to analysis, combinatorics, wavelets, and the analysis of algorithms.

Robert Immordino, MS (*Drexel University*). Assistant Teaching Professor.

Ryan Kaliszewski, PhD (*The University of North Carolina at Chapel Hill*). Visiting Assistant Professor. Algebraic Combinatorics and Algebraic Geometry--specifically positivity results for generating polynomials.

Dmitry Kaliuzhnyi-Verbovetskyi, PhD (*Kharkov University*). Associate Professor. Operator theory, systems theory, complex analysis, C^* -algebras and harmonic analysis.

Hwan Yong Lee, PhD (*University of Utah*). Assistant Teaching Professor. Electromagnetic wave propagation in composite media, optimization and inverse problem.

Georgi S. Medvedev, PhD (*Boston University*). Associate Professor. Ordinary and partial differential equations, mathematical neuroscience.

Taoufik Meklachi, PhD (*University of Houston*). Visiting Assistant Professor. Inverse Problems

Jennifer Morse, PhD (*University of California, San Diego*) Undergraduate Advisor. Professor. Algebraic combinatorics.

Shari Moskow, PhD (*Rutgers University*) Department Head. Professor. Partial differential equations and numerical analysis, including homogenization theory, numerical methods for problems with rough coefficients, and inverse problems.

Marna A. Mozeff, MS (*Drexel University*). Associate Teaching Professor. Working with Freshmen

Oksana P. Odintsova, PhD (*Omsk State University*). Associate Teaching Professor. Math education; geometrical modeling.

Dimitrios Papadopoulos, MS (*Drexel University*). Instructor.

Ronald K. Perline, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, numerical analysis, symbolic computation, differential geometry, mathematical physics.

Marci A. Perlstadt, PhD (*University of California at Berkeley*). Associate Professor. Applied mathematics, computed tomography, numerical analysis of function reconstruction, signal processing, combinatorics.

Adam C. Rickert, MS (*Drexel University*). Associate Teaching Professor.

Eric Schmutz, PhD (*University of Pennsylvania*). Professor. Probabilistic combinatorics, asymptotic enumeration.

Li Sheng, PhD (*Rutgers University*). Associate Professor. Discrete optimization, combinatorics, operations research, graph theory and its application in molecular biology, social sciences and communication networks, biostatistics.

Gideon Simpson, PhD (*Columbia University*). Assistant Professor. Partial differential equations, scientific computing and applied mathematics.

Justin R. Smith, PhD (*Courant Institute, New York University*). Professor. Homotopy theory, operad theory, quantum mechanics, quantum computing.

Xiaoming Song, PhD (*University of Kansas*). Assistant Professor. Stochastic Calculus, Large Deviation Theory, Theoretical Statistics, Data Network Modeling and Numerical Analysis.

Jeanne M. Steuber, MS (*Boston University*). Assistant Teaching Professor.

Kenneth P. Swartz, PhD (*Harvard University*). Assistant Teaching Professor. Applied statistics, data analysis, calculus, discrete mathematics, biostatistics.

Vaishalee T. Wadke, MS (*Columbia University*). Instructor.

Richard D. White, MS (*Penn State University*). Assistant Teaching Professor.

Hugo J. Woerdeman, PhD (*Vrije Universiteit, Amsterdam*). Professor. Matrix and operator theory, systems theory, signal and image processing, and harmonic analysis.

J. Douglas Wright, PhD (*Boston University*) *Graduate Advisor*. Associate Professor. Partial differential equations, specifically nonlinear waves and their interactions.

Dennis G. Yang, PhD (*Cornell University*). Assistant Teaching Professor. Dynamical systems, neurodynamics.

Thomas (Pok-Yin) Yu, PhD (*Stanford University*). Professor. Multiscale mathematics, wavelets, applied harmonic analysis, subdivision algorithms, nonlinear analysis, applied differential geometry and data analysis.

Emeritus Faculty

Loren N. Argabright, PhD (*University of Washington*). Professor Emeritus. Functional analysis, wavelets, abstract harmonic analysis, the theory of group representations.

Robert C. Busby, PhD (*University of Pennsylvania*). Professor Emeritus. Functional analysis, C*-algebras and group representations, computer science.

Ewaugh Finney Fields, EdD (*Temple University*) *Dean Emeritus*. Professor Emeritus. Mathematics education, curriculum and instruction, minority engineering education.

William M.Y. Goh, PhD (*Ohio State University*). Associate Professor Emeritus. Number theory, approximation theory and special functions, combinatorics, asymptotic analysis.

Bernard Kolman, PhD (*University of Pennsylvania*). Professor Emeritus. Lie algebras; theory, applications, and computational techniques; operations research.

Charles J. Mode, PhD (*University of California at Davis*). Professor Emeritus. Probability and statistics, biostatistics, epidemiology, mathematical demography, data analysis, computer-intensive methods.

Chris Rorres, PhD (*Courant Institute, New York University*). Professor Emeritus. Applied mathematics, scattering theory, mathematical modeling in biological sciences, solar-collection systems.

Jet Wimp, PhD (*University of Edinburgh*). Professor Emeritus. Applied mathematics, special factors, approximation theory, numerical techniques, asymptotic analysis.

Neuroscience BS

Major: Neuroscience

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 186.5

Co-op Options: One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 26.1501

Standard Occupational Classification (SOC) code: 11-9121

About the Program

Drexel's interdisciplinary BS program in Neuroscience is a joint program between the College of Arts and Sciences and the School of Biomedical Engineering, Science, and Health Systems. The program is specifically designed for students with interests in the biological bases of thought and behavior who wish to focus their studies on understanding, repairing, or enhancing neural systems. Drexel's neuroscience BS program is well-suited for students who are considering professional careers in cognitive, clinical, computational, or systems neuroscience; medicine (e.g., neurology, psychiatry); health care; biomedical research; data science; or animal science, as well as other research health-related fields. Drexel's highly interdisciplinary neuroscience curriculum reflects the present and anticipates the future of this rapidly-evolving field, and offers students strong foundational knowledge across many different areas, including biology, psychology, mathematics, biomedical engineering, statistics, neuroethics, and computer science.

The BS in Neuroscience program at Drexel is designed for students whose interests lie at the intersection of the multiple fields that require an understanding of the biological and cognitive basis of central nervous system function and its applications, and who have a strong commitment to research. Graduates of this major will develop a strong foundation across biological, psychological, and quantitative skill sets necessary for their meaningful integration toward understanding, repairing, and enhancing neural systems in healthy or diseased organisms.

Additional Information

For more information about this program please contact: neus@drexel.edu.

Degree Requirements

General Ed Core requirements

General University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
NEUS 201	Academics & Career: Neuroscience	1.0
UNIV S101	The Drexel Experience	1.0
or UNIV R101	The Drexel Experience	

Developing Quantitative Reasoning

Complete the following sequence:		12.0
MATH 121 & MATH 122 & MATH 201	Calculus I and Calculus II and Linear Algebra	

Engaging the Natural World

BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0
ENVS 212	Evolution	4.0

Analyzing Cultures and Histories

Select a minimum of 7.0 credits in 100-400 level courses in the following:		7.0
Any HIST (History)		
Any PHIL (Philosophy)		

Understanding Society and Human Behavior

Select a minimum of 6.0 credits from 100-400 level courses in the following:	6.0
Any ANTH (Anthropology)	
Any ENGL (English)	
Any PSCI (Political Science)	
Any SOC (Sociology)	
PSY 101 General Psychology I	
PSY 212 Physiological Psychology	

Cultivating Global Competence

Select a minimum of 6.0 credits from 100-400 level from the following:	6.0
Any ARBC (Arabic)	
Any CHIN (Chinese)	
Any FREN (French)	
Any GER (German)	
Any GST (Global Studies)	
Any JAPN (Japanese)	
Any KOR (Korean)	
Any SPAN (Spanish)	

Perspectives in Diversity

Select a minimum of 6.0 from the list below:	6.0-8.0
BIO 200 Connections in Biology	
BIO 204 The Privilege of Aging	
COM 345 Intercultural Communication	
HIST 181 Religion, Science, and Medicine in History	
HIST 214 United States Civil Rights Movement	
HIST 279 History of Modern Medicine	
HIST 283 Technology and Identity	
HIST 341 Disabilities in History	
HIST 342 Madness, Mental Health and Psychiatry in the Modern West	

Neuroscience BS Core Requirements

BIO 132 Genetics and Evolution	4.0
Select 3.0-6.0 credits from the list below:	3.0-6.0
BIO 135 Genetics and Evolution Lab	
BIO 133 Physiology and Ecology	
BIO 136 Anatomy and Ecology Lab	
BIO 201 Human Physiology I	
BIO 203 Human Physiology II	
BIO 209 Cell, Molecular & Developmental Biology I	
BIO 211 Cell, Molecular & Developmental Biology II	
or BIO 218 Principles of Molecular Biology	

General Science

CHEM 101 General Chemistry I	3.5
CHEM 102 General Chemistry II	4.5
PHYS 152 Introductory Physics I	4.0
PHYS 153 Introductory Physics II	4.0
Select one:	4.0-4.5
CHEM 103 General Chemistry III	
PHYS 154 Introductory Physics III	

Statistics & Scientific Methodology

Select one of the following 3 sequences (6 credits minimum):	6.0-13.0
Sequence 1: Bio-applications:	
BMES 310 Biomedical Statistics	
BMES 315 Experimental Design in Biomedical Research	
Sequence 2: Behavioral Science-applications:	
PSY 264 Statistical Methods in Psychology I	
PSY 265 Statistical Methods in Psychology II	
Sequence 3: General-applications:	
MATH 410 Scientific Data Analysis I	
MATH 411 Scientific Data Analysis II	

Analytical Methods and Programming

BMES 201 Programming and Modeling for Biomedical Engineers I	3.0
Select from the list below	3.0-11.0
BMES 202 Programming and Modeling for Biomedical Engineers II	

MATH 200 Multivariate Calculus	
MATH 210 Differential Equations	

Core Neuroscience Principles

BIO 348 Neuroscience: From Cells to Circuits	3.0
BIO 349 Behavioral Neuroscience	3.0
BMES 353 Computational Neuroscience and Neuroengineering	3.0
PSY 312 Cognitive Neuroscience	3.0
PSY 410 Neuropsychology	3.0

Oral and Written Communication Skills

COM 230 Techniques of Speaking	3.0
or COM 320 Science Writing	
COM 310 [WI] Technical Communication (required)	3.0

Neuroethics

Select 3.0 credits from the list below:	3.0
BMES 338 Biomedical Ethics and Law	
PHIL 251 Ethics	
PHIL 321 Biomedical Ethics	
SCTS 205 Artificial Intelligence and Society	

Entrepreneurship

Select one course from the list below:	3.0
BMES 409 Entrepreneurship for BMES	
ENTP 105 Entrepreneurial Thinking	
ENTP 270 Social Entrepreneurship	

Concentration

Select at least one concentration from options listed below	15.0
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Free Electives **

Select any unrestricted 099-499 courses	9.0-24.0
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Total Credits	186.5
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*
Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

**
Credits may vary based on the number of credits taken in above categories.

Cellular & Molecular Neuroscience Concentration

Required

BIO 463 Molecular Mechanisms of Neurodegeneration	3.0
BIO 465 Neurobiology of Disease	3.0

Electives

BIO 209 Cell, Molecular & Developmental Biology I	9.0
BIO 211 Cell, Molecular & Developmental Biology II	
BIO 311 Biochemistry	
or CHEM 240 Organic Chemistry III	
BIO 333 Bioinformatics Laboratory	
BIO 412 Biology of Aging	
BIO 414 Behavioral Genetics	
BIO I499 Independent Study in Bioscience & Biotechnology	
BMES 411 Chronoengineering I: Biological Rhythms in Health and Performance	
BMES 412 Chronoengineering II: Sleep Functions in Health and Performance	
CHEM 241 Organic Chemistry I	
CHEM 242 Organic Chemistry II	

Total Credits	15.0
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Cognitive & Affective Neuroscience Concentration

Required

PSY 330	Cognitive Psychology	3.0
PSY 412	Methods in Human Neuroscience	3.0

Electives (Choose from the list below) 9.0

BIO 412	Biology of Aging	
BIO 414	Behavioral Genetics	
BIO 465	Neurobiology of Disease	
BMES 375	Computational Bioengineering	
BMES 415	Systems Neuroscience and its Applications in Medicine and Engineering	
BMES 418	Brain Computer Interfaces	
BMES 424	Principles of Neuroimaging	
BMES 485	Brain Computer Interface Laboratory	
PSY 213	Sensation and Perception	
PSY 310	Drugs & Human Behavior	
PSY 325	Psychology of Learning	
PSY 336	Psychology of Language	
PSY 360 [WI]	Experimental Psychology	
PSY I499	Independent Study in Psychology	
PSY T480	Special Topics in Psychology	
SCTS 205	Artificial Intelligence and Society	

Total Credits 15.0

Neurosystems & Computational Neuroscience Concentration

Required

BMES 415	Systems Neuroscience and its Applications in Medicine and Engineering	3.0
BMES 424	Principles of Neuroimaging	3.0

Electives (Choose from the list below) 9.0

BMES 375	Computational Bioengineering	
BMES 418	Brain Computer Interfaces	
BMES 455	Medical Technology Innovation: Devices	
BMES 477	Neuroengineering I: Neural Signals	
BMES 478	Neuroengineering II: Principles of Neuroengineering	
BMES 483	Quantitative Systems Biology	
BMES 485	Brain Computer Interface Laboratory	
BMES I499	Independent Study in Biomedical Engineering & Science	

Total Credits 15.0

Sample Plan of Study

4 year, No co-op, Cell & Molecular Neuroscience Concentration

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 201	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 ANTH/ ENGL/ PSCI/SOC Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspectives in Diversity	3.0	

UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 211 or 218	4.0 BMES 201	3.0 VACATION	
CHEM 101	3.5 BMES 310	4.0 CHEM 103	4.5	
COM 230	3.0 CHEM 102	4.5 PSY 212	3.0	
MATH 410	3.0 MATH 411	3.0 Cultivating Global Competence	3.0	
PHYS 152	4.0 PHYS 153	4.0		
	17.5	19.5	13.5	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 BIO 463	3.0 VACATION	
BMES 315	4.0 BIO 412	3.0 PSY 410	3.0	
BMES 202	3.0 BMES 353	3.0 Cultivating Global Competence	4.0	
COM 310 or 320	3.0 BMES 338	3.0 Perspective: in Diversity	3.0	
Free Elective *	4.0 Free Elective **	4.0 Free Elective ***	4.0	
	17	16	17	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
BIO 201	4.0 BIO 465	3.0 ENVS 212	4.0
BIO I499	3.0 BIO I499	3.0 Diversity Elective	3.0
BMES 409, ENTP 105, or ENTP 270	3.0 PSY 312	3.0 Free Elective †	4.0
Free Elective	3.0 HIST Elective	4.0 Free Elective	3.0
	13	13	14

Total Credits 186.5

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Suggested: CHEM 241

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Suggested: CHEM 242

Suggested: PHYS 154

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Suggested: CHEM 243

4 year, 1 co-op, Cell & Molecular Neuroscience Concentration

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 239	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 Sociology (SOC) Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspective in Diversity	3.0	

UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 211 or 218	4.0 BMES 201	3.0 COOP 101	1.0
CHEM 101	3.5 BMES 310	4.0 CHEM 103	4.5 Perspective: in Diversity	3.0
COM 230	3.0 CHEM 102	4.5 PSY 212	3.0 Cultivating Global Competence	4.0
MATH 410	3.0 MATH 411	3.0 PSY 410	3.0 Free Electives	6.0
PHYS 152	4.0 PHYS 153	4.0 Cultivating Global Competence	3.0	
	17.5	19.5	16.5	14
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
BMES 315	4.0 BIO 412	3.0		
BMES 202	3.0 BMES 353	3.0		
COM 310 or 320	3.0 BMES 338	3.0		
Free Elective *	4.0 Free Elective **	4.0		
	17	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
BIO 201	4.0 BIO 465	3.0 ENVS 212	4.0	
BIO I499	3.0 PSY 312	3.0 BIO 463	3.0	
BMES 409, ENTP 105, or ENTP 270	3.0 BIO I499	3.0 Free Elective ***	3.0	
Free Elective	3.0 HIST Elective	4.0 Free Elective †	4.0	
	13	13	14	

Total Credits 186.5

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Suggested: CHEM 241

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Suggested: CHEM 242

Suggested: PHYS 154

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Suggested: CHEM 243

4 year, No co-op, Cognitive & Affective Neuroscience Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 201	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	

MATH 121	4.0 ENGL 102 or 112	3.0 ANTH/ ENGL/ PSCI/SOC Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspectives in Diversity	3.0	
UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 218	4.0 BMES 201	3.0 VACATION	
CHEM 101	3.5 CHEM 102	4.5 PSY 212	3.0	
MATH 410	3.0 MATH 411	3.0 PHYS 154	4.0	
PHYS 152	4.0 PHYS 153	4.0 Cultivating Global Competence	3.0	
PSY 264	3.0 PSY 265	3.0		
	17.5	18.5	13	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 PSY 330	3.0 VACATION	
BMES 202	3.0 BMES 338	3.0 PSY 410	3.0	
COM 230	3.0 BMES 353	3.0 Perspectives in Diversity	3.0	
COM 310	3.0 PSY 412	3.0 Cultivating Global Competence	4.0	
PSY 360	3.0 Free Elective	3.0 Free Elective	3.0	
	15	15	16	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
BMES 375	4.0 BIO 412	3.0 BMES 483	4.0	
BMES 409, ENTP 105, or ENTP 270	3.0 BMES 418	3.0 ENVS 212	4.0	
PSY 213	3.0 PSY 312	3.0 Diversity elective	3.0	
Free Elective *	4.0 Free Elective	3.0 Free Elective **	4.5	
	HIST Elective	4.0		
	14	16	15.5	
Total Credits 186.5				

*
Suggested: MATH 200

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Suggested: CHEM 103

4 year, 1 co-op, Cognitive & Affective Neuroscience Concentration

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 201	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	

MATH 121	4.0 ENGL 102 or 112	3.0 ANTH/ ENGL/ PSCI/SOC Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspectives in Diversity	3.0	
UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 218	4.0 BMES 201	3.0 COOP 101	1.0
CHEM 101	3.5 CHEM 102	4.5 PHYS 154	4.0 PSY 330	3.0
MATH 410	3.0 MATH 411	3.0 PSY 212	3.0 Perspectives in Diversity	3.0
PHYS 152	4.0 PHYS 153	4.0 PSY 410	3.0 Cultivating Global Competence	4.0
PSY 264	3.0 PSY 265	3.0 Cultivating Global Competence	3.0 Free Elective	3.0
	17.5	18.5	16	14

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
BMES 202	3.0 BMES 338	3.0		
COM 230	3.0 BMES 353	3.0		
COM 310	3.0 PSY 412	3.0		
PSY 360	3.0 Free Elective	3.0		
	15	15	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
BMES 375	4.0 BIO 412	3.0 BMES 483	4.0
BMES 409, ENTP 105, or ENTP 270	3.0 PSY 312	3.0 ENVS 212	4.0
PSY 213	3.0 BMES 418	3.0 Diversity elective	3.0
Free Elective *	4.0 Free Elective	3.0 Free Elective **	3.5
	HIST Elective	4.0	
	14	16	14.5

Total Credits 186.5

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Suggested: MATH 200

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Suggested: CHEM 103

4 year, No co-op, Neurosystems & Computational Neuroscience Concentration

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 201	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	

MATH 121	4.0 ENGL 102 or 112	3.0 ANTH/ ENGL/ PSCI/SOC Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspectives in Diversity	3.0	
UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 218	4.0 BMES 201	3.0 VACATION	
CHEM 101	3.5 BMES 310	4.0 PHYS 154	4.0	
MATH 200	4.0 CHEM 102	4.5 PSY 212	3.0	
PHYS 152	4.0 PHYS 153	4.0 Cultivating Global Competence	3.0	
	15.5	16.5	13	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 BMES 424	3.0 VACATION	
BMES 202	3.0 BMES 338	3.0 PSY 410	3.0	
BMES 315	4.0 BMES 353	3.0 Perspectives in Diversity	3.0	
COM 230	3.0 BMES 415	3.0 Cultivating Global Competence	4.0	
COM 310	3.0 MATH 210	4.0 Free Elective *	3.5	
	16	16	16.5	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
BMES 375	4.0 BMES 418	3.0 BMES I499	3.0
BMES 409, ENTP 105, or ENTP 270	3.0 BMES 455	3.0 BMES 483	4.0
BMES I499	3.0 PSY 312	3.0 ENVS 212	4.0
Free Elective	4.0 Free elective	3.0 Diversity Elective	3.0
	HIST Elective	4.0 Free Elective	3.0
	14	16	17

Total Credits 186.5

*

Suggested: CHEM 103

4 year, 1 co-op, Neurosystems & Computational Neuroscience Concentration

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 ENGL 103 or 113	3.0 VACATION	
BIO 134	1.0 BIO 135	1.0 MATH 201	4.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PHIL 111 or 121	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 ANTH/ ENGL/ PSCI/SOC Elective	3.0	
PSY 101	3.0 MATH 122	4.0 Perspectives in Diversity	3.0	

UNIV S101 or R101	1.0 NEUS 201	1.0		
	16	14	16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 209	4.0 BIO 218	4.0 BMES 201	3.0 COOP 101	1.0
CHEM 101	3.5 BMES 310	4.0 PHYS 154	4.0 Perspective: in Diversity	3.0
MATH 200	4.0 CHEM 102	4.5 PSY 212	3.0 Cultivating Global Competence	4.0
PHYS 152	4.0 PHYS 153	4.0 PSY 410	3.0 Free Electives	6.0
		Cultivating Global Competence	3.0	
	15.5	16.5	16	14
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 348	3.0 BIO 349	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
BMES 202	3.0 BMES 338	3.0		
BMES 315	4.0 BMES 353	3.0		
COM 230	3.0 BMES 415	3.0		
COM 310	3.0 MATH 210	4.0		
	16	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
BMES 375	4.0 BMES 418	3.0 BMES 424	3.0	
BMES 409, ENTP 105, or ENTP 270	3.0 BMES 455	3.0 BMES 483	4.0	
BMES I499	3.0 BMES I499	3.0 ENVS 212	4.0	
Free Elective	3.0 PSY 312	3.0 Free Elective *	3.5	
	4.0 Diversity Elective	3.0		
	17	15	14.5	
Total Credits 186.5				

*
Suggested: CHEM 103

Philosophy BA

Major: Philosophy
Degree Awarded: Bachelor of Arts (BA)
Calendar Type: Quarter
Minimum Required Credits: 180.0
Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)
Classification of Instructional Programs (CIP) code: 38.0101
Standard Occupational Classification (SOC) code: 25-1126

About the Program

A great philosopher once said, "Philosophers have just interpreted the world—but the point is to *change* it." At Drexel, we believe ideas do affect and change the world—ideas about what matters, what "success" means and how to accomplish it, and what is to be learned from our experiences and activity. The most important reason to study philosophy is so we all *can* change the world and ourselves by living "the examined life" and being more reflective, thoughtful, and critical in our lives in concrete

ways. Our classes seek to engage students in the active development of their reflective, creative, rational, logical, and linguistic abilities in thoughtful concern for some of the most important and fundamental questions and problems of life, or work, and of the world.

The BA in Philosophy introduces the methods of philosophy in the context of engagement and contact with the world and its problems—from the personal to the global to the cosmic. A degree in philosophy prepares students for success in any field that values thoughtful reflection, logical thinking and clear communication about real issues and concerns, but is particularly valuable for careers in law, graduate study in philosophy, or in fields related to philosophy like critical media studies, public policy or science, technology and society (STS).

Drexel Philosophy majors take a mixture of historical and topical courses in the major fields of philosophical inquiry. These include ethics, metaphysics (philosophy of reality), epistemology (philosophy of knowledge), aesthetics (philosophy of art), social and political philosophy, philosophy of science, and logic. Our elective classes cover a wide range of subjects including technology, medicine, law, religion, science, the environment, and more. Our upper-level seminar classes are discussion-driven, reading- and writing-intensive classes usually limited to 12-16 students.

Concentrations

Once students have started in the program, they may choose to focus their philosophical studies in one of three areas of concentration:

- Ethical Theory and Practice
- Philosophy and Law
- Philosophy, Technology, and Science

Students may also remain in the General Philosophy concentration, which gives them the widest range of options from which to select their courses.

Prior to the end of junior year, students may opt to work on a 6.0 credit senior thesis. This is a faculty-mentored independent research and writing project on a topic developed by the student working with a chosen faculty member. The project consists of two consecutive one-on-one tutorials directed by a faculty member of the student's choosing.

Philosophy students who are interested in pursuing careers in the law or government are encouraged to consider a Kline Law Minor or a minor in some other field of interest. Students considering graduate school in the humanities including philosophy should consider pursuing a language certificate in their chosen language of interest. The philosophy BA includes approximately 60.0 credits of free electives, which also makes it possible for students to double major.

Our program also offers a minor in Philosophy (24.0 credits) and certificate programs in Ethical Theory and Practice; Philosophy, Arts, and Humanities; and Philosophy, Science, and Technology (18.0 credits each).

Drexel Co-op for Philosophy Majors

Through Drexel's cooperative education program, students embark on up to three, six-month periods of employment, exploring their career options and building a professional network in the process. Philosophy majors are encouraged to seek out interesting co-op opportunities related to potential career options and the skills developed through their philosophical studies. Students interested in ethics have worked for a hospital's board of institutional review, while those interested in aesthetics and politics have worked with the Philadelphia Mural Arts program in

liaison with community groups. There is also a substantial amount of law and research-related co-op opportunities for students interested in pre-law and academia.

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
Director of Programs in Philosophy
Department of English & Philosophy
MacAlister 5029
peterama@drexel.edu

Degree Requirements

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Analyzing Cultures & Histories **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Developing Quantitative Reasoning - Two courses in MATH based on placement exams	6.0-8.0
Engaging the Natural World **	6.0-8.0
Perspectives in Diversity **	3.0-4.0
Understanding Society & Human Behavior **	6.0-8.0
Language Requirement ***	8.0

Philosophy Major Requirements - All Concentrations

COM 230	Techniques of Speaking	3.0
LING 101	Introduction to Linguistics	3.0
PHIL 105	Critical Reasoning	3.0
PHIL 110	Introduction to Philosophy	3.0
PHIL 201	Non-Western Philosophies	3.0
PHIL 211	Metaphysics: Philosophy of Reality	3.0
PHIL 221	Epistemology: Philosophy of Knowledge	3.0
PHIL 251	Ethics	3.0
PHIL 481 [WI]	Seminar in a Philosophical School	3.0
or PHIL 485	Seminar in a Major Philosopher	
PHIL 485 [WI]	Seminar in a Major Philosopher	3.0
or PHIL 481	Seminar in a Philosophical School	
PHIL 481 [WI]	Seminar in a Philosophical School	3.0
or PHIL 485	Seminar in a Major Philosopher	
WRIT 211	Advanced Composition	3.0

Applied Ethics Elective

3.0

Select one of the following:

PHIL 301	Business Ethics
PHIL 305	Ethics and the Media
PHIL 311	Ethics and Information Technology
PHIL 315	Engineering Ethics
PHIL 317	Ethics and Design Professions

PHIL 321	Biomedical Ethics
PHIL 323	Organizational Ethics
PHIL 325	Ethics in Sports Management
PHIL 330	Criminal Justice Ethics
PHIL 335	Global Ethical Issues
PHIL 340	Environmental Ethics

Thesis or Non-Thesis Option

6.0

Thesis Option:

PHIL 497 [WI]	Senior Essay I: Research & Thesis Development
PHIL 498 [WI]	Senior Essay II: Argument Construction

Non-Thesis Option:

Any two PHIL courses (PHIL 341 and higher)
--

Free Electives

60.0

Concentration Option

21.0

General Philosophy Concentration:

PHIL 111	Symbolic Logic I
PHIL 231	Aesthetics: Philosophy of Art
or PHIL 218	Philosophy of Mathematics
PHIL 481 [WI]	Seminar in a Philosophical School
or PHIL 485	Seminar in a Major Philosopher
PHIL 485 [WI]	Seminar in a Major Philosopher
or PHIL 481	Seminar in a Philosophical School

Select one of the following courses:

PHIL 121	Symbolic Logic II
PHIL 301	Business Ethics
PHIL 305	Ethics and the Media
PHIL 311	Ethics and Information Technology
PHIL 315	Engineering Ethics
PHIL 317	Ethics and Design Professions

PHIL 321	Biomedical Ethics
PHIL 323	Organizational Ethics
PHIL 325	Ethics in Sports Management
PHIL 330	Criminal Justice Ethics
PHIL 335	Global Ethical Issues
PHIL 340	Environmental Ethics

Select two of the following courses:

PHIL 341	Environmental Philosophy
PHIL 351	Philosophy of Technology
PHIL 355	Philosophy of Medicine
PHIL 361	Philosophy of Science
PHIL 381 [WI]	Philosophy in Literature
PHIL 385	Philosophy of Law
PHIL 391	Philosophy of Religion

Philosophy & Law Concentration:

PHIL 111	Symbolic Logic I
PHIL 121	Symbolic Logic II
PHIL 241	Social & Political Philosophy
PHIL 385	Philosophy of Law
PHIL 391	Philosophy of Religion
PHIL 481 [WI]	Seminar in a Philosophical School
or PHIL 485	Seminar in a Major Philosopher

Select one of the following courses:

PHIL 301	Business Ethics
PHIL 305	Ethics and the Media
PHIL 311	Ethics and Information Technology
PHIL 315	Engineering Ethics
PHIL 317	Ethics and Design Professions
PHIL 321	Biomedical Ethics
PHIL 323	Organizational Ethics
PHIL 325	Ethics in Sports Management
PHIL 330	Criminal Justice Ethics
PHIL 335	Global Ethical Issues

PHIL 340	Environmental Ethics
Ethical Theory & Practice Concentration:	
PHIL 231	Aesthetics: Philosophy of Art
PHIL 241	Social & Political Philosophy
PHIL 385	Philosophy of Law
PHIL 391	Philosophy of Religion
PHIL 481 [WI]	Seminar in a Philosophical School or PHIL 485 Seminar in a Major Philosopher
PHIL 485 [WI]	Seminar in a Major Philosopher or PHIL 481 Seminar in a Philosophical School
Select one of the following courses:	
PHIL 301	Business Ethics
PHIL 305	Ethics and the Media
PHIL 311	Ethics and Information Technology
PHIL 315	Engineering Ethics
PHIL 317	Ethics and Design Professions
PHIL 321	Biomedical Ethics
PHIL 323	Organizational Ethics
PHIL 325	Ethics in Sports Management
PHIL 330	Criminal Justice Ethics
PHIL 335	Global Ethical Issues
PHIL 340	Environmental Ethics
Philosophy, Technology & Science Concentration:	
PHIL 111	Symbolic Logic I
PHIL 121	Symbolic Logic II
PHIL 218	Philosophy of Mathematics or PHIL 231 Aesthetics: Philosophy of Art
PHIL 351	Philosophy of Technology
PHIL 361	Philosophy of Science
PHIL 481 [WI]	Seminar in a Philosophical School or PHIL 485 Seminar in a Major Philosopher
PHIL 485 [WI]	Seminar in a Major Philosopher or PHIL 481 Seminar in a Philosophical School
Total Credits	180.0-191.0

Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

See Core Curriculum List (p. 5) for complete list of course options.

Students are required to take a minimum of two consecutive courses in a foreign language and must complete at least through the 103 level. Reaching at least the 201 level is recommended for students considering graduate school in Philosophy.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

NOTE: The plan of study below is one way to complete the General Concentration in Philosophy. Students should consult with their academic advisor in choosing the concentration that best suits their interests, goals, and career plans.

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
PHIL 105	3.0 ENGL 102 or 112	3.0 PHIL 251	3.0	
PHIL 110	3.0 PHIL 201	3.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Language elective	4.0 Language elective	4.0	
13-14		14-15	16-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 211	3.0 PHIL 221	3.0 COM 230	3.0 VACATION	
Analyzing Cultures & Histories	3.0-4.0 PHIL 481 or 485	3.0 PHIL 485 or 481	3.0	
Concentration Course 1**	3.0 Concentration Course 2	3.0 Concentration Course 3	3.0	
Engaging the Natural World	3.0-4.0 Understandi Society & Human Behavior	3.0-4.0 Understandi Society & Human Behavior	3.0-4.0	
Free elective	3.0 Free elective	3.0 Free elective	3.0	
15-17		15-16	15-16	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 481 or 485	3.0 Concentration Course 5	3.0 Concentration Course 6	3.0 VACATION	
WRIT 211	3.0 Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0	
Concentration Course 4	3.0 Free electives	9.0 Free electives	9.0	

Free electives	7.0			
	16	15-16	15-16	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 LING 101	3.0 PHIL 498 (Or Non- Thesis Option)	3.0	
Applied Ethics elective	3.0 PHIL 497 (Or Non- Thesis Option)	3.0 Perspective: in Diversity	3.0-4.0	
Concentration Course 7	3.0 Free electives	9.0 Free electives	9.0	
Free electives	9.0			
	16	15	15-16	
Total Credits 180-191				

*

Students must complete two consecutive courses in a foreign language and must reach the 103 level.

**

Philosophy students may choose from three concentrations or the default, which contains the most options. It is recommended but not required that students take the concentration courses in numerical order except when they are prerequisites.

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101**	1.0 VACATION	
PHIL 105	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
PHIL 110	3.0 PHIL 201	3.0 PHIL 251	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Language elective*	4.0 Engaging the Natural World	3.0-4.0	
		Language elective*	4.0	
	13-14	14-15	17-19	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 211	3.0 PHIL 221	3.0 COM 230	3.0 Cultivating Global Competence	3.0-4.0
Analyzing Cultures & Histories	3.0-4.0 PHIL 481 or 485	3.0 PHIL 485 or 481	3.0 Understandi Society & Human Behavior	3.0-4.0
Concentration Course 1***	3.0 Concentration Course 2	3.0 Concentration Course 3	3.0 Free electives	9.0
Engaging the Natural World	3.0-4.0 Understandi Society & Human Behavior	3.0-4.0 Free electives	6.0	
Free elective	3.0 Free elective	3.0		
	15-17	15-16	15	15-17

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 481 or 485	3.0 Concentration Course 5	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
WRIT 211	3.0 Cultivating Global Competence	3.0-4.0		
Concentration Course 4	3.0 Free electives	9.0		
Free electives	6.0			
	15	15-16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 LING 101	3.0 PHIL 498 (Or Non- Thesis Option)	3.0	
Applied Ethics elective	3.0 PHIL 497 (Or Non- Thesis Option)	3.0 Concentration Course 7	3.0	
Concentration Course 6	3.0 Free electives	9.0 Perspectives in Diversity	3.0-4.0	
Free electives	9.0	Free electives	6.0	
	16	15	15-16	
Total Credits 180-191				

*

Students must complete two consecutive courses in a foreign language and must reach the 103 level.

**

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

Philosophy students may choose from three concentrations or the default, which contains the most options. It is recommended but not required that students take the concentration courses in numerical order except when they are prerequisites.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101**	1.0 VACATION	
PHIL 105	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
PHIL 110	3.0 PHIL 201	3.0 PHIL 251	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Language elective*	4.0 Engaging the Natural World	3.0-4.0	
		Language elective*	4.0	
	13-14	14-15	17-19	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 211	3.0 PHIL 221	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
Analyzing Cultures & Histories	3.0-4.0 PHIL 481 or 485	3.0		
Concentration Course 1 ***	3.0 Concentration Course 2	3.0		
Engaging the Natural World	3.0-4.0 Cultivating Global Competence	3.0-4.0		
Perspectives in Diversity	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0		
	15-18	15-17	0	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 485 or 481	3.0 Concentration Course 4	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
WRIT 211	3.0 Cultivating Global Competence	3.0-4.0		
Concentration Course 3	3.0 Free electives	9.0		
Free electives	6.0			
	15	15-16	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 481 or 485	3.0 Concentration Course 6	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
Concentration Course 5	3.0 Understanding Society & Human Behavior	3.0-4.0		
Free electives	9.0 Free electives	9.0		
	15	15-16	0	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 LING 101	3.0 PHIL 498 (Or Non- Thesis Option)	3.0	
UNIV H201	1.0 PHIL 497 (Or Non- Thesis Option)	3.0 Concentration Course 7	3.0	
Applied Ethics elective	3.0 Free electives	9.0 Free electives	9.0	
Free electives	9.0			
	16	15	15	

Total Credits 180-191*****

Students must complete two consecutive courses in a foreign language and must reach the 103 level.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. Registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Philosophy students may choose from three concentrations or the default, which contains the most options. It is recommended but not required that students take the concentration courses in numerical order except when they are prerequisites.

Co-op/Career Opportunities

Opportunities

No major prepares students for success in as wide a variety of careers as philosophy. Because philosophical work helps students develop superior reasoning, communication, and analytical skills, a philosophy major can be an ideal choice for pre-med or pre-law students. It is also particularly valuable as a preparation for graduate study in philosophy and fields related to it, such as critical media studies, public policy, education, and science, technology, and society (STS). The Drexel Philosophy major is an excellent preparation for success in any field of endeavor that values thoughtful reflection, logical thinking, and clear communication. Philosophy majors graduate into a wide range of successful careers in business, industry, law, government, education, and service organizations and agencies, as well as many fields of graduate study and research.

In just its first five years, the Drexel Philosophy BA program graduated students into careers including teaching, the law, public policy, and academic research.

Co-op Experiences

Philosophy students at Drexel are encouraged to seek out interesting co-op opportunities related to the skills and interests they are developing through their philosophical studies and potential career options they would like to explore. These can be as broad as the difference between an ethics-related co-op that has the student shadowing an ethicist working for a hospital's board of institutional review, to a student who is interested in aesthetics and politics working with the Philadelphia Mural Arts Program in liaison with community groups. Students in philosophy who are pre-law frequently pursue law-related co-ops and co-ops at public and private agencies and organizations that employ lawyers and law students. Students in philosophy who are thinking about careers in academia have the full gamut of writing, editing, and publishing co-ops available to them, as well as research-related co-ops they can develop by working with professors. While academically oriented co-ops and co-ops in the humanities generally pay less than those in the sciences, business, law, and engineering—if they pay at all—they are still enormously valuable as a way for students to develop a sense of what various careers might actually be like and how they work.

Additional Information

For detailed information on co-op and career opportunities, visit the Drexel Steinbright Career Development Center webpage. For further information about co-op and career prospects related to Philosophy, contact the Drexel Philosophy program director:

Dr. Peter Amato
Director of Programs in Philosophy

Department of English & Philosophy
MacAlister 5030
215-895-1353
peterama@drexel.edu

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Structure and express ideas in ways that are coherent, truthful, and fair
- Employ logical analysis effectively and acknowledge the conditions for rational dialogue, argumentation, and debate
- Interpret complex, nuanced texts and respond to them reflectively and critically
- Think for themselves, and appreciate the value of having a perspective that goes beyond the sciences and career pursuits
- Recognize the forms ethical reasoning takes and the impact of personal and social choices on the happiness, well-being, and aspirations of others
- Understand what the main problems, concepts, and distinctions in academic Philosophy are, and how to pursue research in some of these areas

Philosophy Faculty

Stacey Ake, PhD (*Pennsylvania State University*). Associate Teaching Professor. Ethics, semiotics, existentialism

Peter Amato, PhD (*Fordham University*) *Director, Philosophy*. Teaching Professor. Ethics, Marxism, Continental philosophy.

Jacques N. Catudal, PhD (*Temple University*). Associate Professor. Epistemology, aesthetics, philosophy of religion.

Nathan Hanna, PhD (*Syracuse University*). Assistant Professor. Ethics; philosophy of law; political philosophy.

Adam Knowles, PhD (*The New School for Social Research*). Assistant Teaching Professor. Continental philosophy, phenomenology, Ancient Greek philosophy, ethics and feminism, drawing especially on Plato, Aristotle, Nietzsche, Heidegger, Irigaray and Derrida.

Carol Mele, PhD (*University of Pennsylvania*). Associate Teaching Professor. Ethics, medical ethics, critical reasoning.

Flavia Padovani, PhD (*University of Geneva*). Assistant Professor. History and philosophy of science, philosophy of science, epistemology, logic.

Marilyn Gaye Piety, PhD (*McGill University*). Associate Professor. History of philosophy, philosophy of religion, critical reasoning, Kierkegaard.

Andrew Smith, PhD (*SUNY, Stony Brook*). Assistant Professor. Social and political philosophy, ethics, American philosophy.

Philosophy, Politics and Economics BA

Major: Philosophy, Politics and Economics
Degree Awarded: Bachelor of Arts (BA)
Calendar Type: Quarter
Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1004

Standard Occupational Classification (SOC) code: 25-1065

About the Program

Drexel University's BA degree Philosophy, Politics & Economics, or PPE as it is often called, exemplifies Drexel's commitment to comprehensive education at the intersection of thought and practice. A joint endeavor of the School of Economics, the Department of Politics, and the Department of English & Philosophy, the BA in PPE provides a multidisciplinary foundation for professionals and researchers who want to address the complex, interconnected challenges of contemporary life. It prepares students for a wide variety of excellent careers that require thoughtful analysis and engaged leadership including, but not limited to, public service, government, international and domestic business, law, community organizing, publishing, journalism, education, academic research, and more.

PPE began in the early 20th century at Oxford University in the United Kingdom in an effort to ensure that scholars were ready to apply their learning in practical, governmental, and business contexts to become leaders and change agents. Historically, political science and economics descend from what had been called "political economy." PPE acknowledges what is often lost in the separation and specialization of these fields—the political wisdom that understands economic imperatives and the economic intelligence that recognizes the limits of political initiative. The philosophical dimension of PPE represents the vital reflective and critical aspects that are essential to bringing political and economic insights into conversation for understanding and leadership. PPE is devoted to the idea that great learning should inspire and empower students to have an impact on the world.

Students in the Drexel BA in PPE begin with the interdisciplinary class PPE 101 *Introduction to Philosophy, Politics and Economics*, which presents the field through a discussion of how the aims and methods of the three constitutive disciplines work together and discussion of the political, economic, and philosophical dimensions of specific topics and themes. The Philosophy classes in the major are mainly focused on issues in ethics, logic, philosophy of law, and social and political philosophy. The Politics classes cover a variety of subjects and constitute a solid foundation in political science covering topics that include comparative politics, history of political thought, qualitative or quantitative research methods, theories of justice, American foreign policy, social protest movements in comparative perspective, and more. The Economics classes are designed to give the student a foundation for profound analysis and insight. These include microeconomics, macroeconomics, economic ideas, public finance, and electives chosen from courses which include Game Theory and Applications, Economics of Small Business, Labor Economics, Comparative Economic Systems, Resource and Environmental Economics, and more.

PPE majors are encouraged to take a minor or certificate in a field they are interested in studying. Students interested in careers in the law are encouraged to consider adding a minor in Law offered through the Kline Law School, for example. The College of Arts and Sciences offers minors in many PPE-adjacent fields including Sociology, offering courses like Race, Ethnicity and Social Inequality, Wealth and Power, Gender and Society, Development and Underdevelopment in the Global South, Environmental Justice, etc. Other popular minors and even double majors for PPE students to consider include History, Global Studies, Criminal Justice Studies, and Science, Technology, and Society. In the

senior capstone course PPE 450, students work with an instructor as they formulate, evaluate, and criticize public policy proposals, research, and/or theoretical perspectives on political and economic issues using the research tools, arguments, and methods drawn from the three fields. PPE majors at Drexel have access to the widest range of co-op positions related to public service, government, international and domestic business, law, community organizing, education, publishing, journalism, academic research, and many more areas.

Additional Information

For more information about the Drexel Philosophy, Politics, and Economics program, please visit the Department of English & Philosophy website or stop by to see one of our co-directors anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The co-directors of the Drexel Philosophy, Politics and Economics program can be contacted at:

Dr. Peter Amato, Department of English and Philosophy, College of Arts & Sciences, pa34@drexel.edu

Dr. Jose Tapia, Department of Politics, College of Arts & Sciences, jat368@drexel.edu

Dr. Roger McCain, School of Economics, LeBow College of Business, mccainra@drexel.edu

Admission Requirements

The interdisciplinary Philosophy, Politics and Economics (PPE) program exemplifies Drexel's commitment to comprehensive education at the intersection of thought and practice. A joint endeavor of the School of Economics, the Department of Politics, and the Department of English and Philosophy, the BA in PPE provides a multidisciplinary foundation for professionals who will address the complex, interconnected challenges of contemporary life. It prepares students for careers that require careful analysis, clear foresight, and thoughtful leadership: government, politics, law, public policy, public service, and business. Our program starts from the idea that the economy is fundamentally political, politics are fundamentally economic, and both are shaped by centuries of philosophical inquiry. We build on a foundation of rigorous philosophical thought, political and economic theory, and applied research skills.

Degree Requirements

University Requirements:

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Analyzing Cultures & Histories **	6.0-8.0
Cultivating Global Competence - LANG sequence reaching 103 level ***	6.0-8.0
Developing Quantitative Reasoning - MATH Analysis or Calculus sequence †	6.0-8.0
Engaging the Natural World **	6.0-8.0
Perspectives in Diversity **	3.0-4.0
Understanding Society & Human Behavior **	6.0-8.0

Free Electives		65.0-61.0
Philosophy, Politics & Economics Major Requirements:		
PPE 101	Introduction to Philosophy, Politics and Economics	3.0
PHIL 105	Critical Reasoning	3.0
PHIL 111	Symbolic Logic I	3.0
PSCI 110	American Government	4.0
or PSCI 140	Comparative Politics I	
or PSCI 150	International Politics	
PSCI 120	History of Political Thought	4.0
One of these Political Science Methods classes:		4.0
PSCI 231	Qualitative and Mixed-Methods Research in Political Science	
PSCI 232	Quantitative Research Methods in Political Science	
ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
ECON 326 [WI]	Economic Ideas	4.0
PHIL 121	Symbolic Logic II	3.0
PHIL 151	Ethical Reasoning	3.0
or PHIL 251	Ethics	
One of these Political Science Area electives:		4.0
PSCI 210	American Political Development	
PSCI 229	Theories of Justice	
PSCI 250	American Foreign Policy	
PSCI 252	Global Governance	
PSCI 260 [WI]	Power in Protest: Social Movements in Comparative Perspective	
Two Economics/International Business electives: ‡		8.0
ECON 203	Survey of Economic Policy	
[WI]		
Any ECON class level 250 and higher		
INTB 334	International Trade	
INTB 336	International Money and Finance	
ECON 334	Public Finance	4.0
PHIL 385	Philosophy of Law	3.0
Any Political Science 300- or 400-level elective		4.0
PHIL 481 [WI]	Seminar in a Philosophical School	3.0
or PHIL 485	Seminar in a Major Philosopher	
PPE 450	Senior Seminar in Philosophy, Politics and Economics	4.0
Total Credits		180.0-187.0

*

Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) List for complete list of course options.

The 103 level class requires 102 and 101 (all 4 credits each) unless one tests out of 101 or 102. A student who tests out of 102 must take 103 and 201.

†

For Analysis, take either MATH 101 and MATH 102, or MATH 172 and MATH 173 and any necessary prerequisites, For Calculus, take either MATH 116 and MATH 117 or MATH 121 and any necessary prerequisites.

‡

Recommended electives: ECON 301 and ECON 321.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
PPE 101	3.0 ENGL 102 or 112	3.0 PHIL 105	3.0	
UNIV H101	1.0 PSCI 110, 140, or 150	4.0 PSCI 120	4.0	
Analyzing Cultures & Histories	3.0-4.0 Cultivating Global Competence (Language)	4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Cultivating Global Competence (Language)	4.0	
	14-15	16	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ECON 201	4.0 ECON 202	4.0 PSCI 231 or 232	4.0 VACATION	
PHIL 111	3.0 PHIL 121	3.0 Perspective: in Diversity	3.0-4.0	
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 Free electives	9.0	

Understanding Society & Human Behavior	3.0-4.0 Free electives	6.0		
	13-15	16-17	16-17	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 151 or 251	3.0 ECON 326	4.0 ECON 334	4.0 VACATION	
Understanding Society & Human Behavior	3.0-4.0 Free electives	10.0 PSCI Area elective	4.0	
Free electives	9.0	Free electives	6.0	
	15-16	14	14	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHIL 385	3.0 PHIL 481 or 485	3.0 PPE 450	4.0	
UNIV H201	1.0 Economics , Internationa Business Elective	4.0 Economics , Internationa Business Elective	4.0	
PSCI 300-level or higher elective	4.0 Free electives	9.0 Free electives	6.0	
Free electives	7.0			
	15	16	14	
Total Credits 180-187				

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
PPE 101	3.0 ENGL 102 or 112	3.0 PHIL 105	3.0	
UNIV H101	1.0 PSCI 110, 140, or 150	4.0 PSCI 120	4.0	
Analyzing Cultures & Histories	3.0-4.0 Cultivating Global Competence (Language)	4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Cultivating Global Competence (Language)	4.0	
	14-15	16	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ECON 201	4.0 ECON 202	4.0 COOP 101*	1.0 Perspectives in Diversity	3.0-4.0
PHIL 111	3.0 PHIL 121	3.0 ECON 334	4.0 Understanding Society & Human Behavior	3.0-4.0
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 PSCI 231 or 232	4.0 Free electives	9.0

Understandi Society & Human Behavior	3.0-4.0 Free electives	6.0 Free electives	6.0	
	13-15	16-17	15	15-17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 151 or 251	3.0 ECON 326	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PSCI Area elective	4.0 PHIL 481 or 485	3.0		
Free electives	9.0 Free electives	9.0		
	16	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHIL 385	3.0 Economics / International Business Elective	4.0 PPE 450	4.0	
UNIV H201	1.0 PSCI 300- level or higher elective	4.0 Economics / Internationa Business Elective	4.0	
Free electives	10.0 Free electives	6.0 Free electives	6.0	
	14	14	14	
Total Credits 180-187				

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
PPE 101	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 PSCI 110, 140, or 150	4.0 PHIL 105	3.0	
Analyzing Cultures & Histories	3.0-4.0 Cultivating Global Competence (Language)	4.0 PSCI 120	4.0	
Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Developing Quantitative Reasoning (Analysis or Calculus)	4.0 Cultivating Global Competence (Language)	4.0	
	14-15	16	15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ECON 201	4.0 ECON 202	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PHIL 111	3.0 PHIL 121	3.0		
Analyzing Cultures & Histories	3.0-4.0 Engaging the Natural World	3.0-4.0		
Engaging the Natural World	3.0-4.0 Understandi Society & Human Behavior	3.0-4.0		

Free elective	3.0 Free electives	3.0		
	16-18	16-18	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHIL 151 or 251	3.0 ECON 326	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PSCI 231 or 232	4.0 Perspective: in Diversity	3.0-4.0		
Understanding Society & Human Behavior	3.0-4.0 PSCI Area elective	4.0		
Free electives	6.0 Free elective	3.0		
	16-17	14-15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ECON 334	4.0 Economics / International Business Elective	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Free electives	10.0 Free electives	10.0		
	14	14	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHIL 385	3.0 PHIL 481	3.0 PPE 450	4.0	
UNIV H201	1.0 PSCI 300- level or higher elective	4.0 Economics / Internationa Business Elective	4.0	
Free electives	12.0 Free electives	8.0 Free electives	6.0	
	16	15	14	
Total Credits 180-187				

★

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Affiliated Faculty

- Peter Amato, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/amato-peter/>) (*Fordham University*) Teaching Professor of Philosophy. Ethics, Marxism, Continental Philosophy
- Debjani Bhattacharyya, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/DebjaniBhattacharyya/>) (*Emory University*) Assistant Professor of History. South Asia, Environmental History, Global History
- Sebastien Bradley, PhD (<https://www.lebow.drexel.edu/people/sebastienbradley/>) (University of Michigan) Associate Professor of Economics. Public Economics, Real Estate. Applied Econometrics
- Zoltán Búzás, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/Zoltan-Buzas/>) (*The Ohio State University*) Assistant Professor of Politics. International Norms, Human Rights, Race and Ethnicity in International Politics
- Erin Graham, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/ErinGraham/>) (*The Ohio State University*) Associate Professor of

Politics. International Organization, Institutional Design and Development, Climate Change

Nathan Hanna, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/HannaNathan/>) (*Syracuse University*) Associate Professor of Philosophy. Ethics, Philosophy of Law, Philosophy of Punishment

Amelia Hoover Green, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/hover-green-amelia/>) (*Yale University*) Associate Professor of Politics. Armed Conflict, Political Violence, Empirical Research Methods

Roger A. McCain, PhD (<https://www.lebow.drexel.edu/people/rogermccain/>) (*Louisiana State University*) Professor of Economics. History of Economic Ideas, Welfare Economics, Game Theory

Carol Mele, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/MeleCarol/>) (*University of Pennsylvania*) Associate Teaching Professor of Philosophy. Ethical Theory, Social and Political Philosophy, Rawls

Joel E. Oestreich, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/JoelEOestreich/>) (*Brown University*) Professor of Politics and Global Studies. Human Rights, Economic Development, International Relations Theory

Maria Olivero, PhD (<https://www.lebow.drexel.edu/people/mariaolivero/>) (*Duke University*) Associate Professor of Economics. Open Economy Macroeconomics, Monetary Economics, Quantitative Methods

Flavia Padovani, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/padovani-flavia/>) (*University of Geneva*) Associate Professor of Philosophy. History and Philosophy of Science, Epistemology, Logic.

Rachel Reynolds, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/reynolds-rachel/>) (*University of Illinois at Chicago*) Associate Professor of Communication. Language and Linguistics. Immigration, African Studies

Andrew Smith, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/smith-andrew/>) (*SUNY, Stony Brook*) Associate Professor of Philosophy. Environmental Philosophy, Social and Political Philosophy, American Philosophy

José A. Tapia, MBCh, MPH, PhD (<https://drexel.edu/coas/faculty-research/faculty-directory/JoseTapia/>) (*New School for Social Research*) Associate Professor of Politics. Climate Change, Social Development, Economic Effects on Health

Physics BS

Major: Physics

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 40.0801

Standard Occupational Classification (SOC) code: 19-2012

About the Program

Drexel's Bachelor of Science in Physics degree provides a solid foundation in physics suitable for graduate study or to branch out into other scientific or technical disciplines. The physics program offers

an innovative curriculum in a top-notch learning environment: small class sizes, personal input from faculty, and close interaction with researchers who are leaders in their fields. Students explore the span of universal phenomenon—from the farthest reaches of astrophysics and cosmology, to molecular biophysics and subatomic particle physics—providing a solid foundation for continued study and exploration. Most undergraduates actively participate in research projects, including co-authoring publications and presenting results at conferences.

Virtually every course in the physics major is designed to extend the students' ability to manage real-world challenges using cutting-edge technology, critical thinking and analysis skills. An important feature of the program is the large number of electives, which allow a student to pursue topics of special interest. There are numerous elective courses in areas as diverse as biophysics and cosmology, nanoscience and particle physics. Students can also choose electives to meet teacher certification requirements.

The Laboratory for High-Performance Computational Physics is a venue for students to become proficient in numerical techniques, parallel processing, electronic communication, and the basic computer languages and software relevant to advanced studies and research in physics.

The Department of Physics (<http://www.drexel.edu/coas/academics/departments-centers/physics/>) conducts a broad array of outreach activities including the Kaczmarczik Lecture Series, public observing nights at the Lynch Observatory (<https://drexel.edu/coas/academics/departments-centers/physics/lynch-observatory/>), and demonstrations in grade school performed by the Drexel Chapter of the Society of Physics Students (<https://drexel.edu/coas/academics/departments-centers/physics/student-organizations/>) (SPS) and the Women in Physics Society (<https://drexel.edu/coas/academics/departments-centers/physics/student-organizations/>) (WiPS).

In addition to the physics major, the Department also offers (p. 4) a minor in physics as well as a minor in astrophysics and a minor in biophysics.

The Physics Department is dedicated to equity and inclusiveness, and strives to be a welcoming environment to students of all races, backgrounds, genders, and orientations.

Physics Cooperative Education

Drexel's renowned cooperative education (<https://drexel.edu/scdc/co-op/undergraduate/>) program encourages students to gain up to three six-month periods of full-time employment to explore career options, gain hands-on experience in their fields of interest, build their resume and foster a professional network.

For more information about Drexel's physics program contact **David Goldberg, PhD**, Associate Department Head for Undergraduate Studies; professor.goldberg@drexel.edu

Degree Requirements

Core Physics Requirements

PHYS 105	Computational Physics I	3.0
PHYS 113	Contemporary Physics I	5.0
PHYS 114	Contemporary Physics II	5.0
PHYS 115	Contemporary Physics III	5.0
PHYS 128	Introduction to Experimental Physics	3.0
PHYS 217	Thermodynamics	4.0
PHYS 311	Classical Mechanics I	4.0
PHYS 317	Statistical Mechanics	3.0

PHYS 321	Electromagnetic Fields I	4.0
PHYS 322	Electromagnetic Fields II	4.0
PHYS 326	Quantum Mechanics I	4.0
PHYS 327	Quantum Mechanics II	4.0
PHYS 328 [WI]	Advanced Laboratory	3.0
PHYS 408	Physics Seminar (To be taken 3 times.)	3.0
PHYS 491	Senior Research I	3.0
PHYS 492	Senior Research II	3.0
PHYS 493 [WI]	Senior Research III	3.0

Physics Electives: Complete 24.0 credits from the following * **24.0**

PHYS 160	Introduction to Scientific Computing	
PHYS 226	Instrumentation for Scientists I	
PHYS 227	Instrumentation for Scientists II	
PHYS 231	Introductory Astrophysics	
PHYS 232	Observational Astrophysics	
PHYS 233	Introduction to Relativity	
PHYS 262	Introduction to Biophysics	
PHYS 305	Computational Physics II	
PHYS 312	Classical Mechanics II	
PHYS 324	Topics in Mathematical Physics	
PHYS 325	Computational Physics III	
PHYS 330	Introduction to Nuclear Physics	
PHYS 405	Advanced Computational Physics	
PHYS 428	Quantum Mechanics III	
PHYS 431	Galactic Astrophysics	
PHYS 432	Cosmology	
PHYS 433	General Relativity	
PHYS 440	Big Data Physics	
PHYS 452	Solid State Physics	
PHYS 453	Nanoscience	
PHYS 461	Biophysics	
PHYS 462	Computational Biophysics	
PHYS 476	Particle Physics	
PHYS 479	The Standard Model	
MATH 311	Probability and Statistics I	
MATH 322	Complex Variables	
MATH 323	Partial Differential Equations	
MATH 331	Abstract Algebra I	
MATH 332	Abstract Algebra II	
MATH 410	Scientific Data Analysis I	
MATH 422	Introduction to Topology	
MATH 483	Introduction to Monte Carlo Methods	
MATH 489	Tensor Calculus	

Math and Technical Requirements

MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	3.0-4.0
or MATH 261	Linear Algebra	
MATH 210	Differential Equations	4.0
MATH 291	Complex and Vector Analysis for Engineers	4.0

Sciences

CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103 OR Any Bio OR an ENGR class at 200 or higher		3.0-5.0
CS 171	Computer Programming I	3.0

General Education

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development **	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	

ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers (For students pursuing graduate degree only.) Students who are not required to take this course will take an additional credit of free elective.	1.0
Business elective ***		4.0
Liberal Studies electives †		9.0
Technical elective ††		3.0
Free electives		27.0
Total Credits		180.0-183.0

Additionally, PHYS courses at the 400 level or higher (excluding courses which already satisfy a Physics major requirement) will be included. Other closely related upper division courses in other programs may be included at the discretion of the Physics Department. Only 2 courses may be applied which are offered outside of the PHYS subject code.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Any course at the 100-499 level in the following subject codes: ACCT, BLAW, BSAN, BUSN, ECON, EGMT, EHRD, ENTP, FIN, HRM, HRMT, INTB, MET, MGMT, MIP, MIS, MKTG, OPM, OPR, ORGB, REAL, REMD, SMT, STAT, STS, TAX, and TVIE.

†

Any course at the 100-499 level in the following subject codes: AFAS, ANTH, ARBC, ARCH, ARTH, CHIN, CJS, COM, ENGL, FMST, FREN, GER, GST, HBRW, HIST, HUM, IST, ITAL, JAPN, JWST, KOR, LANG, LING, MENA, MUSC, PHIL, PHTO, PPE, PSCI, PSY, RELS, SCRP, SCTS, SPAN, SOC, THTR, TVST, VSCM, WGST, and WRIT.

††

Technical electives can be any course in BIO, CHEM, ENVS, GEO, MATH, PHYS, or any course from the College of Engineering.

Astrophysics Concentration

The Astrophysics concentration is available only to Physics majors. The PHYS requirements listed below simultaneously satisfy some of the Physics electives required for the major.

PHYS 231	Introductory Astrophysics	3.0
PHYS 232	Observational Astrophysics	3.0
PHYS 431	Galactic Astrophysics	3.0
PHYS 432	Cosmology	3.0
Total Credits		12.0

Biophysics Concentration

The Biophysics concentration is available only to Physics majors. The PHYS requirements listed below simultaneously satisfy some of the

Physics electives required by the major while the BIO and CHEM courses also fulfill either Free or Technical electives.

PHYS 262	Introduction to Biophysics	3.0
PHYS 461	Biophysics	3.0
PHYS 462	Computational Biophysics	3.0
One course from the following:		4.5
BIO 122	Cells and Genetics	
BIO 141	Essential Biology	
One course from the following		3.0-4.0
BIO 209	Cell, Molecular & Developmental Biology I	
BIO 214	Principles of Cell Biology	
BIO 218	Principles of Molecular Biology	
CHEM 371	Chemistry of Biomolecules	
Total Credits		16.5-17.5

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
MATH 121	4.0 CS 171	3.0 ENGL 103 or 113	3.0	
PHYS 113	5.0 ENGL 102 or 112	3.0 MATH 200	4.0	
PHYS 128	3.0 MATH 122	4.0 PHYS 105	3.0	
UNIV S101	1.0 PHYS 114	5.0 PHYS 115	5.0	
	16	16	16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 CHEM 102	4.5 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 201 or 261	3.0-4.0 MATH 210	4.0		
MATH 291	4.0 PHYS 311	4.0		
PHYS 217	4.0 PHYS 317	3.0		
	14.5-15.5	15.5	0	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHYS 321	4.0 PHYS 322	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Physics Elective**	3.0 PHYS 328	3.0		
One of the following:	3.0-5.0 Physics Elective**	3.0		
CHEM 1	Free electives	6.0		
Any Biology (BIO) course				
Any ENGR course 200-level or higher				
Free elective	3.0			
	13-15	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHYS 326	4.0 PHYS 327	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Physics Elective**	3.0 Physics Elective**	3.0		
Free electives	6.0 Physics Elective**	3.0		
Liberal Studies elective	3.0 Business elective	4.0		
	Technical elective	3.0		
	16	17	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHYS 408	1.0 PHYS 408	1.0 PHYS 408	1.0	
PHYS 491	3.0 PHYS 492	3.0 PHYS 493	3.0	
UNIV S201***	1.0 Physics Elective**	3.0 Physics Elective**	3.0	
Physics Elective**	3.0 Free elective	3.0 Free electives	3.0	
Free electives	6.0 Liberal Studies elective	3.0 Liberal Studies elective	3.0	
	14	13	13	

Total Credits 180-183

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

In addition to the listed Physics electives, PHYS courses at the 400 level or higher (excluding courses which already satisfy a Physics major requirement) will be included. Only 2 courses may be applied which are offered outside of the PHYS subject code.

For students pursuing graduate study only; other students add an additional credit of free elective.

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
MATH 121	4.0 CS 171	3.0 MATH 200	4.0	
PHYS 113	5.0 ENGL 102 or 112	3.0 PHYS 105	3.0	
PHYS 128	3.0 MATH 122	4.0 PHYS 115	5.0	
UNIV S101	1.0 PHYS 114	5.0		
	16	16	15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 CHEM 102	4.5 One of the following:	3.0-5.0 VACATION	
MATH 201 or 261	4.0 MATH 210	4.0 CHEM 1		
MATH 291	4.0 PHYS 311	4.0 Any Biology (BIO) course		
PHYS 217	4.0 PHYS 317	3.0 Any ENGR course 200-level or higher		
		Free electives	6.0	
		Liberal Studies elective	3.0	
		Technical elective	3.0	
	15.5	15.5	15-17	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHYS 321	4.0 PHYS 322	4.0 Business elective	4.0 VACATION	
Physics Elective*	3.0 PHYS 328	3.0 Free electives	9.0	
Free electives	6.0 Physics Elective*	3.0 Liberal Studies elective	3.0	
	Physics Elective*	3.0		
	Free elective	3.0		
	13	16	16	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHYS 326	4.0 PHYS 327	4.0 PHYS 408	1.0	
PHYS 408	1.0 PHYS 408	1.0 PHYS 493	3.0	
PHYS 491	3.0 PHYS 492	3.0 Physics Elective*	3.0	
UNIV S201*	1.0 Physics Elective*	3.0 Free elective	3.0	
Physics Elective*	3.0 Physics Elective*	3.0 Liberal Studies elective	3.0	
Physics Elective*	3.0			
	15	14	13	
Total Credits 180-182				

*
In addition to the listed Physics electives, PHYS courses at the 400 level or higher (excluding courses which already satisfy a Physics major requirement) will be included. Only 2 courses may be applied which are offered outside of the PHYS subject code.

**
For students pursuing graduate student only; other students add an addition credit of free elective.

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
MATH 121	4.0 CS 171	3.0 ENGL 103 or 113	3.0	
PHYS 113	5.0 ENGL 102 or 112	3.0 MATH 200	4.0	
PHYS 128	3.0 MATH 122	4.0 PHYS 105	3.0	
UNIV S101	1.0 PHYS 114	5.0 PHYS 115	5.0	
	16	16	16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 CHEM 102	4.5 One of the following:	3.0-5.0 Business elective	4.0
MATH 201 or 261	3.0-4.0 MATH 210	4.0 CHEM 1	Free electives	9.0
MATH 291	4.0 PHYS 311	4.0 Any Biology (BIO) course	Liberal Studies elective	3.0
PHYS 217	4.0 PHYS 317	3.0 Any ENGR course 200-level or higher		
		Free electives	6.0	
		Liberal Studies elective	3.0	
		Technical elective	3.0	
	14.5-15.5	15.5	15-17	16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PHYS 321	4.0 PHYS 322	4.0 CO-OP EXPERIENCE	CO-OP EXPERIENCE	
Physics Elective**	3.0 PHYS 328	3.0		
Free electives	6.0 Physics Elective**	3.0		
	Physics Elective**	3.0		
	Free elective	3.0		
	13	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PHYS 326	4.0 PHYS 327	4.0 PHYS 408	1.0	
PHYS 408	1.0 PHYS 408	1.0 PHYS 493	3.0	
PHYS 491	3.0 PHYS 492	3.0 Physics Elective**	3.0	

UNIV S201 [*]	1.0 Physics Elective ^{**}	3.0 Free elective	3.0
Physics Elective ^{**}	3.0 Physics Elective ^{**}	3.0 Liberal Studies elective	3.0
Physics Elective ^{**}	3.0		
	15	14	13

Total Credits 180-183

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

In addition to the listed Physics electives, PHYS courses at the 400 level or higher (excluding courses which already satisfy a Physics major requirement) will be included. Only 2 courses may be applied which are offered outside of the PHYS subject code.

For students pursuing graduate study only; other students add an additional credit of free elective.

Co-op/Career Opportunities

Students who complete a degree in physics have many options. Some enter graduate school with the intention of obtaining a master's or a PhD. Others attend medical school. Engineering is yet another option, and graduates of an undergraduate physics program can enter this field with an unusually solid background in fundamental physical principles, mathematics, and computation. It is also possible for physics graduates to work in business and finance; for example, Wall Street employs many analysts trained in such "hard sciences" as physics.

Many Drexel physics graduates proceed directly into graduate schools, or medical or other professional programs. Physics graduates have attended some of the best graduate programs in the United States, including Columbia, Harvard, and CalTech. Other graduates have found jobs in engineering and business, and with such government agencies as the National Bureau of Standards.

Co-op employers for physics majors include:

- Lockheed Martin
- Princeton Plasma Physics
- Children's Hospital of Philadelphia
- Harvard University
- MIT
- University of Pennsylvania
- Academy of Natural Sciences
- Brandywine Photonics
- National Board of Medical Examiners
- Philadelphia Water Department
- C. & J. Nyheim Plasma Institute
- II-VI Optical Systems
- Comcast Corporation

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) for more detailed information on co-op and post-graduate opportunities.

Facilities

Astrophysics Facilities:

- The Numerical Astrophysics Facility emphasizes theoretical and numerical studies of stars, star formation, planetary systems, star clusters, galaxy distributions, cosmological modeling, gravitational lensing, and the early universe. The facility employs a high-performance Graphics Processing Unit (GPU) compute cluster, each node containing two 6-core, 2.7 GHz Intel Xeon CPUs and 96 Gbytes of RAM, accelerated by 4–6 Nvidia Fermi/Titan GPUs, and connected by QDR infiniband, affording computational speeds of up to 50 trillion floating point operations per second.
- The Joseph R. Lynch Observatory houses a 16-inch Meade Schmidt-Cassegrain telescope equipped with an SBIG CCD camera.
- Drexel is an institutional member of the Legacy Survey of Space and Time (LSST) that will be conducted with the Simonyi Survey Telescope at the Vera C. Rubin Observatory, currently under construction in Chile as a joint project of the National Science Foundation and Department of Energy. Faculty and students are developing LSST-related machine learning tools and analyzing simulated LSST data to prepare for "first light" in 2022.

Biophysics Facilities:

- Bio-manipulation and microscopy laboratories. Four optical tables and six research grade microscopes are configured to perform microscopic spectroscopy and manipulation on solutions and individual cells. A spatial light modulator allows spatial patterns to be encoded on samples and explored; all microscopes are temperature controlled with state of the art cameras, including a 2,000 frame per second high speed system. Each optical table is also equipped with high power lasers for photolysis or fluorescence spectroscopy.
- Wet lab for studies of proteins and biomimetic lipids, and protein purification and characterization. The laboratory has a variety of chromatographic equipment, large and small centrifuges, fume hood, a spectrophotometer and a spectrofluorimeter. In addition, the laboratory houses a small microfluidic fabrication facility.
- The Computational Biophysics facility also includes: (i) a Beowulf cluster with 46 dual Quad-core hyperthreaded Xeon CPU (736 cores) and 12Gb of RAM nodes plus a master with 1Tb of storage and 24Gb of RAM, (ii) a Beowulf cluster with 44 dual-core Xeon CPU (344 cores), (iii) a dual Quad-core hyperthreaded Xeon CPU workstation with 24Gb RAM and 3Tb disk with two Tesla C2050 GPU CUDA-accelerated graphics card, (iv) a dual Quad-core hyperthreaded Xeon CPU workstation with 8Gb RAM and 4Tb disk with an NVIDIA N280 GPU CUDA-accelerated graphics card, (v) a quad 8-core hyperthreaded Xeon CPU workstation with 128Gb RAM and 16Tb total disk, (vi) a 72Tb file server with 12Gb RAM, (vii) a 96Tb quad 6-core file server with 64Gb RAM, (viii) and several Linux workstations connected through a gigabit network.

Condensed Matter Physics Research Facilities:

- The Energy Materials Research Laboratory includes a Variable Temperature UHV Scanning Probe Microscope for studies of 2D correlated electron materials and quantum systems.
- Ultrafast Structural Dynamics Laboratory includes a transient electron diffraction setup with sub-picosecond temporal resolution used in studies of quantum materials.

- Single crystal growth laboratory utilizes different techniques for growing high quality single crystals of strongly correlated materials including dichalcogenides.
- The Magnetic Material Laboratory conducts research on amorphous magnetic thin films and fiber optical sensors.
- The Surface Science Laboratory has several scanning probe microscopy setups to study surface structure interfaces at the atomic level.
- The Ultra-Low Temperature Laboratory has a cryogenic dilution refrigerator and microwave sources and detectors to study quantum phenomena in nano- and microscale devices, superconducting qubits, nanostructures, and quantum fluids and solids.
- The Mesoscale Materials Laboratory investigates light-matter interactions and the extent and effects of ordering of lattice, charge and spin degrees of freedom on electronic phases and functional properties in solids, with an emphasis on bulk and epitaxial film complex oxides. Facilities include instrumentation for pulsed laser deposition of epitaxial complex oxide films, atomic layer deposition, variable-temperature characterization of carrier transport (DC to 20 GHz), and a laser spectroscopy lab enabling high-resolution Raman scattering spectroscopy at temperatures to 1.5 K and under magnetic field to 7 T.
- Condensed Matter Physics group has active collaborations with DOE Argonne National Laboratory near Chicago (visiting faculty Dr. Valentyn Novosad) with numerous experimental capabilities available at the Materials Science Division and Center for Nanoscale Materials. Graduates students in experimental condensed matter physics have an opportunity to conduct part or all of their thesis research at Argonne as part of collaborative projects with the research groups there.
- Local high performance computing facility.
- The Experimental Condensed Matter group is actively utilizing local user facilities at Drexel (Core Research Facilities (<https://drexel.edu/core-facilities/facilities/material-characterization>)), University of Pennsylvania (Singh Center for Nanotechnology (<https://www.nano.upenn.edu>)), and Temple University (Science and Education and Research Center (<https://cst.temple.edu/research/SERC>)) to access top of the line instrumentation for nanoscale fabrication and characterization of materials.
- Faculty in Condensed Matter Physics thrust participate in several large-scale collaborations such as Energy Frontier Research Center (DOE EFRC--CCM), detector development for South Pole Telescope Collaboration and others.

Particle Physics Facilities:

- The Drexel Particle Physics Group researches fundamental neutrino properties with the DUNE long baseline experiment hosted by Fermilab and the PROSPECT short baseline reactor experiment, as well as the planned nEXO neutrinoless double beta decay experiment.
- We are also active in the IceCube neutrino telescope located at the geographic South Pole.
- The Bubble Chamber Laboratory develops superheated-liquid detectors for rare-interaction searches, including the PICO dark matter experiment located at SNOLAB in Canada.

Laboratory for High-Performance Computational Physics:

- In addition to the department computing cluster (15 Linux workstations), high-performance computing resources include a dual-processor server with two Xeon E5-2650 processors (16 cores), 128 GB of RAM, and two Xeon Phi P5110 co-processor cards (480 cores). Department researchers also have access to a cluster of 18 Dell PowerEdge C6145 servers (AMD Opteron 6378 Piledriver CPU's, 64 cores/server, 256 GB RAM/server) with a total of 1152 cores and 4.5TB RAM.

Program Level Outcomes

- Demonstrate understanding of the fundamental principles and concepts of physics which include mechanics, electromagnetism, thermodynamics, and quantum mechanics
- Demonstrate ability to acquire, analyze and interpret experimental scientific data in core areas of physics and in complex problems
- Demonstrate analytic thinking and problem solving skills
- Demonstrate ability to read, understand, and critically analyze the physical ideas presented in published textbooks and journal articles
- Use computer algorithms and simulations to solve physics problems and test physical models
- Demonstrate ability to present information clearly, logically, and critically, both orally and in writing
- Demonstrate both an understanding and the practical application of the ethical standards implicit in science, such as appropriate attribution of ideas, good recordkeeping, and truthful presentation of data and conclusions
- Be fully prepared for graduate study in physics and/or research and professional careers in physical sciences, industry, and/or government

Physics Faculty

Alexey Aprelev, PhD (*St Petersburg State University*). Assistant Teaching Professor. Experimental biophysics.

Shyamalendu Bose, PhD (*University of Maryland*). Professor. Nanoscience, high-temperature superconductivity, theory of surfaces and interfaces, disordered systems, electron and X-ray spectroscopies of solids.

Luis R. Cruz Cruz, PhD (*MIT*). Associate Professor. Computational studies of confinement effects on the folding of amyloidogenic proteins, spatial correlations of neurons in the brain, firing dynamics of neuronal networks, fluid flow through porous media.

N. John DiNardo, PhD (*University of Pennsylvania*) *Senior Vice Provost for Academic Affairs*. Professor. Vibrational and electron dynamics at semiconductor surfaces and interfaces, metal-semiconductor interfaces, polymer surfaces and interfaces, diamond-like carbon thin films, and protein and cell interactions with biomaterials surfaces.

Michelle Dolinski, PhD (*University of California, Berkeley*). Assistant Professor. Neutrino physics, rare nuclear decays, cryogenic detector technologies.

Frank A. Ferrone, PhD (*Princeton University*). Professor. Experimental and theoretical protein dynamics, kinetics of biological self-assembly,

including sickle cell and Alzheimer's disease, sickle cell testing and diagnostic devices.

Robert Gilmore, PhD (*Massachusetts Institute of Technology*). Professor. Applications of compact and non-compact Lie algebras for problems in nuclear, atomic, and molecular physics; nonlinear dynamics and chaos and the analysis of chaotic data.

David M. Goldberg, PhD (*Princeton University*) Associate Dean for Research and Graduate Education, Associate Department Head for Undergraduate Studies. Professor. Theoretical and computational cosmology, extragalactic astrophysics, gravitational lensing.

Maher Harb, PhD (*University of Toronto*). Assistant Professor. Solid state physics, ultrafast electron diffraction, time-resolved X-ray diffraction, ultrafast lasers, nanofabrication, nano/microfluidics, instrument development, vacuum technologies.

Goran Karapetrov, PhD (*Oregon State University*). Associate Professor. Experimental solid state physics, scanning probe microscopy, nanoscale catalysis, mesoscopic superconductivity.

Rachael M. Kratzer, PhD (*Drexel University*). Assistant Teaching Professor. Quasars, active galactic nuclei

Charles Lane, PhD (*California Institute of Technology*). Professor. Experimental tests of invariance principles and conservation laws, neutrino oscillations and properties.

Teck-Kah Lim, PhD (*University of Adelaide*). Professor. Structures and dynamics of small nuclear and molecular systems, spin-polarized quantum systems, physics in two dimensions. Physics education.

Christina Love, PhD (*Temple University*). Assistant Teaching Professor. Educational methods and technology, STEM education, science literacy and outreach, particle physics, astrophysics.

Stephen L. W. McMillan, PhD (*Harvard University*) Department Head. Professor. Stellar dynamics, large-scale computations of stellar systems, and high-performance special-purpose computers.

Naoko Kurahashi Neilson, PhD (*Stanford University*). Assistant Professor. Neutrino physics, high energy astro-particle physics.

Russell Neilson, PhD (*Stanford University*). Assistant Professor. Dark matter, neutrino physics.

Gordon Richards, PhD (*University of Chicago*). Professor. Quasars, active galactic nuclei, supermassive black holes, galaxy evolution, sky surveys, infrared/X-ray/radio astronomy

Jonathan E. Spanier, PhD (*Columbia University*) Associate Dean, Strategic Planning, College of Engineering. Professor. Light-matter interactions in electronic materials, including ferroelectric semiconductors, complex oxide thin film science; laser spectroscopy, including Raman scattering.

Richard I Steinberg, PhD (*Yale University*). Professor. Neutrino physics.

Somdev Tyagi, PhD (*Brigham Young University*) Associate Head of Non-Major Studies in Physics. Professor. Nanobiophysics, Raman spectroscopy, magnetic materials.

Brigita Urbanc, PhD (*University of Ljubljana, Slovenia*). Associate Professor. Computational and experimental biophysics of protein folding

and assembly, relevant to Alzheimer's and Parkinson's disease; discrete molecular dynamics of coarse-grained protein and lipid models.

Michel Vallières, PhD (*University of Pennsylvania*). Professor. Shell-model and mean field studies of nuclei on and off beta-stability, chaotic scattering, computational physics.

Michael Vogeley, PhD (*Harvard University*) Associate Department Head for Graduate Studies. Professor. Cosmology; galaxy formation and evolution; statistical analysis of large data sets; active galactic nuclei.

Jian-Min Yuan, PhD (*University of Chicago*). Professor. Protein folding, signal transduction pathways, computational biophysics, nonlinear dynamics and chaos in atomic and molecular systems, protein folding.

Emeritus Faculty

Leonard D. Cohen, PhD (*University of Pennsylvania*). Professor Emeritus.

Leonard X. Finegold, PhD (*University of London*). Professor Emeritus. Biological physics and granular physics.

Richard D. Haracz, PhD (*Wayne State University*). Professor Emeritus.

Frederick House, PhD (*University of Wisconsin*). Professor Emeritus.

Arthur P. Joblin, PhD (*Drexel University*). Professor Emeritus.

Donald C. Larson, PhD (*Harvard University*). Professor Emeritus.

Arthur E. Lord, PhD (*Columbia University*). Professor Emeritus.

James McCray, PhD (*California Institute of Technology*). Professor Emeritus.

T. S. Venkataraman, PhD (*Worcester Polytechnic Institute*). Professor Emeritus. Material engineering and physics.

Political Science BA

Major: Political Science

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years), No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1001

Standard Occupational Classification (SOC) code: 19-3094

About the Program

The Political Science program in the Department of Politics (<http://www.drexel.edu/coas/academics/departments-centers/politics/>) helps students cultivate perspective; develop critical thinking, communication, and data analysis skills; and understand the economic, social, and political systems within which we live and work. Our curriculum builds on the department's research focuses and strengths. These include public policy, environmental politics, international organizations, human rights, and law and society. This flexible program allows students to shape a curriculum that meets their needs whether they are preparing for public service, the business world, graduate school in political science, an MBA or other business program, or law school.

All students also have the opportunity to specialize their coursework by following one of the informal concentration "tracks" of study detailed

below. These three tracks reflect our research and teaching strengths, and are designed to prepare students for a variety of career paths.

- American Politics & Policy (APP)
- International Politics (IP)
- Law & Politics (LP)

Degree Offered

The department offers a Bachelor of Arts (BA) in Political Science, which includes study of a foreign language and allows for options in the fulfillment of humanities, social science, math, and science requirements.

For more information about Drexel's political science department, contact Academic Advisor, Jenna Gregory 215.895.2590 or email jeg362@drexel.edu

Degree Requirements

University Requirements		
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society and Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Political Science Major Requirements		
Required Introductory Courses		
PSCI 110	American Government	4.0
PSCI 120	History of Political Thought	4.0
PSCI 140	Comparative Politics I	4.0
PSCI 150	International Politics	4.0
Required Research Methods Courses		
PSCI 131 [WI]	Research Design for Political Science	4.0
PSCI 231	Qualitative and Mixed-Methods Research in Political Science	4.0
PSCI 232	Quantitative Research Methods in Political Science	4.0
Required Intermediate Courses		
Any three 200-level PSCI courses EXCEPT for research methods courses (PSCI 231 and PSCI 232) ***		12.0
Political Science Upper-level Elective Courses		
Any five PSCI courses at 300-level or above ***		20.0
Free Electives		74.0
Total Credits		180.0-191.0

* Students not participating in co-op will take one additional credit of free elective instead of COOP 101.
Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.
COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (p. 5) for complete list of course options.

*** See Political Science course list (<https://catalog.drexel.edu/coursedescriptions/quarter/undergrad/psci/>).

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
PSCI 110	4.0 ENGL 102 or 112	3.0 PSCI 120, 140, or 150	4.0	
PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0 Analyzing Cultures & Histories	3.0-4.0	
UNIV H101	1.0 PSCI 131	4.0 Perspective: in Diversity	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0		
15-16		15-16	13-15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSCI 232	4.0 PSCI 231	4.0 PSCI Intermediate course	4.0 VACATION	

PSCI Intermediate course	4.0 PSCI Intermediate course	4.0 Understanding Society & Human Behavior	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0 Engaging the Natural World	3.0-4.0	
Analyzing Cultures & Histories	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0 Upper-level PSCI elective	4.0	
14-16		14-16	14-16	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Upper-level PSCI electives	8.0 Upper-level PSCI electives	8.0 Free Electives	16.0 VACATION	
Engaging the Natural World	3.0-4.0 Free electives	8.0		
Free elective	4.0			
15-16		16	16	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 Free Electives	16.0 Free electives	16.0	
Free electives	15.0			
16		16	16	

Total Credits 180-191

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
PSCI 110	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0	
UNIV H101	1.0 PSCI 131	4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 Perspectives in Diversity	3.0-4.0	
15-16		15-16	14-16	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSCI 232	4.0 PSCI 231	4.0 PSCI Intermediate course	4.0 Free Electives	12.0
PSCI Intermediate course	4.0 PSCI Intermediate course	4.0 Understanding Society & Human Behavior	3.0-4.0	
Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0 Engaging the Natural World	3.0-4.0	
Analyzing Cultures & Histories	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0 Upper-level PSCI elective	4.0	
Free Electives	2.0 Free Elective	2.0 Free Elective	2.0	
16-18		16-18	16-18	12

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Upper-level PSCI electives	8.0 Upper-level PSCI electives	8.0 COOP EXPERIENCE	COOP EXPERIENCE	
Engaging the Natural World	3.0-4.0 Free electives	10.0		
Free elective	5.0			
16-17		18	0	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 Free Electives	13.0 Free electives	13.0	
Free electives	15.0			
16		13	13	

Total Credits 180-191

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
PSCI 110	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0	
UNIV H101	1.0 PSCI 131	4.0 Analyzing Cultures & Histories	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 Perspectives in Diversity	3.0-4.0	
15-16		15-16	14-16	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSCI 232	4.0 PSCI 231	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PSCI Intermediate course	4.0 PSCI Intermediate course	4.0		
Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0		
Analyzing Cultures & Histories	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0		
14-16		14-16	0	0

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Intermediate PSCI Course	4.0 Intermediate-level PSCI	4.0 COOP EXPERIENCE	COOP EXPERIENCE	

Understand Society & Human Behavior	3.0-4.0 Upper-level PSCI electives	4.0		
Free elective	6.0 Free electives	8.0		
	13-14	16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Upper-level PSCI	8.0 Free Electives	16.0 COOP EXPERIENCE	COOP EXPERIENCE	
Free electives	7.0			
	15	16	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
UNIV H201	1.0 Free Electives	16.0 Free Electives	16.0	
Free Electives	15.0			
	16	16	16	
Total Credits 180-189				

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Co-Op/Career Opportunities

Political science majors at Drexel embark on up to three, six-month periods of employment — exploring their career options, strengthening their résumés and building a professional network in the process. Students have the opportunity to earn a salary while honing and applying their skills in social science research, critical thinking, data analysis and communication.

Political Science majors have a wide variety of co-op experiences from which to choose. Business and public utilities offer many lucrative possibilities, and local, state, and federal governments, museums and archives, and law firms present many additional interesting co-op placements. Pre-law students, for example, are especially eager to see the inside of a law office whether the co-op job they receive is clerical or a more challenging paralegal assignment. These practical experiences in the “real” world can reinforce the lessons of the classroom, sharpen skills, and establish important contacts. Sample co-op positions include:

- Law clerk/paralegal, Joe Davidson, Attorney-at-Law, Philadelphia
- Research analyst, Legislative Office for Research Liaison, Harrisburg, PA
- Legislative intern, Corporate Public Affairs Division, Philadelphia Electric Company
- Assistant lobbyist, Government Relations Office, Drexel University
- Education intern, Philadelphia Museum of Art
- Researcher, Philadelphia Chamber of Commerce
- Assistant, Office of the Governor, Harrisburg, PA

Career Opportunities

The flexible programs allow students to shape a curriculum that meets their needs whether they are preparing for the business world, graduate school in history or political science, the department's master's program in Science, Technology, and Society (<http://drexel.edu/coas/academics/>

departments-centers/science-technology-society/), an MBA or other business program, or law school.

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Program Level Outcomes

- Demonstrate an expertise in using the research methods of political science
- Apply critical thinking skills for the consumption and interpretation of academic and nonacademic knowledge
- Demonstrate informational and technological literacy
- Demonstrate mastery of the subject matter of core content areas of research in political science
- Communicate empirical findings and critical analysis of research findings effectively in oral and written presentations
- Demonstrate the ability to design and report original research in political science
- Demonstrate the application of the ethical principles of research in political science

Politics Faculty

Phillip Ayoub, PhD (*Cornell University*). Assistant Professor. International relations, comparative politics, transnational social movements, marginalized groups

Scott Barclay, PhD (*Northwestern University*) *Department Head, Politics*. Professor. Judicial systems, civil rights, public policy and administration.

Zoltan Buzas, PhD (*Ohio State University*). Assistant Professor. International relations theory, international security, race and politics, diplomatic history.

George Ciccariello-Maher, PhD (*University of California, Berkeley*). Associate Professor. Colonialism, social movements, political theory.

Audrey Comstock, PhD (expected 2015) (*Cornell University*). Post-Doctoral Fellow. International law, international LGBT politics, foreign aid, African politics

Rose Corrigan, PhD (*Rutgers University*). Associate Professor. Women, public law, American politics and policy.

Richardson Dilworth, PhD (*Johns Hopkins University*) *Director, Center for Public Policy*. Professor. American political development, urban politics, public policy.

Erin R. Graham, PhD (*Ohio State University*). Assistant Professor. International institutions, international relations theory, global environmental politics.

Amelia Hoover Green, PhD (*Yale University*). Assistant Professor. Dynamics of conflict-related violence; intra-armed group politics and socialization; statistics in human rights.

Christian Hunold, PhD (*University of Pittsburgh*). Associate Professor. Environmental policy; comparative politics; urban wildlife; political theory.

Alison Kenner, PhD (*Rensselaer Polytechnic Institute*). Assistant Professor. Science, technology, and health; environmental health

problems; cities and place; feminist theory; medical anthropology; digital humanities

Julie Mostov, PhD (*New York University*) *Vice Provost for Global Initiatives*. Professor. Modern political thought, democratic theory, nationalism, gender studies, South Eastern Europe and the Balkans.

Joel E. Oestreich, PhD (*Brown University*) *Director of the Global Studies major*. Associate Professor. International organizations, international finance, development, and human rights.

Elva Orozco-Mendoza, PhD (*University of Massachusetts*). Assistant Teaching Professor. Political freedom and action in the thought of Hanna Arendt; Feminist theory and feminist methodology; Protest politics; Theories of Violence; Identity politics, race, and gender in Latin American politics

Gwen Ottinger, PhD (*University of California, Berkeley*). Assistant Professor. Social studies of science and technology, environmental justice, science and engineering ethics, citizen science, environmental ethics.

Joshua Plencner, PhD (*University of Oregon*). Assistant Teaching Professor. American politics, race and racism, visual politics, political theory

William L. Rosenberg, PhD (*Temple University*). Professor. Behavioral politics, public opinion, and political communication.

Chloe Silverman, PhD (*University of Pennsylvania*). Associate Professor. Parent advocacy for autism, neurodiversity, and pollinator health research.

Jose Tapia, PhD (*New School for Social Research*). Associate Professor. The crises and fluctuations of the economy and the relation between these fluctuations and health conditions; quantitative aspects of social science.

Psychology BS

Major: Psychology

Degree Awarded: Bachelor of Science (BS)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 42.2799

Standard Occupational Classification (SOC) code: 19-3031

About the Program

Drexel University's Department of Psychological and Brain Sciences is a tight-knit, active community of internationally known faculty and impressive student scholars. The department defines psychology as a science of mind and behavior. From the neurophysiological underpinnings of cognition to defining the impact of human behaviors within the judicial systems and policies. Psychology contributes to the human behavioral aspects of other fields, including STEM, medicine, law, arts, and other social sciences. Our students work alongside professors on cutting-edge research and clinical projects in a range of areas, including health, forensic, neuropsychology, human development, experimental, cognitive, and clinical psychology. Undergraduates also benefit from Drexel's

cooperative education program, gaining hands-on, extensive work experience in areas of their interest.

Bachelor of Science in Psychology

Students in the Bachelor of Science in Psychology program learn how to ask and answer important questions regarding human behavior, cognition and emotion, and how to apply their findings to improve lives. Based on one's interest, students have the option to select psychology electives and experiential learning opportunities centered around the following areas of focus:

Mind, Brain and Behavior

This area of focus allows students to concentrate their plan of study on how the mind and brain influences human behavior. Courses vary from an introduction to the biological structure of the mind, understanding its underlying brain systems, to exposing students to the formal study of the neural foundations of behavior.

Human Development

This area of focus allows students to concentrate their plan of study on issues affecting human development across the lifespan. Using a biological, cognitive and socio-emotional perspective, students gain both breadth and depth in the understanding of current issues in child, adolescent, and adult development.

Clinical and Health

This area of focus allows students to concentrate their plan of study on the application of clinical psychology within the health field. Students explore various health outcomes related to, for example, women's health, disordered eating, coping with chronic illnesses, and more.

Combined Accelerated Degrees

There are two accelerated programs to which undergraduates may apply: the Psychology BS/MS (p. 211) program as well as the Psychology BS/JD in Law (p. 224) program (a collaboration with the Thomas Kline School of Law). For more information, visit the Drexel University Department of Psychological and Brain Sciences (<https://drexel.edu/coas/academics/departments-centers/psychology/degrees/>) ([http://www.drexel.edu/coas/academics/departments-centers/psychology/degree offering page](http://www.drexel.edu/coas/academics/departments-centers/psychology/degree%20offering%20page)).

Additional Information

To schedule an appointment, students should contact the Psychological and Brain Sciences department's academic advisor:

Devon M. Thomas

Academic Advisor, Undergraduate Program

Phone: 215-895-0487

Email: dmt356@drexel.edu

Office: Stratton 103A

Degree Requirements

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0

or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
MATH 101	Introduction to Analysis I	
or MATH 121	Calculus I	
Any additional MATH course OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures and Histories **		6.0-8.0
Understanding Society and Human Behavior **		6.0-8.0
Cultivating Global Competencies **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Departmental Requirements		
Business Elective ***		4.0
COM 230	Techniques of Speaking	3.0
Fine Arts Elective †		3.0
General Psychology Course Requirements		
PSY 111	Foundations of Psychological Science for Majors I ‡	3.0
PSY 112	Foundations of Psychological Science for Majors II ‡	3.0
Select two of the following:		6.0
PSY 120	Developmental Psychology	
PSY 140	Approaches to Personality	
PSY 150	Introduction to Social Psychology	
Required Psychology Courses		
PSY 212	Physiological Psychology	3.0
PSY 240 [W]	Abnormal Psychology	3.0
PSY 264	Statistical Methods in Psychology I	3.0
PSY 265	Statistical Methods in Psychology II	3.0
PSY 280	Psychological Research	3.0
PSY 290	History and Systems of Psychology	3.0
PSY 325	Psychology of Learning	3.0
PSY 330	Cognitive Psychology	3.0
PSY 360 [W]	Experimental Psychology	3.0
PSY 380	Psychological Testing and Assessment	3.0
Advanced Psychology Electives		
Any non-required PSY course at the 200-level or above.		12.0
Senior Thesis Sequence ^		
PSY 490 [W]	Psychology Senior Thesis I	4.0
PSY 491 [W]	Psychology Senior Thesis II	4.0
PSY 492 [W]	Psychology Senior Thesis III	4.0
Free Electives		58.0
Total Credits		180.0-191.0

*

Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) List for a complete list of course options.

Any course from the following programs will count towards meeting this requirement: ACCT, BLAW, BUSN, ECON, FIN, INTB, MGMT, MIS, MKTG, ORGB, SMT, and STAT

†

Any course from the following programs will count towards meeting this requirement ARTH, DANC, MUSC, PHTO, THTR, and VSST.

‡

Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

^

Students who do not wish to complete the senior thesis sequence are required to complete instead an additional 12.0 credits of advanced Psychology electives at the 200 level or above.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "W" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "W" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, No co-op

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	CIVC 101	3.0	ENGL 103 or 113	3.0	VACATION	
PSY 111	3.0	ENGL 102 or 112	3.0	PSY 120, 140, or 150	3.0		
MATH 101 or 121	4.0	PSY 112	3.0	PSY 240	3.0		
UNIV H101	1.0	PSY 120, 140, or 150	3.0	UNIV H201	1.0		
Engaging the Natural World	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0	Cultivating Global Competencies	3.0-4.0		
		Engaging the Natural World	3.0-4.0	Fine Arts Elective	3.0		
14-15		16-18		16-17		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
PSY 264	3.0	COM 230	3.0	PSY 212	3.0	VACATION	
PSY 290	3.0	PSY 265	3.0	PSY 280	3.0		

Analyzing Cultures and Histories	3.0-4.0 PSY 330	3.0 PSY 360	3.0	
Cultivating Global Competenci	3.0-4.0 Free Electives	3.0-4.0 Business Elective	4.0	
Understanding Society and Human Behavior	3.0-4.0 Perspectives in Diversity	3.0-4.0 Psychology Elective	3.0	
15-18		15-17	16	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 325	3.0 Analyzing Cultures & Histories	3.0-4.0 Psychology Elective	3.0 VACATION	
PSY 380	3.0 Psychology Elective	3.0 Free Electives	12.0	
Psychology Elective	3.0 Free Electives	7.0		
Understanding Society and Human Behavior	3.0-4.0			
Free Elective	3.0			
15-16		13-14	15	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PSY 490*	4.0 PSY 491*	4.0 PSY 492*	4.0	
Free Electives	12.0 Free Electives	12.0 Free Electives	9.0	
16		16	13	
Total Credits 180-191				

*

Students who do not wish to complete the senior thesis sequence are required to complete instead an additional 12.0 credits of advanced Psychology electives at the 200 level or above.

4 year, 1 co-op*

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
PSY 111	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
MATH 101 or 121	4.0 PSY 112	3.0 PSY 120, 140, or 150	3.0	
UNIV H101	1.0 PSY 120, 140, or 150	3.0 PSY 240	3.0	
Engaging the Natural World	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 UNIV H201	1.0	
	Engaging the Natural World	3.0-4.0 Cultivating Global Competenci	3.0-4.0	
		Fine Arts Elective	3.0	
14-15		16-18	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 264	3.0 COM 230	3.0 PSY 212	3.0 PSY 325	3.0

PSY 290	3.0 PSY 265	3.0 PSY 280	3.0 PSY 380	3.0
Analyzing Cultures and Histories	3.0-4.0 PSY 330	3.0 PSY 360	3.0 Psychology Elective	3.0
Cultivating Global Competenci	3.0-4.0 Free Electives	3.0-4.0 Business Elective	4.0 Understanding Society and Human Behavior	3.0-4.0
Understanding Society and Human Behavior	3.0-4.0 Perspectives in Diversity	3.0-4.0 Psychology Elective	3.0 Free Elective	3.0
15-18		15-17	16	15-16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	Analyzing Cultures and Histories	3.0-4.0 Psychology Elective	3.0
		Psychology Elective	3.0 Free Electives	12.0
		Free Electives	9.0	
0		0	15-16	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
PSY 490**	4.0 PSY 491**	4.0 PSY 492**	4.0	
Free Electives	12.0 Free Electives	9.0 Free Electives	9.0	
16		13	13	
Total Credits 180-191				

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Students who do not wish to complete the senior thesis sequence are required to complete instead an additional 12.0 credits of advanced Psychology electives at the 200 level or above.

5 year, 3 Co-ops*

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
PSY 111	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 PSY 112	3.0 PSY 120, 140, or 150	3.0	
MATH 101 or 121	4.0 PSY 120, 140, or 150	3.0 PSY 240	3.0	
Engaging the Natural World	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 UNIV H201	1.0	
	Engaging the Natural World	3.0-4.0 Cultivating Global Competenci	3.0-4.0	

			Fine Arts elective	3.0	
	14-15	16-18	17-18		0
Second Year					
Fall	Credits	Winter	Credits	Spring	Credits
COOP EXPERIENCE		COOP EXPERIENCE		PSY 264	3.0
				3.0 COM 230	3.0
				PSY 290	3.0
				Analyzing Cultures and Histories	3.0-4.0 PSY 330
					3.0
				Cultivating Global Competenci	3.0-4.0 Free Electives
				Understanding Society and Human Behavior	3.0-4.0 Perspectives in Diversity
					3.0-4.0
	0	0	15-18		15-17
Third Year					
Fall	Credits	Winter	Credits	Spring	Credits
COOP EXPERIENCE		COOP EXPERIENCE		PSY 212	3.0
				3.0 PSY 325	3.0
				PSY 280	3.0
				3.0 PSY 380	3.0
				PSY 360	3.0
				Psychology elective	3.0
				Business elective	4.0 Understandi Society and Human Behavior
					3.0-4.0
				Psychology elective	3.0 Free elective
					3.0
	0	0	16		15-16
Fourth Year					
Fall	Credits	Winter	Credits	Spring	Credits
COOP EXPERIENCE		COOP EXPERIENCE		Analyzing Cultures and Histories	3.0-4.0 Psychology elective
					3.0
				Psychology elective	3.0 Free electives
					12.0
				Free electives	9.0
	0	0	15-16		15
Fifth Year					
Fall	Credits	Winter	Credits	Spring	Credits
PSY 490 **		4.0 PSY 491 **		4.0 PSY 492 **	4.0
Free electives		12.0 Free electives		9.0 Free electives	9.0
	16		13		13
Total Credits 180-191					

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Students who do not wish to complete the senior thesis sequence are required to complete instead an additional 12.0 credits of advanced Psychology electives at the 200 level or above.

Co-op/Career Opportunities

Some graduates seek employment immediately after receiving their bachelor's degrees. They are well trained to work as research assistants in consulting firms and medical settings or to provide front-line services in mental health and educational settings. Other graduates go on to professional schools in law, business, medicine, and other health professions. Still others pursue graduate training in psychology and related fields. Students build skills and knowledge that provide a foundation for advanced study, create opportunities for future growth, and can be used to improve the quality of life for others.

Co-op Experiences

Drexel University has long been known for its co-operative education programs, through which students mix periods of full-time, career-related employment with their studies. Co-op/internship employment is an option for psychology majors. Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate a knowledge base in the different domains of psychology.
- Demonstrate skills necessary for scientific inquiry and critical thinking.
- Recognize ethical and social responsibilities in a diverse world.
- Show proficiency in varied modes of communication.
- Develop professional skills and behaviors appropriate to a career in psychology.

Psychology Faculty

Cathy Bolton, PhD (*Drexel University*). Assistant Teaching Professor. Program Evaluation in healthcare, supportive housing, and government-based social services; Design of performance metrics for quality assessment and clinical outcomes; Implementing Systems and Change Leadership to sustain Compliance with Regulatory Bodies.

Meghan Butryn, PhD (*Drexel University*). Associate Research Professor. Treatment and prevention of obesity and eating disorders, behavioral treatment, acceptance and commitment therapy.

Dorothy Charbonnier, PhD (*SUNY Stony Brook*). Assistant Teaching Professor. The nature of the creative process and writing.

Douglas L. Chute, PhD (*University of Missouri*) *Louis and Bessie Stein Fellow; Faculty coordinator of ePsychology*. Professor. Neuropsychology and rehabilitation; technological applications for the cognitively compromised and those with acquired brain injuries.

Brian Daly, PhD (*Loyola University, Chicago*) *Director, Practicum Training*. Assistant Professor. Pediatric neuropsychology, intervention with at-risk youth.

Paige Davis, PhD (*Durham University, England*). Assistant Teaching Professor. The development of imagination in children; private speech;

theory of mind and executive functioning; mental state commentary and mind minded parenting; audio verbal hallucinations.

David DeMatteo, PhD, JD (*MCP Hahnemann University; Villanova University School of Law*) *Director of the JD-PhD Program in Law and Psychology*. Associate Professor. Psychopathy, forensic mental health assessment, drug policy; offender diversion.

Evan M. Forman, PhD (*University of Rochester*) *Director of Graduate Studies*. Professor. Clinical psychology: mechanisms and measurement of psychotherapy outcome, cognitive-behavioral and acceptance based psychotherapies, the development and evaluation of acceptance-based interventions for health behavior change (for problems of obesity and cardiac disease) as well as mood and anxiety disorders; neurocognition of eating.

Jennifer Gallo, PhD (*Drexel University*) *Director, Neuropsychology Concentration*. Associate Teaching Professor. Neuropsychology of aging and dementia; neurocognitive correlates of goal-directed activities; behavioral and psychological symptoms associated with dementia

Pamela Geller, PhD (*Kent State University*). Associate Professor. Stressful life events and physical and mental health outcomes, particularly in the area of women's reproductive health (e.g. pregnancy, pregnancy loss, infertility, medical education).

Maureen Gibney, PsyD (*Widener University*). Associate Teaching Professor. Clinical psychopathology; neuropsychological evaluation and intervention with the elderly.

Naomi Goldstein, PhD (*University of Massachusetts*) *Co-Director of the JD-PhD Program; Stoneleigh Foundation Fellow*. Associate Professor. Forensic psychology; juvenile justice; Miranda rights comprehension; false confessions; juvenile justice treatment outcome research; anger management intervention development; child and adolescent behavior problems.

Kirk Heilbrun, PhD (*University of Texas at Austin*) *Interim Department Head*. Professor. Forensic psychology, juvenile and adult criminality, violence risk assessment, forensic psychological assessment, treatment of mentally disordered offenders, academic-sports mentoring.

James D. Herbert, PhD (*University of North Carolina*) *Dean, Graduate College; Executive Vice Provost*. Professor. Assessment and treatment of anxiety disorders; acceptance and mindfulness-based psychotherapies; the role of empiricism in clinical psychology; evidence-based practice in behavioral health.

Adrienne Juarascio, PhD (*Drexel University*). Assistant Research Professor. Enhancing treatment outcomes for eating disorders and obesity; Acceptance-based behavioral treatments; Evaluating mechanisms of action in behavioral treatments

Marlin Killen, PhD (*Trident University International*) *Faculty Coordinator of ePsychology; Online Learning Council Fellow*. Associate Teaching Professor. Authentic teaching methods in Psychology as well as student persistence behavior.

John Kounios, PhD (*University of Michigan*) *Director, PhD Program in Applied Cognitive and Brain Sciences*. Professor. Cognitive neuroscience, especially creativity, problem solving, and cognitive enhancement.

Michael Lowe, PhD (*Boston College*). Professor. Prevention and treatment of eating disorders and obesity; effects of appetitive

responsiveness and dietary restraint on eating regulation; psychobiology of obesity-proneness; empirical foundations of unconscious processes.

Dan Mirman, PhD (*Carnegie Mellon University*). Assistant Professor. Recognition, comprehension, and production of spoken words; organization and processing of semantic knowledge; computational models of brain and behavior; statistical methods for analysis of time course data

Arthur Nezu, PhD, DHLL, ABPP (*State University of New York at Stony Brook*). Distinguished Professor. Behavioral medicine applications of problem-solving therapy and other cognitive-behavior therapies (e.g., to decrease emotional and psychosocial risk factors; improve adherence), particularly with regard to patients with cardiovascular disease; assessment.

Christine Maguth Nezu, PhD (*Fairleigh Dickinson University*). Professor. Cognitive-behavioral assessment and treatment for mood, anxiety, personality disorders, and coping with chronic illness; mind/body studies; stress and coping; developmental disabilities and comorbid behavioral and emotional disorders; spirituality and psychology.

Karol Osipowicz, PhD (*Thomas Jefferson University*) *Assistant Director of Undergraduate Studies*. Assistant Teaching Professor. The application of advanced neuroimaging to the study of human brain function and anatomy.

Nancy Raitano Lee, PhD (*University of Denver*). Assistant Professor. Neuropsychological and neuroanatomic correlates of intellectual and developmental disabilities; Verbal memory and language difficulties in Down syndrome and other genetic disorders; Comorbid autism spectrum disorder symptoms in youth with genetic disorders; Neuroanatomic correlates of individual differences in typical and atypical cognition

Diana Robins, PhD (*University of Connecticut*) *Research Program Leader, Early Detection and Intervention Program, AJ Drexel Autism Institute*. Associate Professor. Autism screening, early detection of autism

Ludo Scheffer, PhD (*University of Pennsylvania*) *Director of Undergraduate Studies; Chair Senate Committee on Academic Affairs*. Teaching Professor. Meta-cognitive development, writing, and computers; Language and literacy development in the early years in the context of family and schooling; Youth-at-risk; School violence and bullying; Program/intervention effectiveness

Maria Schultheis, PhD (*Drexel University*) *Director of Clinical Training*. Associate Professor. Clinical Neuropsychology and rehabilitation following neurological compromise (brain injury, stroke, multiple sclerosis), application of technologies in psychology. Specialization in the use of virtual reality (VR) simulation, and evaluation of the demands of driving after disability.

Jennifer Schwartz, PhD (*Idaho State University*) *Director of Psychological Services Center*. Associate Teaching Professor. Adult psychopathology; evidence-based clinical practice; competency-based training; competency-based clinical supervision.

Chris Sims, PhD (*Rensselaer Polytechnic Institute*). Assistant Professor. Learning and decision-making under uncertainty; visual memory and perceptual expertise; sensorimotor control and motor learning; computational models of cognition.

Julia Sluzenski, PhD (*Temple University*). Assistant Teaching Professor. Spatial and episodic memory, memory loss across the lifespan, developmental psychology.

Mary Spiers, PhD (*University of Alabama at Birmingham*) Director MS and BS/MS Programs. Associate Professor. Clinical neuropsychology and medical psychology; memory and practical applications for memory disorders in the elderly; cognitive health of women.

J. Michael Williams, PhD (*University of Vermont*). Associate Professor. Memory disorder; traumatic brain injury; auditory neglect; neuropsychological assessment; recovery and rehabilitation of brain function; functional magnetic resonance imaging.

Fengqing (Zoe) Zhang, PhD (*Northwestern University*). Assistant Professor. Neuroimaging data analysis; Data mining; Bayesian inference; High dimensional data analysis

Eric A Zillmer, PsyD (*Florida Institute of Technology*) Carl R. Pacifico Professor of Neuropsychology and the Director of Athletics. Professor. Psychological assessment (neuropsychological, cognitive, personality), psychiatric and neurological disorders, behavioral medicine, neurogerontology, mathematical modeling, sports psychology, psychology of genocide.

Emeritus Faculty

Donald Bersoff, JD, PhD (*Yale University, New York University*). Professor Emeritus. Law and psychology; mental health law.

Thomas T. Hewett, PhD (*University of Illinois at Urbana-Champaign*). Professor Emeritus. Human computer interaction and cognitive engineering; development of computing environments to support knowledge, workers, and high performance experts.

Myrna Shure, PhD (*Cornell University*). Professor Emeritus. Child development, problem-solving interventions with children, prevention programs.

Sociology BA

Major: Sociology

Degree Awarded: Bachelor of Arts (BA)

Calendar Type: Quarter

Minimum Required Credits: 180.0

Co-op Options: Three Co-op (Five years); One Co-op (Four years); No Co-op (Four years)

Classification of Instructional Programs (CIP) code: 45.1101

Standard Occupational Classification (SOC) code: 19-3041

About the Program

Sociology investigates how communities are formed and maintained and how people resist social conventions and inequalities. The Sociology major at Drexel University has three components: theory, methods, and substantive coursework. It also features specialized coursework relating to social justice issues.

Sociology is the systematic study of societies. Society is the sum total of individual and group interactions and relations from small groups and families to global networks and complex social organizations. The discipline covers a wide variety of fields of inquiry. Sociologists examine structural relations and are committed to developing a *critical understanding* of these relationships. Thus, the Sociology major stresses

theory, research methods, and quantitative and qualitative data analysis. These are then applied to a wide variety of substantive areas including, but not limited to, social inequality, political power, gender, sexuality, class, race, ethnicity, family, health, cities and neighborhoods, technology and environmental change, as well as social and political movements connected with social change. The stress on *critical understanding* means that Sociology majors will strive not only to develop strong analytic abilities but an intellectual and ethical engagement reflected in sociologically informed thinking and action. The research and analytical skills developed in our program are sought after by a wide variety of professions.

Specialized social justice coursework is typically carried out in connection with community groups and organizations. It is a way the Sociology Program and Drexel University as a whole seek to become practically engaged with the wider community while promoting social justice.

Drexel Co-op for Sociology Majors

Sociology majors at Drexel embark on up to three, six-month periods of employment — exploring their career options, strengthening their résumés and building a professional network in the process. Students have the opportunity to earn a salary while gaining practical skills, making them competitive applicants when entering the job market.

Additional Information

For more information about the Sociology major, visit the Department of Sociology (<http://www.drexel.edu/coas/academics/departments-centers/sociology/>) webpage.

Degree Requirements

General Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
Two Consecutive Foreign Language Courses **		8.0

College of Arts and Sciences Core Curriculum***

Developing Quantitative Reasoning***	6.0-8.0
Two courses in MATH based on placement exams OR	
PHIL 111 Symbolic Logic I	
or PHIL 121 Symbolic Logic II	
Engaging the Natural World***	6.0-8.0
Analyzing Cultures & Histories***	6.0-8.0
Understanding Society & Human Behavior***	6.0-8.0
Cultivating Global Competence***	6.0-8.0
Perspectives in Diversity***	3.0-4.0

Sociology Core Requirements

SOC 101	Introduction to Sociology	3.0
Required Major Capstone		4.0
SOC 450	Capstone in Sociology	
Theory Sequence		8.0
SOC 355 [WI]	Classical Social Theory	
SOC 356 [WI]	Contemporary Social Theory	
Methods Sequence		8.0

SOC 241	Research Design: Qualitative Methods
SOC 242	Research Design: Quantitative Methods
Required Sociology Electives	
40.0	
Select at least 10 of the following: (At least four must be at the 300 or 400 level; and at least one must be at the 400-level.)	
SOC 115	Social Problems
SOC 207	Medicine and Society
SOC 210	Race, Ethnicity and Social Inequality
SOC 215	Sociology of Work
SOC 220	Wealth and Power
SOC 221	Sociology of the Family
SOC 222	Sex and Society
SOC 230	Gender and Society
SOC 235	Sociology of Health and Illness
SOC 238	Sociology of Health Professions
SOC 240	Urban Sociology
SOC 244	Sociology of the Environment
SOC 261	Sex and The City
SOC 268	Sociology of Sport
SOC 271	Sociology of Aging
SOC 278	Global Climate Change and Society
SOC 281	Gentrification and Neighborhood Change
SOC 313	Sociology of Global Health
SOC 318	Social Networks and Health
SOC 320	Sociology of Deviance
SOC 330	Development and Underdevelopment in the Global South
SOC 335	Sociology of Education
SOC 340	Globalization
SOC 346	Environmental Justice
SOC 349	Sociology of Disasters
SOC 370	Practicum in Applied and Community Sociology
SOC 405	Medicine, Technology and Science
SOC 406	Housing and Homelessness
SOC 410	Imagining Multiple Democracies
SOC 420	Love, Rage & Debt: The Debt Society
SOC 430	Politics of Life
SOC 444	Social Movements
SOC 490	Sociology Research Seminar I: Research Design
SOC 491	Sociology Research Seminar II: Data Acquisition and Analysis
SOC 492	Sociology Research Seminar III: Practicum in Sociological Research
SOC T380	Special Topics in Sociology
Free Electives	
63.0	
Total Credits	
180.0-191.0	

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Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

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Select from one of the following:

Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.

At least one foreign language course must be at the 200-level. In addition, the department recommends students take two additional foreign language courses as free electives.

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See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 year, no co-op

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
SOC 101	3.0 ENGL 102 or 112	3.0 Free electives	8.0	
UNIV H101	1.0 Foreign Language course	4.0 Perspectives in Diversity	3.0-4.0	
Developing Quantitative Reasoning	3.0-4.0 Sociology required elective	4.0		
Foreign Language course	4.0 Understanding Society & Human Behavior	3.0-4.0		

	14-15	15-16	14-15	0
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Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
SOC 241	4.0 SOC 242	4.0 SOC 355	4.0 VACATION	
Developing Quantitative Reasoning	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0	

Sociology required electives	8.0 Engaging the Natural World	3.0-4.0 Free electives	6.0	
	Sociology required elective	4.0 Understanding Society & Human Behavior	3.0-4.0	
15-16		14-16	16-18	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
SOC 356	4.0 UNIV H201	1.0 Free electives	9.0 VACATION	
Free electives	8.0 Free electives	6.0 Cultivating Global Competence	3.0-4.0	
Sociology required elective (300-level)	4.0 Sociology required elective	4.0 Sociology required elective (300-level)	4.0	
	Sociology required elective (300-level)	4.0		
16		15	16-17	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Cultivating Global Competence	3.0-4.0 Free electives	9.0 SOC 450	4.0	
Free electives	6.0 Sociology required elective (400-level)	4.0 Free electives	12.0	
Engaging the Natural World	3.0-4.0			
Sociology required elective	4.0			
16-18		13	16	

Total Credits 180-191

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
SOC 101	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Foreign Language course	4.0 Free electives	7.0	
Developing Quantitative Reasoning	3.0-4.0 Sociology required elective	4.0 Perspective: in Diversity	3.0-4.0	
Foreign Language course	4.0 Understanding Society & Human Behavior	3.0-4.0		
14-15		15-16	14-15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
SOC 241	4.0 SOC 242	4.0 SOC 355	4.0 SOC 356	4.0
Developing Quantitative Reasoning	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 Free electives	8.0

Sociology required electives	8.0 Engaging the Natural World	3.0-4.0 Free electives	6.0 Sociology required elective (300-level)	4.0
	Sociology required elective	4.0 Understanding Society & Human Behavior	3.0-4.0	
15-16		14-16	16-18	16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
UNIV H201	1.0 Cultivating Global Competence	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
Free electives	6.0 Free electives	9.0		
Sociology required elective	4.0 Sociology required elective (300-level)	4.0		
Sociology required elective (300-level)	4.0			
15		16-17	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Cultivating Global Competence	3.0-4.0 Free electives	9.0 SOC 450	4.0	
Engaging the Natural World	3.0-4.0 Sociology Required elective (400-level)	4.0 Free elective	12.0	
Free electives	6.0			
Sociology required elective	4.0			
16-18		13	16	

Total Credits 180-191

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 year, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
SOC 101	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Foreign Language course	4.0 Free electives	7.0	
Developing Quantitative Reasoning	3.0-4.0 Sociology required elective	4.0 Perspective: in Diversity	3.0-4.0	

Foreign Language course	4.0 Understanding Society & Human Behavior	3.0-4.0		
	14-15	15-16	14-15	0
Second Year				
Fall	Credits	Winter	Credits	Spring
SOC 241	4.0	SOC 242	4.0	COOP EXPERIENCE
Developing Quantitative Reasoning	3.0-4.0	Analyzing Cultures & Histories	3.0-4.0	
Sociology required electives	8.0	Engaging the Natural World	3.0-4.0	
		Sociology required elective	4.0	
	15-16	14-16	0	0
Third Year				
Fall	Credits	Winter	Credits	Spring
SOC 355	4.0	SOC 356	4.0	COOP EXPERIENCE
Analyzing Cultures & Histories	3.0-4.0	Free electives	8.0	
Free electives	6.0	Sociology required elective (300-level)	4.0	
Understanding Society & Human Behavior	3.0-4.0			
	16-18	16	0	0
Fourth Year				
Fall	Credits	Winter	Credits	Spring
UNIV H201	1.0	Free electives	9.0	COOP EXPERIENCE
Free electives	6.0	Cultivating Global Competence	3.0-4.0	
Sociology required elective	4.0	Sociology required elective (300-level)	4.0	
Sociology required elective (300-level)	4.0			
	15	16-17	0	0
Fifth Year				
Fall	Credits	Winter	Credits	Spring
Cultivating Global Competence	3.0-4.0	Free electives	9.0	SOC 450
Free electives	6.0	Sociology required elective (400-level)	4.0	Free electives
Engaging the Natural World	3.0-4.0			

Sociology required elective	4.0		
	16-18	13	16
Total Credits 180-191			

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 101 in place of COOP 101.

Co-op/Career Opportunities

Sociology majors at Drexel embark on up to three, six-month periods of employment — exploring their career options, strengthening their résumés, and building a professional network in the process. Students have the opportunity to earn a salary while gaining practical skills, making them competitive applicants when entering the job market.

An undergraduate degree in sociology is excellent preparation for law school, medical school, or for graduate work in such fields as sociology, history, gerontology, or political science.

Outside of academics, sociologists work in a wide variety of settings. Some serve as statistical analysts for market research firms, health care agencies, and the government. Others are involved in urban planning, survey research, public relations, agency management, trend analysis, or criminal justice. There are sociologists of religion working for national church organizations, and sociologists specializing in gerontology who are engaged in research or administration for agencies concerned with the aged.

Co-op Experiences

Sociology students have held recent co-op positions at the following institutions:

- National Board of Medical Examiners (<http://www.nbme.org/>)
- Cradles to Crayons (<https://www.cradlestocrayons.org/>)
- Food & Water Watch (<https://www.foodandwaterwatch.org/>)
- Stradley Ronon Stevens & Young LLP (<http://www.stradley.com/>)
- The Welcoming Center for New Pennsylvanians (<http://welcomingcenter.org/>)
- HIAS (Hebrew Immigrant Aid Society) (<https://hiaspa.org/>)
- SEPTA (South Eastern Pennsylvania Transportation Authority) (<https://www.septa.org/>)
- Philadelphia Orchestra and Ensemble Arts (<https://www.ensembleartsphilly.org/>)
- Pennsylvania Department of Health (<https://www.pa.gov/agencies/health.html>)
- Comcast Corporation (<https://corporate.comcast.com/>)

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Program Level Outcomes

Upon completion of the program, graduates will be prepared to:

- Demonstrate a basic knowledge of sociological theory
- Apply a basic knowledge of sociological research methods to sociological investigations
- Articulate a basic knowledge of substantive fields of study within sociology
- Be a critical reader of sociological research and scholarship
- Be a critical student of real world social issues and problems
- Design and carry out sociological research and data collection
- Analyze and communicate research findings

Sociology Faculty

Susan Bell, PhD (*Brandeis University*) *Department Head, Sociology*. Professor. The interaction between patient cultures and embodied health movements; changing culture and structure of biomedicine; the experience of illness, women's health, and narrative representations of the politics of cancer, medicine, and women's bodies.

Robert J. Brulle, PhD (*George Washington University*). Professor. Environmental policy and politics, critical theory, marine risk, social movements, environmental sociology.

Mary Ebeling, PhD (*University of Surrey*) *Director, Women's and Gender Studies*. Associate Professor. Science and technology studies; emerging technologies and biocapital; media and democratic cultures; radical social movements; sociology of markets; political sociology; and ethnographic methodologies.

Julia Hall, PhD (*University of Pennsylvania*). Professor. Criminal justice and juvenile justice reform, including community based alternatives to incarceration, correctional education and programming, reentry and reintegration, restorative justice, and issues relating to special needs offenders, including the el

Kelly Joyce, PhD (*Boston College*) *Director, Master's Program in Science Technology & Society*. Professor. Science, medicine and technology; aging and technology; qualitative social science methods; healthcare and medicine.

Emmanuel F. Koku, PhD (*University of Toronto*). Associate Professor. Social network analysis; qualitative/quantitative research; medical sociology; social epidemiology; social demography; sociology of development; communication and information technology; community and urban sociology.

Diamantino Machado, PhD (*Temple University*). Teaching Professor. Globalization, political economy, political sociology, philosophy of social science, postmodernism and social reflection.

Elizabeth McGhee Hassrick, PhD (*University of Chicago*). Assistant Research Professor. Social network interventions that promote positive outcomes for people with ASD, their families and communities

Kevin Mobey, PhD (*University of California-San Diego*). Assistant Teaching Professor. The social and cultural studies of biomedicine/health, particularly as those domains intersect with and through the institutions of race/sexuality/gender, social movements/community advocacy, HIV/AIDS, racial health disparities, science and technological studies, and Black Studies

David Ridgway, MS (*St. Joseph's University*) *Faculty fellow of the Sigma Phi Epsilon fraternity*. Instructor. The correlations between poverty

and public welfare, especially theories of the perpetuation of poverty; Sociology of crime; police practices and police procedure

Mimi Sheller, PhD (*New School for Social Research*) *Director, Center for Mobilities Research and Policy*. Professor. Sustainable mobility and mobility justice: new cultures and infrastructures of travel, transport, mobile communication, and urbanism; Caribbean Studies: history, culture and political theory of the region, including intersections of race, ethnicity, gender, sexuality and class.

Diane Sicotte, PhD (*Arizona State University*). Associate Professor. Sociology of environmental injustice: inequalities in the citing of environmental hazards; community-based research in neighborhoods dealing with industrial hazards; sociology of the environment; urban sociology; social inequalities.

First Year Exploratory Studies

About the Program

The First-Year Exploratory Studies (FYES) program at Drexel University is designed for students who wish to explore various academic disciplines before committing to a major. This program offers a structured yet flexible plan of study, allowing students to discover their interests and strengths while examining all that Drexel's Colleges and Schools have to offer.

The FYES program is supported by a dedicated team of advisors, faculty members and staff who are committed to helping students succeed. Some majors have requirements for internal transfers, while others do not; advisors work closely with students to create personalized academic plans and provide guidance on transitioning to a major. By the end of the first year, students are prepared to transition into their chosen major with confidence and clarity, as well as remain on track to graduate.

Curriculum

The FYES program curriculum is tailored to provide a comprehensive educational experience that aligns with students' individual personal and professional goals. FYES advisors work with students to customize their course schedules to foster exploration and intellectual growth, ensuring that students gain a broad understanding of multiple fields. Through structured coursework and with the support of dedicated advisors, students have the opportunity to reflect on their own academic journeys and make informed decisions about their futures. Based on their interests, students have the option of exploring a variety of subject areas, including Science and Mathematics, Health, Nursing and Public Health, Social Sciences, Humanities, Computing and Technology, Business and Entrepreneurship, Media, Arts and Design, Education, Engineering and more.

Research Opportunities

While the FYES program primarily focuses on exploration and academic discovery, students are encouraged to engage in research opportunities that align with their interests. FYES students have access to the same research opportunities (<https://drexel.edu/coas/faculty-research/undergraduate-research/>) as all College of Arts and Sciences students, including the Arts and Sciences Undergraduate Research Support (ASURS) Fund and the Undergraduate Experience Fund.

Co-op and Career Opportunities

One of the out features of Drexel University is its renowned co-op program (<https://drexel.edu/coas/coop-experience/co-op/>). This unique cooperative education program allows students to gain real-world

Exploratory Track course	3.0 MATH 102	4.0 ENGL 103 or 113	3.0	
Social Science elective	3.0 Exploratory Track course	3.0 FYE 103	1.0	
		Exploratory Track course	3.0	
		Social Science elective	3.0	
14		14	15	
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Exploratory Track courses	6.0 Exploratory Track courses	6.0 Exploratory Track courses	15.0 Exploratory Track courses	12.0
Science course	4.0 Free elective	3.0	Social Science elective	3.0
Social Science elective	3.0 Science course	4.0		
Free elective	3.0 Social Science elective	3.0		
16		16	15	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	Exploratory Track courses	12.0 Exploratory Track courses	15.0
		Social Science elective	3.0	
0		0	15	15
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits	
Exploratory Track courses	15.0 Exploratory Track courses	15.0 Exploratory Track courses	15.0	
15		15	15	
Total Credits 180				

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

5 years, 3 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 AS-I 104	3.0 AS-I 105	3.0 VACATION	
MATH 101	4.0 ENGL 102 or 112	3.0 CIVC 101	1.0	
UNIV H101 or S101	1.0 FYE 102	1.0 COOP 101★	1.0	
Exploratory Track course	3.0 MATH 102	4.0 ENGL 103 or 113	3.0	
Social Science elective	3.0 Exploratory Track course	3.0 FYE 103	1.0	

	Exploratory Track course	3.0		
	Social Science elective	3.0		
14		14	15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Exploratory Track courses	6.0 Exploratory Track courses	6.0 COOP EXPERIENCE	COOP EXPERIENCE	
Science course	4.0 Science course	4.0		
Social Science elective	3.0 Social Science elective	3.0		
Free elective	3.0 Free elective	3.0		
16		16	0	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Exploratory Track courses	15.0 Exploratory Track courses	12.0 COOP EXPERIENCE	COOP EXPERIENCE	
	Social Science elective	3.0		
15		15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Exploratory Track courses	12.0 Exploratory Track courses	15.0 COOP EXPERIENCE	COOP EXPERIENCE	
Social Science elective	3.0			
15		15	0	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
Exploratory Track courses	15.0 Exploratory Track courses	15.0 Exploratory Track courses	15.0	
15		15	15	
Total Credits 180				

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COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Program Level Outcomes

- Students will:
- Recognize existing strengths, skills, and personality traits and how, holistically, these should be utilized while exploring courses and opportunities in various academic units across the institution. (Academic Exploration)
 - Learn the underlying factors that will enable them to become more familiar with the process of researching, applying, interviewing, and accepting job opportunities in their respective industries, including but not limited to: emotional intelligence; professional networking; and informational interviews. (Career Preparation)
 - Declare and transfer to a full-time major at their respective college/ school after working with academic advisors, peer mentors,

and faculty members, as well as exploring various courses and opportunities,. (Plan of Study)

- Learn the importance of self-advocacy regarding resources on campus, academic plans of study, financial aid, and communication. (Self-Advocacy)
- Develop and refine their leadership skills through various pathways, including the Peer Mentor program. (Leadership)

General Humanities and Social Sciences (Undeclared)

About the Program

Note: this program will not accept students for the 2026-27 academic year.

The GHSS (General Humanities and Social Sciences) Undeclared program allows students to explore academic options within the College of Arts and Sciences before declaring a major and while staying on track during their first year.

GHSS is not a major; however, all the courses in year 1 are required in some form in the various majors in the Humanities/Social Science side of the College of Arts and Sciences. This selection of courses will “follow” the student to an eventual chosen major in the college. With the help of an advisor, students can select courses based on their interests and goals. No later than the end of spring term in the first academic year, students are required to select an appropriate major which will lead to a bachelor's degree.

Students will complete co-ops in accordance with the requirements for the major that they choose.

For more information, please visit the Drexel College of Arts and Sciences (<https://drexel.edu/coas/academics/undergraduate-programs/>) web page.

Admission Requirements

There are no specific requirements for admission into the General Humanities and Social Sciences (GHSS) option beyond those that are required for any student applying to majors in Humanities or Social Sciences at Drexel University.

Program Requirements

Students are required to chose a major by the end of the first year. All students will work closely with their advisor to identify where their interests lie so that they can declare their major as soon as possible. Courses taken during the first year will all count towards the degree requirements for majors in the Humanities and the Social Sciences.

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0

College Requirements

SOC 101	Introduction to Sociology	3.0
COM 111	Principles of Communication	3.0
PSY 101	General Psychology I	3.0
PHIL 105	Critical Reasoning	3.0
CJS 101	Introduction to Criminal Justice	3.0
COM 150	Mass Media and Society	3.0
GST 101	Becoming Global: Language and Cultural Context	4.0
PSCI 100	Introduction to Political Science	4.0
MATH or Language Requirement *		8.0
Electives		70.0
Major Requirements **		66.0
Total Credits		181.0

*

Two MATH or language courses according to placement

**

Declared majors include ENGL, PHIL, HIST, PSCI, SOC, COM, GST, PPE, CJS, PSY

Sample Plan of Study

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 111	3.0 CIVC 101	1.0 CJS 101	3.0 VACATION	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 COM 150	3.0	
MATH or Language *	4.0 MATH or Language *	4.0 ENGL 103 or 113	3.0	
SOC 101	3.0 PHIL 105	3.0 GST 101	4.0	
UNIV H101	1.0 PSY 101	3.0 PSCI 100	4.0	
	14	14	17	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Declared Major Credits **	12.0 Declared Major Credits **	12.0 Declared Major Credits **	9.0 VACATION	
UG Elective Credits	4.0 UG Elective Credits	3.0 UG Elective Credits	6.0	
	16	15	15	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Declared Major Credits **	6.0 Declared Major Credits **	9.0 Declared Major Credits **	6.0 VACATION	
UG Elective Credits	9.0 UG Elective Credits	6.0 UG Elective Credits	9.0	
	15	15	15	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits
Declared Major Credits **	6.0 Declared Major Credits **	3.0 Declared Major Credits **	3.0
UG Elective Credits	9.0 UG Elective Credits	12.0 UG Elective Credits	12.0
	15	15	15

Total Credits 181

*

MATH or language courses according to placement

Declared majors include ENGL, PHIL, HIST, PSCI, SOC, COM, GST, PPE, CJS, PSY

Science (Undeclared)

About the Program

The Science Undeclared program allows students to explore academic options within the College of Arts and Sciences before declaring a major and thereby stay on track during their first year.

Science Undeclared is not a major; however, all the courses in year 1 are required in some form in the various majors in the Sciences in the College of Arts and Sciences. This selection of courses will “follow” the student to an eventual chosen major in the college. With the help of an advisor, students can select courses based on their interests and goals. No later than the end of the first year, students will select a major while being guided toward a future career path.

Students will complete co-ops in accordance with the requirements for the major that they choose.

For more information, please visit the Drexel College of Arts and Sciences (<https://drexel.edu/coas/academics/undergraduate-programs/>) web page.

Degree Requirements

Students are required to chose a major by the end of the first year. All students will work closely with their advisor to identify where their interests lie so that they can declare their major as soon as possible. Courses taken during the first year will all count towards the degree requirements for majors in the Sciences.

General Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Mathematics		12.0
Major Requirements		
Science Major -- requirements in one of BIO, CHEM, ENVS, ENSS, GEO, MATH,PHYS		94.0
Electives		
Liberal Studies Electives		20.0
Free electives		42.0
Total Credits		180.0

Sample Plan of Study

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	BIO 132	4.0	BIO 133	4.0	VACATION	
BIO 134	1.0	BIO 135	1.0	BIO 136	1.0		
CHEM 101	3.5	CHEM 102	4.5	CHEM 103	4.5		
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0		

MATH 101 or 121	4.0	ENGL 102 or 112	3.0	MATH 239 or 123	4.0		
UNIV S101	1.0	MATH 102 or 122	4.0				
16.5		17.5		16.5		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	12.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	12.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	9.0	VACATION	
Electives according to declared major	3.0	Electives according to declared major	3.0	Liberal Studies electives according to declared major	3.0		
UNIV S201	1.0			Electives according to declared major	3.0		
16		15		15		0	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	9.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	6.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	6.0	VACATION	
Liberal Studies electives according to declared major	3.0	Liberal Studies electives according to declared major	3.0	Liberal Studies electives according to declared major	4.0		
Electives according to declared major	3.0	Electives according to declared major	6.0	Electives according to declared major	6.5		
15		15		16.5		0	
Fourth Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	6.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	3.0	Credits in declared major: BIO, CHEM, MATH, PHYS, ENVS, GEO, or ENSS	3.0		
Electives according to declared major	6.0	Liberal Studies electives according to declared major	5.0	Liberal Studies electives according to declared major	3.0		

Electives according to declared major	5.0 Electives according to declared major	6.0
12	13	12
Total Credits 180		

Biological Sciences BS / Advanced Therapeutics MS

Major: Biological Sciences and Advanced Therapeutics
Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)
Calendar Type: Quarter
Minimum Required Credits: 226.5
Co-op Options: One Co-op (Five years)

About the Program

The Accelerated BS Biological Sciences/MS Advanced Therapeutics is designed for academically qualified students who are looking to further prepare for careers in biomanufacturing. Drexel's BS Biological Science program trains students for technical careers in research or commercial laboratories, or for professional schools or graduate study. Discoveries in the biological sciences influence many aspects of our daily lives and have become the foundation of many new developments in biotechnology and medicine. The MS in Advanced Therapeutics provides a unique multidisciplinary graduate education providing foundations and best practices for research and development of the next generation of therapeutics, such as cellular and genetic therapies, immune engineering, targeted drug delivery and personalized medicines as well as pharmacogenomics and drug discovery. For those interested in joining this growing workforce, our new program provides fundamental knowledge and lab skills pertaining to cell engineering and gene therapy, classes dedicated to industrial biomanufacturing.

In this accelerated degree program, students participate in the undergraduate program for four full years (with one co-operative experience). In the fourth year students take a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BS. When students successfully complete the remainder of their graduate studies (typically four graduate quarters), they will receive the MS degree.

Additional Information

For additional information about this program, please visit the Department of Biology (https://drexel.edu/coas/academics/departments-centers/biology/?_gl=1*9dio2g*_ga*OTEwNTAxODM1LjE2NjQ0NjE3MzI.*_ga_6KJ1PNLE19*M) web page.

Admission Requirements

Application to the BSMS program begins after a student has completed at least 90 and no more than 120 undergraduate credits. A freshman student can be designated as a BSMS Provisional Admit but is not officially accepted into the BSMS program until the student completes at least 90 credits and meets the admissions criteria. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Acceptance to the Drexel MS in Advanced Therapeutics is conditional upon a 3.5 overall undergraduate GPA. Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year two. Students must submit an application to the graduate Master of Science in Advanced Therapeutics program during their fourth year.

Any student who does not meet the entrance requirements of the graduate program will be able to complete the fourth year of the Biological Sciences undergraduate program and receive a BS degree.

Degree Requirements

Required BS Biological Sciences Courses		
Humanities and Social Sciences		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COM 310 [WJ] or COM 320	Technical Communication Science Writing	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
PHIL 251 or PHIL 321	Ethics Biomedical Ethics	3.0
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Humanities and Social Science Electives		
Select 9.0 credits from the following 100-400 level courses:		9.0
Any AFAS (Africana Studies) course		
Any ANTH (Anthropology) course		
Any ARBC (Arabic) course		
Any CHIN (Chinese) course		
Any CJS (Criminology and Justice Studies) course		
Any COM (Communication) course **		
Any FREN (French) course		
Any GER (German) course		
Any HBRW (Hebrew) course		
Any HIST (History) course		
Any ITAL (Italian) course		
Any JAPN (Japanese) course		
Any JWST (Jewish Studies) course		
Any KOR (Korean) course		
Any LING (Linguistics) course		
Any PHIL (Philosophy) course		
Any (PSCI) Political Science course		
Any PSY (Psychology) course		
Any SOC (Sociology) course		
Any SPAN (Spanish) course		
Any WGST (Women's and Gender Studies) course		
Science, Technology, Health and Human Affairs Elective		
Select one of the courses listed below:		3.0
BIO 212	Biotechnology	
ENGL 300 [WJ]	Literature & Science	
ENGL 302	Environmental Literature	
ENGL 370	Topics in Literature and Medicine	
ENVS 260	Environmental Science and Society	
HIST 285	Technology in Historical Perspective	
HSAD 210	Health-Care Ethics I	
HSAD 328	Health Care for Diverse Groups	
HSAD 353	Public Health Ethics	
HSCI 125	Medical Terminology	
HSCI 315	Current Issues in Health Sciences	
PBHL 301	Epidemiology in Public Health	
PBHL 333	Health Inequality	

PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 361	Philosophy of Science	
PSCI 371	Science, Technology, & Public Policy	
SCTS 101	Introduction to Science, Technology, and Society	
SOC 222	Sex and Society	
SOC 235	Sociology of Health and Illness	

Mathematics and Statistics

Select one of the following sequences options: 12.0

Option A: Intro to Analysis		
MATH 101	Introduction to Analysis I	
& MATH 102	and Introduction to Analysis II	
& MATH 239	and Mathematics for the Life Sciences	
Option B: Calculus		
MATH 121	Calculus I	
& MATH 122	and Calculus II	
& MATH 123	and Calculus III	
MATH 410	Scientific Data Analysis I	3.0
MATH 411	Scientific Data Analysis II	3.0

Physical Sciences

BIO 311	Biochemistry	3.0-4.0
or CHEM 243	Organic Chemistry III	
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
CHEM 241	Organic Chemistry I	4.0
CHEM 242	Organic Chemistry II	4.0
PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0

Core Biology Courses

BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0-2.0
or BIO 142	SEA-PHAGES I	
BIO 132	Genetics and Evolution	4.0
BIO 135	Genetics and Evolution Lab	1.0-2.0
or BIO 143	SEA-PHAGES II	
BIO 133	Physiology and Ecology	4.0
BIO 136	Anatomy and Ecology Lab	1.0-2.0
or BIO 144	SEA-PHAGES III	
BIO 207	Applications in Biology I	1.0
BIO 208	Applications in Biology II	1.0
BIO 209	Cell, Molecular & Developmental Biology I	4.0
BIO 211	Cell, Molecular & Developmental Biology II	4.0
BIO 219 [WI]	Techniques in Molecular Biology	3.0
BIO 224	Form, Function & Evolution of Vertebrates	4.0
BIO 225	Vertebrate Biology and Evolution Laboratory	2.0
BIO 471	Seminar in Biological Sciences	2.0
BIO 472	Seminar in Biological Sciences	2.0
BIO 473 [WI]	Seminar in Biological Sciences	2.0
ENVS 212	Evolution	4.0

Concentration Courses		28.0-30.0
Undergraduate Free Electives		21.0
BIO 632 counts as an UG Free Elective		

Required MS Advanced Therapeutics Courses

Graduate (GR) Core		
BIO 500	Biochemistry I	3.0
BIO 632	Advanced Cell Biology	3.0
BIO 635	Advanced Genetics and Molecular Biology	3.0
BMES 670	Introduction to Immune Engineering	3.0
BMES 671	Advanced Topics in Immune Engineering	3.0
BMES 667	Cell and Gene Therapy (CGT) Manufacturing and Regulatory Requirements	3.0

BMES 669	Techniques in Cell Engineering and Gene Therapy	3.0
BMES 538	Biomedical Ethics and Law	3.0
BMES 864	Seminar	0.0
BMES Computation (choose 1)		4.0
BMES 546	Biocomputational Languages	
BMES 550	Advanced Biocomputational Languages	
BMES Modeling (Choose 1)		3.0
BMES 644	Cellular Biomechanics	
BMES 611	Biological Control Systems	
BMES 677	Mathematical Modeling of Cellular Behavior	
BMES 678	Biocomputational Modeling and Simulation	
BMES Statistics (choose 1)		3.0
BMES 510	Biomedical Statistics	
BMES 517	Intermediate Biostatistics	
BMES 518	Interpretation of Biomedical Data	

BIO Electives

Select two courses from the list below:		6.0
BIO 534	Bioinformatics I	
BIO 535	Bioinformatics II	
BIO 613	Genomics	
BIO 616	Biochemistry of Major Diseases	
BIO 626	Immunology	
BIO 630	Cell Biology of Disease	
BIO 644	Human Genetics	
BIO 646	Stem Cell Research	
BIO 650	Virology	
BIO 653	Protein Dysfunction in Disease	
BIO 664	Neurobiology of Disease	

BMES Electives

Select two courses from the list below:		6.0
BMES 547	Machine Learning in Biomedical Applications	
BMES 548	Structural Bioinformatics and Drug Design	
BMES 549	Genomic and Sequencing Technologies	
BMES 586	Medical Technology Innovation: Biologics	
BMES 604	Pharmacogenomics	
BMES 609	Emerging Technologies in the Healthcare System	
BMES 660	Biomaterials I	
BMES 661	Biomaterials II	

Total Credits 226.5-232.5

*

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Does not include COM 310 [WI] (<https://catalog.drexel.edu/programadmin/114/>) .

†
Students choose from any **BST, CHP, EOH, EPI, HMP, or PBHL** course from the 500-999 level. Students can take additional 500-level or above electives across the university as long as they meet prerequisite and restriction requirements. Students can contact their faculty mentor to discuss elective options.
Students may be able to use elective credits to further focus their academic work by completing a graduate minor or by coupling a DSPH graduate certificate. Students must have enough applicable elective credits to complete the certificate program without going beyond the required credits for the program. Students can contact their graduate academic advisor before enrolling in the certificate.

Concentrations

Students select one of six concentrations and fulfill the requirements as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements		
BIO 244	Genetics I	3.0
or BIO 444	Human Genetics	
BIO 314	Pharmacology	3.0
or BIO 404	Structure and Function of Biomolecules	
or BIO 416	Biochemistry of Major Diseases	
BIO 318	Biology of Cancer	3.0
or BIO 430	Cell Biology of Disease	
BIO 410	Advanced Molecular Biology	3.0
Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)		
Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)		6.0
Organismal/Physiology Elective (see list below)		3.0
Ecology/Evolution/Genomics Elective (see list below)		3.0
Concentration Laboratory Courses		
Two Laboratory Electives (see list below)		4.0
Total Credits		28.0

Students interested in pursuing a focus area in Neurobiology, Pharmaceutics, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives		
BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0

BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0
Organismal/Physiology Electives		
BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0
Ecology/Evolution/Genomics Electives		
BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 470	Advanced Topics in Evolution	3.0
Laboratory Electives		
BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research	0.5-12.0

ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements

BIO 201	Human Physiology I	4.0
or ENVS 254	Invertebrate Morphology and Physiology	
BIO 203	Human Physiology II	4.0
or BIO 256	Vertebrate Morphology and Physiology	
BIO 373	Developmental Biology	3.0
Select one of the following:		
BIO 412	Biology of Aging	3.0
or BIO 284	Biology of Stress	
or BIO 466	Endocrinology	
or BIO 468	Pathophysiology	

Organismal Biology/Physiology Concentration Concentration Electives (See List Below)

Cell/Molecular/Genetics/Biochemistry (CMGB) Elective	3.0
Two Organismal/Physiology Electives	6.0
Ecology/Evolution/Genomics Elective	3.0
Concentration Laboratory Courses	
Two Laboratory Electives	4.0
Total Credits	30.0

Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
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BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0

ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration Requirements

BIO 228	Evolutionary Biology & Human Health	3.0
or BIO 331	Bioinformatics I	
BIO 436	Population Genetics	3.0-4.0
or ENVS 230	General Ecology	
ENVS 326	Molecular Ecology	3.0
Select one of the following:		3.0-5.0
BIO 221	Microbiology	
BIO 256	Vertebrate Morphology and Physiology	
BIO 323	Parasitology	
BIO 413	Genomics	
BIO 420	Virology	
ENVS 254	Invertebrate Morphology and Physiology	
ENVS 360	Evolutionary Developmental Biology	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 438	Biodiversity	

Ecology/Evolution/Genomics Concentration Electives

Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)	3.0
Select one Organismal/Physiology Elective (see list below)	3.0
Select two Ecology/Evolution/Genomics Electives (see list below)	6.0

Concentration Laboratory Courses

Select two Laboratory Electives (see list below)	4.0
Total Credits	28.0-31.0

Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0

BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0

BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

Pathobiology Concentration Requirements

BIO 221	Microbiology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
or BIO 420	Virology	
or BIO 435	Immunobiology of Disease	
BIO 426	Immunology	3.0
Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)		3.0
Select two Organismal/Physiology Electives (see list below)		6.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0
Concentration Laboratory Courses		
Two Laboratory electives (see list below)		4.0
Total Credits		28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0

BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are

looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

General Biology Concentration Requirements

General Biology Concentration Electives 24.0

2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)

2 or 3 Organismal/Physiology Electives (see list below)

2 or 3 Ecology/Evolution/Genomics Electives (see list below)

Concentration Laboratory Courses

Two Laboratory electives (see list below) 4.0

Total Credits 28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 413	Genomics	3.0
BIO 415	Proteins	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0

BIO 413	Genomics	3.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

6. The Cell and Gene Therapy Concentration

The Cell and Gene Therapy concentration provides a strong biological foundation for those aspiring toward professions in this unique subdiscipline. These therapies have the potential to transform medicine by alleviating the cause of disease using RNA, DNA and cells to reprogram the body's defenses to fight disease. The cell and gene therapy workforce is expected to grow 35-94% between 2022 and 2032. This concentration

will benefit students pursuing careers in medicine bioinformatics, regulatory compliance, public health, research and industry.

Cell and Gene Therapy Concentration Requirements

BIO 244	Genetics I	3.0
BIO 346	Stem Cell Research	3.0
BIO 413	Genomics	3.0
or BIO 426	Immunology	
BIO 444	Human Genetics	3.0
or BIO 420	Virology	
Select two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)		6.0
Select one Organismal/Physiology Elective (see list below)		3.0-4.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0-4.0

Concentration Laboratory Courses

Two Laboratory Electives (see list below)	4.0-6.0
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Total Credits	28.0-32.0
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Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 373	Developmental Biology	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0

Laboratory Electives

BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 497	Research (by permission of Dept)	0.5-12.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/>)

coas/academics/departments-centers/english-philosophy/university-writing-program/). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	BIO 132	4.0	BIO 133	4.0	VACATION	
BIO 134 or 142	1.0-2.0	BIO 135 or 143	1.0-2.0	BIO 136 or 144	1.0-2.0		
CHEM 101	3.5	CHEM 102	4.5	CHEM 103	4.5		
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0		
MATH 121 or 101	4.0	ENGL 102 or 112	3.0	MATH 239 or 123	4.0		
UNIV S101	1.0	MATH 122 or 102	4.0				
		16.5-17.5	17.5-18.5	16.5-17.5	0		

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 207	1.0	BIO 208	1.0	BIO 311 or CHEM 243	3.0-4.0	BIO 224	4.0
BIO 209	4.0	BIO 211	4.0	ENVS 212	4.0	BIO 225	2.0
BIO 219	3.0	COOP 101*	1.0	PHIL 251	3.0	(UG) BIO/ENVS elective	3.0
CHEM 241	4.0	CHEM 242	4.0	PHYS 154	4.0	(UG) Humanities/Social Science elective	3.0
PHYS 152	4.0	PHYS 153	4.0			(UG) Science, Technology, Health & Human Affairs elective	3.0

UNIV S201	1.0
(UG) Biology Laboratory requirement**	2.0

	16	17	14-15	15			
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COOP Experience		COOP Experience		COM 230	3.0	COM 310	3.0
				MATH 410	3.0	MATH 411	3.0
				(UG) BIO/ ENVS elective	3.0	(UG) BIO/ ENVS elective	3.0
				(UG) Free electives	6.0	(UG) Biology Laboratory Requirement course	2.0

			(UG) Free elective	3.0
	0	0	15	14
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0 BS Degree Awarded	
(UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS elective	3.0 Student converts to Graduate status	
(UG) Free electives	6.0 (UG) Humanities/ Social Science elective	3.0 (UG) Humanities/ Social Science elective	3.0	
BIO 500	3.0 (UG) Free elective	3.0 (UG) Free elective	3.0	
		BIO 632 (Applied to UG Free Elective)	3.0	
	17	14	14	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BMES 864	0.0 BIO 635	3.0 BMES 671	3.0 BMES 538	3.0
(GR) BMES Computation	4.0 BMES 670	3.0 BMES 667	3.0 (GR) BIO Elective	3.0
(GR) BMES Statistics	3.0 (GR) BMES Modeling	3.0 BMES 669	3.0 (GR) BMES Elective	3.0
(GR) BIO Elective	3.0 (GR) BMES Elective	3.0		
	10	12	9	9
Total Credits 226.5-230.5				

★
Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★
See degree requirements (p. 13).

Biological Sciences BS/ Biological Sciences MS

Major: Biological Sciences
Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)
Calendar Type: Quarter
Minimum Required Credits: 229.5
Co-op Options: One Co-op (Five years)

About the Program

The Accelerated BS/MS in Biological Sciences is designed for academically qualified students who are looking to advance their learning in the discipline by earning both a bachelor's and graduate degree in 5

years. The BS/MS in Biological Sciences is a degree program with both thesis and non-thesis options available.

Requirements for the graduate portion of the program are the same as for the MS in Biological Sciences. The BS/MS program in Biological Sciences is a rigorous and challenging program that that builds on a strong undergraduate foundation to allow students to engage in more extensive study of the discipline at a graduate level. Students applying to this program are often advanced in their plans of study, typically arriving with advanced placement credit when they matriculate.

Eligibility

Exceptional students with a cumulative GPA of at least 3.5 and who are enrolled in the four-year or five-year co-op option are eligible for the BS/ MS program. Students participating in co-op will need to be on the spring-summer cycle. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Application Process

Prior to applying to the program, students are advised to meet with the respective advisor(s) in the department. The application must be accompanied by a Plan of Study prepared in consultation with the undergraduate and graduate advisors in the department. A brief statement of purpose indicating the applicant's academic and professional interest in pursuing the BS/MS degree is required. Applicants are then formally reviewed by the Biology Graduate Committee.

Requirements

Students enrolled in the Accelerated BS/MS in Biological Sciences must complete 183.5 undergraduate quarter credits for the bachelor's degree and at least 45 graduate quarter credits for the master's degree. Courses may not be double-counted for both the BS and MS degree. All undergraduate and graduate course requirements must be satisfied in full, including producing a thesis (if the thesis-option master's program is elected) no later than the Spring Quarter of the final year. Students in the BS/MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program.

Additional Information

If you are interested in applying for the BS/MS, please contact Biology Graduate Advisor Kate Pelusi at kp475@drexel.edu and submit your current plan of study, along with your statement of purpose communicating your interest in pursuing the BS/MS degree.

Admission Requirements

Exceptional students with a cumulative GPA of at least 3.5 and who are enrolled in the four-year or five-year co-op option are eligible for the BS/ MS program. Students participating in co-op will need to be on the spring-summer cycle. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Degree Requirements

Requirements		
Humanities and Social Sciences		
CIVC 101	Introduction to Civic Engagement	1.0

COM 230	Techniques of Speaking	3.0
COM 310 [WI]	Technical Communication	3.0
or COM 320	Science Writing	
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
PHIL 251	Ethics	3.0
or PHIL 321	Biomedical Ethics	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Humanities and Social Science Electives		9.0
Science, Technology, Health and Human Affairs Elective		3.0

Mathematics and Statistics

Select one of the following sequences:		12.0
Intro to Analysis		
MATH 101	Introduction to Analysis I	
& MATH 102	and Introduction to Analysis II	
& MATH 239	and Mathematics for the Life Sciences	
Calculus		
MATH 121	Calculus I	
& MATH 122	and Calculus II	
& MATH 123	and Calculus III	
MATH 410	Scientific Data Analysis I	3.0
MATH 411	Scientific Data Analysis II	3.0

Physical Sciences

BIO 311	Biochemistry	4.0
or CHEM 243	Organic Chemistry III	
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
CHEM 241	Organic Chemistry I	4.0
CHEM 242	Organic Chemistry II	4.0
PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0

Core Biology Courses

BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0-2.0
or BIO 142	SEA-PHAGES I	
BIO 132	Genetics and Evolution	4.0
BIO 135	Genetics and Evolution Lab	1.0-2.0
or BIO 143	SEA-PHAGES II	
BIO 133	Physiology and Ecology	4.0
BIO 136	Anatomy and Ecology Lab	1.0-2.0
or BIO 144	SEA-PHAGES III	
BIO 207	Applications in Biology I	1.0
BIO 208	Applications in Biology II	1.0
BIO 209	Cell, Molecular & Developmental Biology I	4.0
BIO 211	Cell, Molecular & Developmental Biology II	4.0
BIO 219 [WI]	Techniques in Molecular Biology	3.0
BIO 224	Form, Function & Evolution of Vertebrates	4.0
BIO 225	Vertebrate Biology and Evolution Laboratory	2.0
BIO 471	Seminar in Biological Sciences	2.0
BIO 472	Seminar in Biological Sciences	2.0
BIO 473 [WI]	Seminar in Biological Sciences	2.0
ENVS 212	Evolution	4.0

Concentration Courses	28.0-30.0
Free electives	24.0

MS Degree Courses	45.0
Total Credits	229.5-234.5

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Requirements for MS with Thesis

BIO 500	Biochemistry I	3.0
BIO 632	Advanced Cell Biology	3.0
BIO 635	Advanced Genetics and Molecular Biology	3.0
BIO 997	Research in Bioscience	12.0
ENVS 506	Biostatistics	3.0
MS BIO Electives *		21.0
RCRG 600	An Introduction to the Responsible Conduct of Research	0.0
Total Credits		45.0

Requirements for Non-thesis MS

BIO 500	Biochemistry I	3.0
BIO 632	Advanced Cell Biology	3.0
BIO 635	Advanced Genetics and Molecular Biology	3.0
ENVS 506	Biostatistics	3.0
MS BIO Electives *		33.0
Total Credits		45.0

BIO 534, BIO 535, BIO 610, BIO 613, BIO 614, BIO 615, BIO 616, BIO 620, BIO 630, BIO 644, BIO 646, BIO 650, BIO 661, BIO 662, BIO 663, BIO 664, BIO 701, BIO 740

Students select one of five concentration and fulfill the requirements, as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements

BIO 244	Genetics I	3.0
or BIO 444	Human Genetics	
BIO 314	Pharmacology	3.0
or BIO 404	Structure and Function of Biomolecules	
or BIO 416	Biochemistry of Major Diseases	
BIO 318	Biology of Cancer	3.0
or BIO 430	Cell Biology of Disease	
BIO 410	Advanced Molecular Biology	3.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)

Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)	6.0
Organismal/Physiology Elective (see list below)	3.0
Ecology/Evolution/Genomics Elective (see list below)	3.0

Concentration Laboratory Courses

Two Laboratory Electives (see list below)	4.0
Total Credits	28.0

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Students interested in pursuing a focus area in Neurobiology, Pharmaceuticals, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives		
BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0
Organismal/Physiology Electives		
BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0
Ecology/Evolution/Genomics Electives		
BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0

ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives		
BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements		
BIO 201	Human Physiology I	4.0
or ENVS 254	Invertebrate Morphology and Physiology	
BIO 203	Human Physiology II	4.0
or BIO 256	Vertebrate Morphology and Physiology	
BIO 373	Developmental Biology	3.0
Select one of the following:		
BIO 412	Biology of Aging	3.0
or BIO 284	Biology of Stress	
or BIO 466	Endocrinology	
or BIO 468	Pathophysiology	

Organismal Biology/Physiology Concentration Concentration Electives (See List Below)		
Cell/Molecular/Genetics/Biochemistry (CMGB) Elective		3.0
Two Organismal/Physiology Electives		6.0
Ecology/Evolution/Genomics Elective		3.0
Concentration Laboratory Courses		
Two Laboratory Electives		4.0
Total Credits		30.0

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Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

*Cell/Molecular/Genetics/Biochemistry (CMGB) electives		
BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0

BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

****Organismal/Physiology electives**

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

***** Ecology/Evolution/Genomics electives**

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

+Laboratory electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration requirements

BIO 228	Evolutionary Biology & Human Health	3.0
or BIO 331	Bioinformatics I	
BIO 436	Population Genetics	3.0-4.0
or ENVS 230	General Ecology	
ENVS 326	Molecular Ecology	3.0
Select one of the following:		3.0-5.0
BIO 221	Microbiology	
BIO 256	Vertebrate Morphology and Physiology	
BIO 323	Parasitology	
BIO 413	Genomics	
BIO 420	Virology	
ENVS 254	Invertebrate Morphology and Physiology	
ENVS 360	Evolutionary Developmental Biology	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 438	Biodiversity	

Ecology/Evolution/Genomics concentration electives

Select one Cell/Molecular/Genetics/Biochemistry (CMGB) elective (see list below)	3.0
Select one Organismal/Physiology elective (see list below)	3.0
Select two Ecology/Evolution/Genomics electives (see list below)	6.0

Concentration Laboratory Courses

Select two Laboratory electives (see list below)	4.0
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Total Credits	28.0-31.0
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Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0

BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0

Organismal/Physiology electives

BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0

ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

BIO 221	Microbiology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
or BIO 420	Virology	
or BIO 435	Immunobiology of Disease	
BIO 426	Immunology	3.0
Select one Cell/Molecular/Genetics/Biochemistry (CMGB) elective (see list below)		3.0
Select two Organismal/Physiology electives (see list below)		6.0
Select one Evolutionary Bio/Ecology elective (see list below)		3.0
Concentration Laboratory Courses		
Two Laboratory electives (see list below)		4.0
Total Credits		28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0

BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0

Ecology/Evolution/Genomics electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0

ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

General Biology Concentration Electives **24.0**

2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) electives (see list below)

2 or 3 Organismal/Physiology electives (see list below)

2 or 3 Ecology/Evolution/Genomics electives (see list below)

Concentration Laboratory Courses

Two Laboratory electives (see list below) **4.0**

Total Credits **28.0**

Cell/Molecular/Genetics/Biochemistry (CMGB) electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 413	Genomics	3.0
BIO 415	Proteins	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0

BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

5 years, 1 co-op

First Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	BIO 132	4.0	BIO 133	4.0	VACATION	
BIO 134 or 142	1.0	BIO 135 or 143	1.0	BIO 136 or 144	1.0		
CHEM 101	3.5	CHEM 102	4.5	CHEM 103	4.5		
ENGL 101	3.0	CIVC 101	1.0	COOP 101*	1.0		
MATH 101 or 121	4.0	ENGL 102	3.0	ENGL 103	3.0		
UNIV S101	1.0	MATH 102 or 122	4.0	MATH 239 or 123	4.0		
	16.5		17.5		17.5		0

Second Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 207	1.0	BIO 208	1.0	BIO 311	4.0	BIO 224	4.0
BIO 209	4.0	BIO 211	4.0	ENVS 212	4.0	BIO 225	2.0
BIO 219	3.0	CHEM 242	4.0	PHIL 251	3.0	(UG) BIO/ENVS Elective	3.0
CHEM 241	4.0	PHYS 153	4.0	PHYS 154	4.0	(UG) Humanities/Social Science Elective	3.0
PHYS 152	4.0	UNIV S201	1.0	(UG) Free elective	3.0	(UG) Sci/Tech/Human Affairs Elective	3.0
		(UG) Biology Lab Requirement	2.0				
	16		16		18		15

Third Year

Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COM 230	3.0	COM 310	3.0	COOP EXPERIENCE		COOP EXPERIENCE	

MATH 410	3.0 MATH 411	3.0 (GR) Graduate Elective	3.0 (GR) Graduate Elective	3.0
(UG) BIO/ ENVS Elective	3.0 (UG) BIO/ ENVS Elective	3.0		
(UG) Free Electives	6.0 (UG) Biology Lab Requiremen	2.0		
	(UG) Free Elective	3.0		
15		14	3	3

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0 Student Classified as Graduate	
(UG) BIO/ ENVS Electives	6.0 (UG) BIO/ ENVS Electives	6.0 (UG) BIO/ ENVS Elective	3.0	
(UG) Free Elective	4.0 (UG) Free Elective	3.0 (UG) Free Electives	5.0	
BIO 500 (GR) Graduate Electives	3.0 (UG) Humanities/ Social Science Elective	3.0 (UG) Humanities/ Social Science Elective	3.0	
(GR) Graduate Elective	3.0 BIO 635	3.0 Student graduates with BS Degree		
	RCRG 600**	0.0 BIO 632	3.0	
18		17	16	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
(GR) Graduate Electives	9.0 BIO 997 (or (GR) Graduate Elective)	3.0 ENVS 506	3.0
	(GR) Graduate Elective	6.0 (GR) Graduate Electives	6.0
9		9	9

Total Credits 229.5

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

This course is for thesis students only.

Biological Sciences BS / Epidemiology MS

Major: Biological Sciences

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 228.5

Co-op Options: One Co-op (Five years)

NOTE: this program will not accept students for the 2025-26 academic year

About the Program

The Accelerated BS Biological Sciences/MS Epidemiology is designed for academically qualified students who are looking to further prepare for careers in health-related biological science. Drexel's BS Biological Science program trains students for technical careers in research or commercial laboratories, or for professional schools or graduate study. Discoveries in the biological sciences influence many aspects of our daily lives and have become the foundation of many new developments in biotechnology and medicine. The MS Epidemiology program builds off the Biological Sciences curriculum to provide a deep dive into epidemiologic principles and methods to solve complex health issues. Epidemiologists play an integral and indispensable tool in improving health and reducing illness.

In this accelerated degree program, students participate in the undergraduate program for four full years (with or without one co-operative experience). After two years of undergraduate study, students begin their graduate studies in the Master of Science in Epidemiology program. The third and fourth year are a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BS. When students successfully complete the remainder of their graduate studies (typically three graduate quarters), they will receive the MS degree.

Students in the Master of Science in Epidemiology program complete 45.0 graduate quarter credits to meet the requirements of the master's program.

Additional Information

For more information about this program, please contact:

Graduate Academic Advisor (Dornsife School of Public Health)

Ariel Varghese at ars536@drexel.edu

Admission Requirements

Application to the BSMS program begins after a student has completed at least 90 credits and no more than 120 credits. A freshman student can be designated as a BSMS Provisional Admit but is not officially accepted into the BSMS program until the student completes at least 90 credits and meets the admissions criteria. Students are strongly encouraged to begin planning for the program as early as their freshman year.

Acceptance to the Drexel MS in Epidemiology is conditional upon a 3.5 overall undergraduate GPA. Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year two. Students must submit an application to the graduate Master of Science in Epidemiology program during their third year.

Any student who does not meet the entrance requirements of the graduate program will be able to complete the fourth year of the Biological Sciences undergraduate program and receive a BS degree.

Degree Requirements

Required BS Biological Sciences Courses

Humanities and Social Sciences		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0

COM 310 [WI] or COM 320	Technical Communication Science Writing	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
PHIL 251 or PHIL 321	Ethics Biomedical Ethics	3.0
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Humanities and Social Science Electives		
Select 9.0 credits from the following 100-400 level courses:		9.0
Any ANTH (Anthropology)		
Any AFAS (Africana Studies)		
Any ARBC (Arabic)		
Any CHIN (Chinese)		
Any CJS (Criminology & Justice Studies)		
Any COM (Communication) **		
Any FREN (French)		
Any GER (German)		
Any HBRW (Hebrew)		
Any HIST (History)		
Any HUM (Humanities)		
Any ITAL (Italian)		
Any JAPN (Japanese)		
Any JWST (Jewish Studies)		
Any KOR (Korean)		
Any LING (Linguistics)		
Any PHIL (Philosophy)		
Any PSCI (Political Science)		
Any PSY (Psychology)		
Any SOC (Sociology)		
Any SPAN (Spanish)		
Any WGST (Women's & Gender Studies)		
Science, Technology, Health and Human Affairs Elective		
Select 3.0 credits from the following:		3.0
BIO 212	Biotechnology	
ENGL 300 [WI]	Literature & Science	
ENGL 302	Environmental Literature	
ENGL 370	Topics in Literature and Medicine	
ENVS 260	Environmental Science and Society	
HIST 285	Technology in Historical Perspective	
HSAD 210	Health-Care Ethics I	
HSAD 328	Health Care for Diverse Groups	
HSCI 125	Medical Terminology	
HSCI 315	Current Issues in Health Sciences	
PBHL 301	Epidemiology in Public Health	
PBHL 333	Health Inequality	
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 361	Philosophy of Science	
PSCI 371	Science, Technology, & Public Policy	
SCTS 101	Introduction to Science, Technology, and Society	
SOC 222	Sex and Society	
SOC 235	Sociology of Health and Illness	
Mathematics and Statistics		
Select one of the following sequences:		12.0
Intro to Analysis		

MATH 101 & MATH 102 & MATH 239	Introduction to Analysis I and Introduction to Analysis II and Mathematics for the Life Sciences	
Calculus		
MATH 121 & MATH 122 & MATH 123	Calculus I and Calculus II and Calculus III	
MATH 410	Scientific Data Analysis I	3.0
MATH 411	Scientific Data Analysis II	3.0
Physical Sciences		
BIO 311 or CHEM 243	Biochemistry Organic Chemistry III	3.0-4.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
CHEM 241	Organic Chemistry I	4.0
CHEM 242	Organic Chemistry II	4.0
PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0
Core Biology Courses		
BIO 131	Cells and Biomolecules	4.0
BIO 134 or BIO 142	Cells and Biomolecules Lab SEA-PHAGES I	1.0-2.0
BIO 132	Genetics and Evolution	4.0
BIO 135 or BIO 143	Genetics and Evolution Lab SEA-PHAGES II	1.0-2.0
BIO 133	Physiology and Ecology	4.0
BIO 136 or BIO 144	Anatomy and Ecology Lab SEA-PHAGES III	1.0-2.0
BIO 207	Applications in Biology I	1.0
BIO 208	Applications in Biology II	1.0
BIO 209	Cell, Molecular & Developmental Biology I	4.0
BIO 211	Cell, Molecular & Developmental Biology II	4.0
BIO 219 [WI]	Techniques in Molecular Biology	3.0
BIO 224	Form, Function & Evolution of Vertebrates	4.0
BIO 225	Vertebrate Biology and Evolution Laboratory	2.0
BIO 471	Seminar in Biological Sciences	2.0
BIO 472	Seminar in Biological Sciences	2.0
BIO 473 [WI]	Seminar in Biological Sciences	2.0
ENVS 212	Evolution	4.0
Concentration Courses		28.0-30.0
Undergraduate Free Electives		24.0
Required MS Epidemiology Courses		
Core Courses		
BST 571	Introduction to Biostatistics	3.0
EPI 570	Introduction to Epidemiology	3.0
PBHL 501	Introduction to Public Health	0.0
Epidemiology		
EPI 560	Intermediate Epidemiology	3.0
EPI 561	Pathophysiologic Basis of Epidemiologic Research	3.0
Biostatistics		
BST 553	Longitudinal Data Analysis	3.0
BST 555	Introduction to Statistical Computing	3.0
BST 560	Intermediate Biostatistics I	3.0
Master's Project		
EPI 699	Master of Science Epidemiology Project	3.0
EPI 749	Research and Practice in Epidemiology	3.0
Graduate Electives		
Select from the list below: ***		18.0
Any (BST) Biostatistics 500-999 level course		
Any (CHP) Community Health and Prevention 500-999 level course		

Any (EOH) Environmental and Occupational Health 500-999 level course

Any (EPI) Epidemiology 500-999 level course

Any (HMP) Health Management and Policy 500-999 level course

Any (PBHL) Public Health 500-999 level course

Total Credits 228.5-234.5

*

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Except COM 310 [WI (<https://catalog.drexel.edu/programadmin/114/>)] .

Students can take additional 500-level or above electives across the university as long as they meet prerequisite and restriction requirements. Students can contact their faculty mentor to discuss elective options. Students may be able to use elective credits to further focus their academic work by completing a graduate minor or by coupling a DSPH graduate certificate. Students must have enough applicable elective credits to complete the certificate program without going beyond the required credits for the program. Students can contact their graduate academic advisor before enrolling in the certificate.

Concentrations

Students select one of six concentrations and fulfill the requirements as outlined below.

1. The Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration

This concentration provides exposure to several vital disciplines within Biology, and will prepare students for a diversity of careers in research, medicine, and industry. Students interested in tailoring their studies more specifically may follow the suggested "focus areas" when selecting their two CMGB Concentration electives.

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Requirements

BIO 244	Genetics I	3.0
or BIO 444	Human Genetics	
BIO 314	Pharmacology	3.0
or BIO 404	Structure and Function of Biomolecules	
or BIO 416	Biochemistry of Major Diseases	
BIO 318	Biology of Cancer	3.0
or BIO 430	Cell Biology of Disease	
BIO 410	Advanced Molecular Biology	3.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Concentration Electives (See Lists Below)

Two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)	6.0
Organismal/Physiology Elective (see list below)	3.0
Ecology/Evolution/Genomics Elective (see list below)	3.0

Concentration Laboratory Courses

Two Laboratory Electives (see list below)	4.0
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Total Credits 28.0

Students interested in pursuing a focus area in Neurobiology, Pharmaceuticals, Cell Biology, Biochemistry, Molecular Biology or Genetics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 414	Behavioral Genetics	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0

ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0
Laboratory Electives		
BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

2. The Organismal Biology/Physiology Concentration

This concentration combines courses in organismal biology and physiology with an opportunity to focus on human physiology. The concentration is designed to appeal to students interested in health and medicine, but also accommodates students seeking a wider breadth of knowledge in organismal diversity. Students can focus their electives in human physiology or can choose courses that study non-human organisms.

Organismal Biology/Physiology Concentration Requirements

BIO 201	Human Physiology I	4.0
or ENVS 254	Invertebrate Morphology and Physiology	
BIO 203	Human Physiology II	4.0
or BIO 256	Vertebrate Morphology and Physiology	
BIO 373	Developmental Biology	3.0
Select one of the following:		
BIO 412	Biology of Aging	3.0
or BIO 284	Biology of Stress	
or BIO 466	Endocrinology	
or BIO 468	Pathophysiology	

Organismal Biology/Physiology Concentration Electives (See List Below)

Cell/Molecular/Genetics/Biochemistry (CMGB) Elective	3.0
Two Organismal/Physiology Electives	6.0
Ecology/Evolution/Genomics Elective	3.0
Concentration Laboratory Courses	
Two Laboratory Electives	4.0
Total Credits	30.0

Students interesting in pursuing a focus area in Human Physiology or Organismal Biology should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0

BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 390	Marine Ecology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0

ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 394	Entomology Laboratory	2.0

3. The Ecology/Evolution/Genomics Concentration

This concentration focuses on ecological and evolutionary aspects of biology for biology majors who also have specific interests in ecology, evolution or genomics. This concentration is designed to maintain a breadth of knowledge in biology, but also allows students to tailor their course work more specifically to reflect their specific area of interest.

Ecology/Evolution/Genomics Concentration Requirements

BIO 228	Evolutionary Biology & Human Health	3.0
or BIO 331	Bioinformatics I	
BIO 436	Population Genetics	3.0-4.0
or ENVS 230	General Ecology	
ENVS 326	Molecular Ecology	3.0
Select one of the following:		3.0-5.0
BIO 221	Microbiology	
BIO 256	Vertebrate Morphology and Physiology	
BIO 323	Parasitology	
BIO 413	Genomics	
BIO 420	Virology	
ENVS 254	Invertebrate Morphology and Physiology	
ENVS 360	Evolutionary Developmental Biology	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 438	Biodiversity	

Ecology/Evolution/Genomics Concentration Electives

Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)	3.0
Select one Organismal/Physiology Elective (see list below)	3.0
Select two Ecology/Evolution/Genomics Electives (see list below)	6.0

Concentration Laboratory Courses

Select two Laboratory Electives (see list below)	4.0
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Total Credits	28.0-31.0
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Students interested in pursuing a focus area in Ecology, Evolutionary Biology or Genomics should contact the academic advisor in the Biology Department for specific focus recommendations.

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0

ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

4. The Pathobiology Concentration

The Pathobiology concentration focuses on pathogenesis, and provides a unique option for students that differs from the more traditional disciplines in cell/molecular/genetics/biochemistry. This concentration is designed to appeal to students with an interest in pursuing careers in areas of public and allied health.

Pathobiology Concentration Requirements

BIO 221	Microbiology	3.0
BIO 320	Microbial Pathogenesis	3.0
BIO 323	Parasitology	3.0
or BIO 420	Virology	
or BIO 435	Immunobiology of Disease	
BIO 426	Immunology	3.0
Select one Cell/Molecular/Genetics/Biochemistry (CMGB) Elective (see list below)		3.0
Select two Organismal/Physiology Electives (see list below)		6.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0

Concentration Laboratory Courses

Two Laboratory electives (see list below)	4.0
Total Credits	28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0

BIO 404	Structure and Function of Biomolecules	4.0
BIO 410	Advanced Molecular Biology	3.0
BIO 414	Behavioral Genetics	3.0
BIO 415	Proteins	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 463	Molecular Mechanisms of Neurodegeneration	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0

BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0
ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0

5. The General Biology Concentration

This concentration will allow maximum flexibility for students who want to develop their own unique plan of study. The concentration is designed for students who may not have one specific area of interest, but who are looking to be well-rounded in the biological sciences. Students pursuing careers in education, where a wider breadth of knowledge in biology is desirable, may choose to select this concentration.

General Biology Concentration Requirements

General Biology Concentration Electives	24.0
2 or 3 Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)	
2 or 3 Organismal/Physiology Electives (see list below)	
2 or 3 Ecology/Evolution/Genomics Electives (see list below)	
Concentration Laboratory Courses	
Two Laboratory electives (see list below)	4.0
Total Credits	28.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives

BIO 244	Genetics I	3.0
BIO 285	Forensic Biology	3.0
BIO 311	Biochemistry	4.0
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 346	Stem Cell Research	3.0
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 413	Genomics	3.0
BIO 415	Proteins	3.0
BIO 421	Biomembranes	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 433	Advanced Cell Biology	3.0
BIO 444	Human Genetics	3.0
BIO 447	Advanced Genetics and Molecular Biology	3.0
BIO 453	Protein Dysfunction in Disease	3.0
BIO 462	Biology of Neuron Function	3.0
BIO 465	Neurobiology of Disease	3.0
ENVS 326	Molecular Ecology	3.0

Organismal/Physiology Electives

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	3.0
BIO 256	Vertebrate Morphology and Physiology	3.0
BIO 264	Ethnobotany	3.0
BIO 284	Biology of Stress	3.0
BIO 286	Forensic Toxicology	3.0
BIO 320	Microbial Pathogenesis	3.0

BIO 323	Parasitology	3.0
BIO 349	Behavioral Neuroscience	3.0
BIO 372	Histology	4.0
BIO 373	Developmental Biology	3.0
BIO 386	Gross Anatomy I	2.0
BIO 388	Gross Anatomy II	2.0
BIO 412	Biology of Aging	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
BIO 435	Immunobiology of Disease	3.0
BIO 461	Neurobiology of Autism Disorders	3.0
BIO 466	Endocrinology	4.0
BIO 468	Pathophysiology	4.0
ENVS 254	Invertebrate Morphology and Physiology	3.0
ENVS 393	Entomology	3.0

Ecology/Evolution/Genomics Electives

BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 332	Bioinformatics II	3.0
BIO 413	Genomics	3.0
ENVS 230	General Ecology	3.0
ENVS 247	Native Plants and Sustainability	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 315	Plant Animal Interactions	3.0
ENVS 322	Tropical Ecology	3.0
ENVS 323	Tropical Field Studies	3.0
ENVS 328	Conservation Biology	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 333	Wetland Ecology	3.0
ENVS 343	Equatorial Guinea: Field Methods	3.0
ENVS 352	Ornithology	3.0
ENVS 354	Ichthyology	3.0
ENVS 355	Biogeography	3.0
ENVS 360	Evolutionary Developmental Biology	3.0
ENVS 364	Animal Behavior	3.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 390	Marine Ecology	3.0
ENVS 391	Freshwater and Marine Algae	3.0
ENVS 410	Physiological Ecology	3.0
ENVS 412	Biophysical Ecology	3.0
ENVS 438	Biodiversity	3.0
ENVS 470	Advanced Topics in Evolution	3.0

Laboratory Electives

BIO 202	Human Physiology Laboratory	2.0
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 222	Microbiology Laboratory	2.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 257	Vertebrate Morphology & Physiology Lab	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 329	Dictyostelium Research	3.0
BIO 333	Bioinformatics Laboratory	2.0
BIO 374	Developmental Biology Lab	2.0
BIO 387	Gross Anatomy I Laboratory	2.0
BIO 389	Gross Anatomy II Lab	2.0
BIO 497	Research (by permission of the department)	0.5-12.0

ENVS 255	Invertebrate Morphology and Physiology Lab	2.0
ENVS 327	Molecular Ecology Laboratory	2.0
ENVS 344	Equatorial Guinea: Field Research	6.0
ENVS 353	Field Ornithology Lab	2.0
ENVS 382	Field Botany of the New Jersey Pine Barrens	4.0
ENVS 383	Ecology of the New Jersey Pine Barrens	4.0
ENVS 388	Marine Field Methods	4.0
ENVS 394	Entomology Laboratory	2.0

Note about laboratory credits: ENVS 382 and ENVS 388 have both a lecture and laboratory component.

6. The Cell and Gene Therapy Concentration

The Cell and Gene Therapy concentration provides a strong biological foundation for those aspiring toward professions in this unique subdiscipline. These therapies have the potential to transform medicine by alleviating the cause of disease using RNA, DNA and cells to reprogram the body's defenses to fight disease. The cell and gene therapy workforce is expected to grow 35-94% between 2022 and 2032. This concentration will benefit students pursuing careers in medicine bioinformatics, regulatory compliance, public health, research and industry.

Cell and Gene Therapy Concentration Requirements		
BIO 244	Genetics I	3.0
BIO 346	Stem Cell Research	3.0
BIO 413	Genomics	3.0
or BIO 426	Immunology	
BIO 444	Human Genetics	3.0
or BIO 420	Virology	
Select two Cell/Molecular/Genetics/Biochemistry (CMGB) Electives (see list below)		6.0
Select one Organismal/Physiology Elective (see list below)		3.0-4.0
Select one Ecology/Evolution/Genomics Elective (see list below)		3.0-4.0
Concentration Laboratory Courses		
Two Laboratory Electives (see list below)		4.0-6.0
Total Credits		28.0-32.0

Cell/Molecular/Genetics/Biochemistry (CMGB) Electives		
BIO 314	Pharmacology	3.0
BIO 318	Biology of Cancer	3.0
BIO 416	Biochemistry of Major Diseases	3.0
BIO 430	Cell Biology of Disease	3.0
BIO 444	Human Genetics	3.0
BIO 453	Protein Dysfunction in Disease	3.0

Organismal/Physiology Electives		
BIO 201	Human Physiology I	4.0
BIO 373	Developmental Biology	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0

Ecology/Evolution/Genomics Electives		
BIO 228	Evolutionary Biology & Human Health	3.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
BIO 436	Population Genetics	4.0
ENVS 315	Plant Animal Interactions	3.0

Laboratory Electives		
BIO 213	Drosophila Neural Research	3.0
BIO 215	Techniques in Cell Biology	3.0
BIO 232	Discovering Antibiotics	3.0
BIO 242	SEA-GENES I	2.0
BIO 306	Biochemistry Laboratory	2.0

BIO 329	Dictyostelium Research	3.0
BIO 497	Research (by permission of Dept)	0.5-12.0

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 131	4.0	BIO 132	4.0	BIO 133	4.0	VACATION	
BIO 134 or 142	1.0-2.0	BIO 135 or 143	1.0-2.0	BIO 136 or 144	1.0-2.0		
CHEM 101	3.5	CHEM 102	4.5	CHEM 103	4.5		
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0		
MATH 121 or 101	4.0	ENGL 102 or 112	3.0	MATH 239 or 123	4.0		
UNIV S101	1.0	MATH 122 or 102	4.0				
16.5-17.5		17.5-18.5		16.5-17.5		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
BIO 207	1.0	BIO 208	1.0	BIO 311 or CHEM 243	3.0-4.0	BIO 224	4.0
BIO 209	4.0	BIO 211	4.0	ENVS 212	4.0	BIO 225	2.0
BIO 219	3.0	COOP 101*	1.0	PHIL 251	3.0	(UG) BIO/ENVS elective	3.0
CHEM 241	4.0	CHEM 242	4.0	PHYS 154	4.0	(UG) Humanities/Social Science elective	3.0
PHYS 152	4.0	PHYS 153	4.0	(UG) Free Electives)	3.0	(UG) Science, Technology, Health & Human Affairs elective	3.0
		UNIV S201	1.0				
		(UG) Biology Laboratory requirement**	2.0				
16		17		17-18		15	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
COOP Experience		COOP Experience		COM 230	3.0	COM 310	3.0
				MATH 410	3.0	MATH 411	3.0
				(UG) BIO/ENVS elective	3.0	(UG) BIO/ENVS elective	3.0
				(UG) Free electives	4.0	(UG) Biology Laboratory Requirement course**	2.0
						(UG) Free elective	3.0
						BST 571	3.0
0		0		13		17	

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0 BS Degree Awarded	
(UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS elective	3.0 Student converts to Graduate status	
(UG) Free electives	4.0 (UG) Humanities/ Social Science elective	3.0 (UG) Humanities/ Social Science elective	3.0	
EPI 561	3.0 (UG) Free electives	6.0 (UG) Free electives	4.0	
EPI 570	3.0 BST 555	3.0 BST 560	3.0	
		EPI 560	3.0	
	18	20	18	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
PBHL 501	0.0 BST 553	3.0 EPI 699	3.0
(GR) Electives	9.0 EPI 749	3.0 (GR) Electives	6.0
	(GR) Electives	3.0	
	9	9	9

Total Credits 228.5-232.5*****

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

See degree requirements (p. 13).

4+1, no co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 BIO 132	4.0 BIO 133	4.0 VACATION	
BIO 134 or 142	1.0-2.0 BIO 135 or 143	1.0-2.0 BIO 136 or 144	1.0-2.0	
CHEM 101	3.5 CHEM 102	4.5 CHEM 103	4.5	
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0	
MATH 121 or 101	4.0 ENGL 102 or 112	3.0 MATH 239 or 123	4.0	
UNIV S101	1.0 MATH 122 or 102	4.0		
	16.5-17.5	17.5-18.5	16.5-17.5	0

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 207	1.0 BIO 208	1.0 BIO 224	4.0 VACATION	
BIO 209	4.0 BIO 211	4.0 BIO 225	2.0	
BIO 219	3.0 CHEM 242	4.0 BIO 311 or CHEM 243	3.0-4.0	
CHEM 241	4.0 PHYS 153	4.0 PHIL 251	3.0	

PHYS 152	4.0 UNIV S201	1.0 PHYS 154	4.0
	(UG) Biology Laboratory requirement	2.0	
	16	16	16-17
			0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENVS 212	4.0 COM 310	3.0 COM 230	3.0 VACATION	
MATH 410	3.0 MATH 411	3.0 (UG) BIO/ ENVS elective	3.0	
(UG) BIO/ ENVS elective	3.0 (UG) BIO/ ENVS elective	3.0 (UG) Biology Laboratory Requirement course*	2.0	
(UG) Science, Technology, Health & Human Affairs elective	3.0 (UG) Humanities/ Social Science elective	6.0 (UG) Humanities/ Social Science elective	3.0	
BST 571	3.0	(UG) Free electives**	4.0	
	16	15	15	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 471	2.0 BIO 472	2.0 BIO 473	2.0 BS Degree Awarded	
(UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS electives	6.0 (UG) BIO/ ENVS elective	3.0 Student converts to Graduate status	
(UG) Free electives	4.0 (UG) Free electives	9.0 (UG) Free electives	8.0	
EPI 561	3.0 BST 555	3.0 BST 560	3.0	
EPI 570	3.0	EPI 560	3.0	
	18	20	19	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
PBHL 501	0.0 BST 553	3.0 EPI 699	3.0
(GR) Electives	9.0 EPI 749	3.0 (GR) Electives	6.0
	(GR) Electives	3.0	
	9	9	9

Total Credits 228.5-232.5*****

See degree requirements (p. 13).

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Chemistry BS / Chemistry MS

Major: Chemistry

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: Three Co-op (Five years)

About the Program

The Accelerated Bachelor's/Master's (BS + MS) in Chemistry provides academically qualified students with the opportunity to earn both a bachelor's and master's degree in five years, which is the time normally required to finish the co-op option bachelor's degree alone.

Eligibility

Exceptional students with a cumulative GPA of at least 3.0 and who are enrolled in the five-year co-op option are eligible for the BS + MS program. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year. Students who have more than 120.0 credits are not eligible.

Transfer students are eligible to join the BS + MS program, but they must be able to complete the program in the time it would take to complete the BS degree alone. International transfer students must be able to meet the required minimum TOEFL score for the department graduate program (currently 550) in order to be admitted to the BS + MS program.

Application Process

Students need to formally apply to the accelerated chemistry program. Applications must include a plan of study prepared in consultation with the undergraduate and graduate advisors in the department. The application is then submitted through the student's academic advisor.

Additional Information

For more information, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Admission Requirements

Students enrolled in the Accelerated BS + MS in Chemistry must complete 180.0 undergraduate quarter credits for the bachelor's degree and at least 45.0 graduate quarter credits for the master's degree. All graduate departmental requirements must be satisfied in full, including producing a thesis, if the thesis-option master's program is elected. Master's thesis requirements must be completed no later than the spring quarter of the final year. Students in the BS + MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program.

Exceptional students with a cumulative GPA of at least 3.0 and who are enrolled in the five-year co-op option are eligible for the BS + MS program. Students formally apply to the program after they have completed 90.0 credits but before they have completed 120.0 credits. Students are strongly encouraged to begin planning for the program as early as their freshman year. Students who have more than 120.0 credits are not eligible.

BS/MS Requirements

Students enrolled in the BS/MS dual degree program must complete 180-181 undergraduate quarter credits for the BS degree and at least 45.0 graduate quarter credits for the MS degree. All graduate departmental requirements must be satisfied in full, including producing

a thesis, if the thesis-option master's program is elected. Master's thesis requirements may be completed in the summer term of the final year with prior approval of the department. Students in the BS/MS program must maintain a cumulative GPA of 3.0 in their undergraduate and graduate coursework to remain in the program. Further questions about the BS/MS degree program should be directed to the departmental undergraduate or graduate advisor.

Degree Requirements

General Education Requirements - BS

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Technical electives **		6.0
Liberal Studies electives **		6.0

Chemistry Requirements ***

CHEM 121	Majors Chemistry I	5.0
CHEM 122	Majors Chemistry II	5.0
CHEM 123	Majors Chemistry III	5.5
CHEM 230	Quantitative Analysis	4.0
CHEM 231 [WI]	Quantitative Analysis Laboratory	2.0
CHEM 246	Organic Chemistry for Majors I	6.5
CHEM 248	Organic Chemistry for Majors II	6.5
CHEM 249	Organic Chemistry for Majors III	7.0
CHEM 253	Thermodynamics and Kinetics	4.0
CHEM 270	Software Skills for Chemists	3.0
CHEM 346	Qualitative Organic Chemistry	5.5
CHEM 355	Physical Chemistry IV	3.0
CHEM 357 [WI]	Physical Chemistry Laboratory I	2.5
CHEM 358	Physical Chemistry Laboratory II	2.5
CHEM 359	Atomic and Molecular Spectroscopy	3.0
CHEM 420	Molecular Symmetry and Group Theory Applied Chemistry	3.0
CHEM 421	Inorganic Chemistry I	3.0
CHEM 422	Inorganic Chemistry II	3.0
CHEM 425	Inorganic Chemistry Laboratory	4.0
CHEM 430	Analytical Chemistry I	3.0
CHEM 431 [WI]	Analytical Chemistry II	4.0
CHEM 493	Senior Research Project	3.0
6.0 credits of CHEM 493 are satisfied by 6.0 credits of CHEM 997 as shared coursework		

Biology Requirements

BIO 131	Cells and Biomolecules	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 214	Principles of Cell Biology	4.0

Biochemistry Requirements †

BIO 306	Biochemistry Laboratory	2.0
BIO 311	Biochemistry	3.0-4.0
or BIO 404	Structure and Function of Biomolecules	
or CHEM 371	Chemistry of Biomolecules	

Computer/Mathematics Requirements

MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0

MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
or MATH 210	Differential Equations	
Physics Requirements		
PHYS 101	Fundamentals of Physics I	4.0
PHYS 102	Fundamentals of Physics II	4.0
PHYS 201	Fundamentals of Physics III	4.0
Free Electives		21.0
MS Major Sequence		9.0
Select one of the following sequences:		
Inorganic Chemistry		
CHEM 521	Inorganic Chemistry I	
CHEM 522	Inorganic Chemistry II	
CHEM 523	Inorganic Chemistry III	
Analytical Chemistry		
CHEM 530	Analytical Chemistry I	
CHEM 531	Analytical Chemistry II	
CHEM 755	Mass Spectrometry	
Organic Chemistry		
CHEM 541	Organic Chemistry I	
CHEM 542	Organic Chemistry II	
CHEM 543	Organic Chemistry III	
Physical Chemistry ^{††}		
CHEM 555	Quantum Chemistry Of Molecules I	
CHEM 557	Physical Chemistry I	
CHEM 558	Physical Chemistry II	
Polymer Chemistry		
CHEM 561	Polymer Chemistry I	
CHEM 562	Polymer Chemistry II	
CHEM 563	Polymer Chemistry III	
Additional Sequence Courses		12.0
CHEM 767	Chemical Information Retrieval	3.0
CHEM 367 is satisfied by CHEM 767 as shared coursework		
CHEM 865	Chemistry Research Seminar	3.0
Electives [‡]		18.0
Total Credits		225.0-226.0

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

If the GR equivalent of any UG course(s) is taken (e.g., CHEM 555 instead of CHEM 355, CHEM 521 instead of CHEM 421), the UG course(s) in the plan of study must be replaced with a technical elective.

†

The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, students should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404, or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 311, BIO 404, or CHEM 371) rather than a lecture/laboratory combination.

††

Every course can be replaced by CHEM 554 or CHEM 752.

‡

The remaining 18.0 credits may be satisfied by any graduate Chemistry courses. Students may take one graduate-level course during applicable co-op terms. In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree. It is recommended that students take 7.0 credits of CHEM 997 as part of the 18.0 elective credits. For those who do not take CHEM 997, please see advisor for appropriate replacement.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 CHEM 122	5.0 CHEM 123	5.5 VACATION	
BIO 134	1.0 CIVC 101	1.0 COOP 101*	1.0	
CHEM 121	5.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 MATH 122	4.0 MATH 123	4.0	
MATH 121	4.0 PHYS 101	4.0 PHYS 102	4.0	
UNIV S101	1.0			
	18	17	17.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 230 & CHEM 231	6.0 CHEM 248	6.5 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 246	6.5 MATH 200	4.0		

PHYS 201	4.0 (UG) Technical elective**	3.0		
(UG) Free elective	3.0 (UG) Liberal Studies elective	3.0		
	19.5	16.5	0	0

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 214	4.0 CHEM 270	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 249	7.0 CHEM 357	2.5		
CHEM 253	4.0 MATH 210	4.0		
(UG) Free elective	3.0 (UG) Liberal Studies elective	3.0		
	CHEM 865	3.0		
	(GR) Graduate CHEM course [‡]	4.0		
	18	19.5	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 355	3.0 BIO 306	2.0 COOP EXPERIENCE	COOP EXPERIENCE	
CHEM 421	3.0 CHEM 359	3.0		
CHEM 430	3.0 CHEM 420	3.0		
CHEM 493	1.0 CHEM 431	4.0		
UNIV S201	1.0 CHEM 522, 531, 542, 558, or 562 [†]	3.0		
(UG) Free elective	3.0 (GR) Graduate CHEM course [‡]	5.0		
CHEM 521, 530, 541, 557, or 561 [†]	3.0			
CHEM 767	3.0			
	20	20	0	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
CHEM 346	5.5 (UG) Technical elective	3.0 CHEM 422	3.0
CHEM 358	2.5 (UG) Free electives	9.0 CHEM 425	4.0
CHEM 371, BIO 311, or BIO 404	3.0-4.0 (GR) Graduate CHEM courses [‡]	8.0 CHEM 493	2.0
(GR) Graduate CHEM courses [‡]	8.0	(UG) Free elective	3.0
		CHEM 523, 755, 543, 555, or 563 [†]	3.0

	(GR) Graduate CHEM course [‡]	5.0
19-20	20	20
Total Credits 225-226		

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Technical electives are defined as 200+ level courses from Science, Mathematics, Business, Engineering or Information Studies. Liberal studies electives are defined as courses (at any level) from all other areas.

Biochemistry Requirement: The American Chemical Society requires ACS-certified students to take a specified number of biochemistry courses. To fulfill this requirement in the BS curriculum, you should take a combination of one lecture and one lab course from the choice of: BIO 311, BIO 306, BIO 404 or CHEM 371 to fulfill the biochemistry requirement. Students may also choose to take the two lecture courses (BIO 404, BIO 311 or CHEM 371) rather than a lecture/laboratory combination.

†

Students must complete three courses in one of the major areas: Analytical, Inorganic, Organic, Physical, or Polymer Chemistry. For the Physical Chemistry major area, CHEM 554 or CHEM 752 can replace CHEM 557, CHEM 558 or CHEM 555.

‡

SUGGESTED OPTIONS: major area electives and non-major area electives not previously taken, CHEM 997 (up to 9.0 credits). At least one sequence course from each of the major areas, a total of 12.0 credits, should be completed as part of the required CHEM electives.

Co-op/Career Opportunities

Opportunities for Chemistry majors include working in research and development in corporate and government laboratories in the chemical, pharmaceutical, and agricultural (e.g., U.S. Department of Agriculture) sectors. There is a remarkably high concentration of chemical and pharmaceutical companies in the Philadelphia region. Other options include entering medical, dental, law, or other professional schools. The major in Chemistry is sufficiently flexible to allow students to prepare to teach at the secondary level. With proper selection of electives, students can meet teacher certification requirements.

Sample Co-op Opportunities

A five-year, three co-op degree is offered. When students complete their co-op jobs, they are asked to write an overview of their experiences. These brief quotes are taken from some recent student reports:

Assistant chemist, pharmaceuticals manufacturer: "My position involved the synthesis and characterization of target compounds in the endothelium project. Involved the development of synthetic roots to the prescribed target. This would include the investigation of reactions which were

going to be used...the position was very independent...great working environment. "

Co-op chemist, petroleum refiner: "Performed synthesis of ligands and metal complexes. Operated FT-IR spectrometer for sample analysis. Submitted samples for analysis by mass spectrometer and NMR...The position allowed me to develop the skills necessary for independent research in organic synthesis. "

Assistant lab technician, pharmaceuticals manufacturer: "I was an assistant technician in a mass spectrometry lab...I was responsible for the development of SDS-gel electrophoresis techniques for gels and gel membranes...I developed the methods independently and my employer encouraged me to be an expert on the technique and explore any method I found that would benefit the lab. "

Visit the Drexel Steinbright Career Development Center (<http://www.drexel.edu/scdc/>) page for more detailed information on co-op and post-graduate opportunities.

Facilities

There are nine undergraduate teaching laboratories in the department: three Freshman Chemistry labs, three Organic Chemistry labs, a Physical Chemistry lab, an Analytical Instrumentation Laboratory, and a combined Analytical/Inorganic Chemistry lab.

Mass Spectrometry Facility

The department maintains a professionally supervised Mass Spectrometry Facility (located in Stratton 406) available to all members of the Drexel University community. Currently operating instrumentation consists of a Bruker Autoflex III matrix-assisted laser desorption/ionization time-of-flight mass spectrometer (NSF CRIF-MU #0840273), a Bruker Ultraflex III MALDI TOF-TOF MS (NSF MRI #0820996 donated from the U PA Chemistry Department, located in Stratton 142), a Micromass Q-TOF Premier equipped with both electrospray ionization (ESI) and atmospheric-pressure chemical ionization (APCI) sources and a 2998 diode array detector (DAD), a Micromass Quattro Micro triple-quadrupole MS instrument equipped with an ESI source and a 2996 DAD, and a Waters ZQ single-quadrupole instrument with both ESI and APCI capability. The three Micromass instruments are each interfaced with a Waters Alliance model 2695 high-performance liquid chromatography (HPLC) system. The Facility also includes a Waters Xevo G2 Q-TOF equipped with both ESI and APCI sources and a Waters Acquity UPLC system and a manufacturer refurbished Thermo-Electron, Inc. Q-Exactive Orbitrap Mass Spectrometer equipped with both ESI and APCI sources interfaced to a Vanquish Ultra-Performance Liquid Chromatography (UPLC) system. The laboratory also houses a Sciex PACE MDQ Plus capillary electrophoresis system. Samples for MS analysis may be submitted for analysis or users may be trained in operation of the instruments for use in long-term projects.

Nuclear Magnetic Resonance Facility

The professionally staffed Chemistry department NMR facility is equipped with a 400 MHz Varian Mercury Plus and a 500 MHz Unity INOVA. The 400 MHz NMR is actively shielded and equipped with an AutoSwitchable broadband probe ($1\text{H}/19\text{F}/13\text{C}/31\text{P}$, $1\text{H}/19\text{F}/\{15\text{N}-31\text{P}\}$) and the 500 MHz NMR is equipped with a triple resonance probe ($1\text{H}/\{13\text{C}/15\text{N}\}$). Both magnets are connected to a Cryomech helium recovery system.

Analytical Instrumentation Laboratory (AIL)

The professionally supervised Chemistry Department Analytical Instrumentation Laboratory is equipped with the usual array of open-access chemical analysis instrumentation, including: (in Disque 407) a

Thermo Scientific Nanodrop One microvolume UV-visible spectrometer, a Shimadzu UV-1900 UV/visible absorption spectrometer, a Shimadzu UV-2600 UV/visible absorption spectrometer equipped with a Quantum Northwest temperature controller, a Shimadzu UV-3600 UV/visible/NIR absorption spectrometer with a 120mm diameter diffuse-reflectance integrating sphere, a Jasco J-1500 circular dichroism spectrometer, a Shimadzu Tracer-100 Fourier-transform infrared (FTIR) absorption spectrometer, a Shimadzu AIM-9000 FTIR Microscope system (including beamsplitters for near- mid- and far-IR capability), a Shimadzu RF-6000 fluorescence spectrophotometer, a Shimadzu SALD-7500 nano particle size analyzer, a Shimadzu Prominence-i LC-2030C 3D Plus HPLC (with both UV-visible diode array and refractive index detectors), a Shimadzu Nexera X2 Prominence modular ultraperformance liquid chromatograph (UPLC) equipped with a FRC-10A fraction collector, a SPD-M20A DAD and a Sedex 90 evaporative light scattering detector, a Shimadzu 8050 triple quadrupole LC-MS system including a Prominence binary HPLC pump and a SPD-M20A DAD, a Shimadzu Nexis GC-2030 capillary-column gas chromatograph (GC) equipped w/AOC-20i Plus Auto-injector/AOC-20s Plus Auto-sampler System, a Shimadzu GC-2010+ capillary-column GC Shimadzu GC-MS QP-2020 GC/MS system w/AOC-6000 Autosampler, and a Shimadzu AA7000 flame atomic absorption spectrometer equipped with a GFA-7000A graphite-furnace accessory and a ASC-7000 auto-sampler capable of either macro or micro-sampling (between 5-90 μL of sample required).

Organic Instrumentation Laboratory

The Department Organic Instrumentation Laboratory (located in the Papadakis Integrated Sciences Building 502) is equipped with two PE Clarus 500 capillary-column GCs (one with dual flame ionization detectors, FIDs), the other with one FID and a thermal conductivity detector (TCD), two PE Spectrum 2 FTIRs, each equipped with a diamond ATR, a PE model 343 polarimeter, a CEM model X microwave synthesis system, an Anasazi, Inc. EFT-90 90MHz NMR with both C-13 and H-1 capability, and an Advion Expression Compact Mass Spectrometer (CMS) with ESI and APCI capability.

Vibrational Spectroscopy Laboratory

The Department Vibrational Spectroscopy Laboratory (located in Disque 112) is equipped with a PE Spectrum One FTIR (also equipped with a universal diamond ATR and transmission sampling accessories), a Horiba LB500 Dynamic Light Scattering Spectrometer with Peltier Temperature Controller, and a Renishaw Invia Raman Microscope system (equipped with three laser wavelengths: 514.5nm, 632.8nm and 785nm).

Analytical/Inorganic Teaching Laboratory

The Analytical/Inorganic Teaching Laboratory (located in Disque 409) is equipped with a Perkin-Elmer (PE) Spectrum One FTIR (equipped with a universal diamond ATR and transmission sampling accessories), a PE LS55B Luminescence spectrometer, a PE Lambda-2 UV/visible spectrometer, a BAS Epsilon Eclipse system with a RDE-2 rotating disk electrode head, a UCT Inc., Positive Pressure Manifold (for performing solid phase extraction), and a Biotage Turbo-Vac LV Concentration workstation.

Microscopy Laboratory

The department Microscopy Laboratory (located in Stratton 416) is equipped with a Leica DM IRBE Inverted Fluorescence Microscope, a Zeiss EpiFluorescence III RS Microscope, and a Bruker (formerly Veeco Metrology, Inc.), Multimode NanoScope IIIa SPM System which performs all major SPM imaging techniques including contact and non-contact atomic force, lateral force, TappingMode (air), magnetic force and electric force microscopy. Additional instrumentation located there include a PE Lambda-950 UV/visible/NIR spectrometer equipped with a Labsphere,

Inc., 60mm diameter diffuse-reflectance integrating sphere, A Camag Reprostart 3 Gel Imaging System, a Thermo Scientific (formerly Nicolet) 6700 FT-IR/Raman spectrometer, an ISS Chronos DFD fluorescence lifetime spectrometer with three laser sources and an ISS T-format steady-state fluorescence polarization spectrometer.

Polymer Analysis Laboratory

The Department Polymer Analysis Laboratory (located in Disque 210) is equipped with a Brookfield DV-II+ Pro Viscometer with cone/plate capabilities, a Brookfield CAP 2000+ viscometer, a Mettler-Toledo Thermal Gravimetric Analyzer/Differential Scanning Calorimeter (TGA/DSC) Star system, a Mettler-Toledo Polymer DSC system, and a modular Gel Permeation Chromatography system composed of a Waters 515 HPLC pump, 2414 refractive index detector and 2487 dual wavelength absorbance detector.

Chemistry Faculty

Anthony W. Addison, PhD (*University of Kent at Canterbury, England*). Professor. Design and synthesis of novel biomimetic and oligonuclear chelates of copper, nickel, iron, ruthenium and vanadium; their interpretation by magnetochemical, electrochemical and spectroscopic methods, including electron spin resonance; CD and ESR spectroscopy and kinetics for elucidation of molecular architecture of derivatives (including NO) of oxygen-binding and electron-transfer heme- and non-heme iron metalloproteins of vertebrate and invertebrate origins; energy-transfer by Ru, Ir and lanthanide-containing molecules and assemblies.

Jason Cross, PhD (*University of Surrey (UK)*). Assistant Teaching Professor. Luminescent lanthanide complexes

Peter DeCarlo, PhD (*University of Colorado*). Assistant Professor. Outdoor air quality, particulate matter size and composition instrumentation and measurements, source apportionment of ambient particulate matter, climate impacts of particulate matter.

Aaron Fafarman, PhD (*Stanford University*). Assistant Professor. Photovoltaic energy conversion; solution-based synthesis of semiconductor thin films; colloidal nanocrystals; electromodulation and photomodulation spectroscopy.

Fraser Fleming, PhD (*University of British Columbia (Canada)*)
Department Head, Chemistry. Professor. Nitriles, Isonitriles, Stereochemistry, Organometallics

Joe P. Foley, PhD (*University of Florida*) *Associate Department Head*. Professor. Separation science, especially the fundamentals and biomedical/pharmaceutical applications of the following voltage- or pressure-driven separation techniques: capillary electrophoresis (CE), electrokinetic chromatography, supercritical fluid chromatography, and high-performance and two-dimensional liquid chromatography (LC). Within these techniques, we explore novel separation modes (e.g., dual-opposite-injection CE and sequential elution LC), novel surfactant aggregate pseudophases, and chiral separations.

Lee Hoffman, PhD (*Flinders University, Adelaide, South Australia*). Assistant Teaching Professor. Interfacial studies on the self-assembly of natural organic materials, understanding the nature of each component, and development of a mechanism describing this process; Dendrimer/metal nanocomposite design and synthesis hosting metal nanoparticles, utilizing the multivalent dendritic polymer architecture for further exploitation with other molecules such as antibodies and other targeting species.

Monica Ilies, PhD (*Polytechnic University of Bucharest*). Assistant Teaching Professor.

Haifeng Frank Ji, PhD (*Chinese Academy of Sciences*). Professor. Chemistry Micromechanical sensors for biological and environmental applications; Nanomechanical drug screening technology.

Daniel B. King, PhD (*University of Miami*). Associate Professor. Assessment of active learning methods and technology in chemistry courses; incorporation of environmental data into chemistry classroom modules; development of hands-on activities and laboratory experiments.

Daniel A. Kleier, PhD (*University of Notre Dame*). Associate Teaching Professor.

Molly O'Connor, PhD (*Drexel University*). Assistant Teaching Professor. Synthesis and characterization of chiral and achiral metal complexes with novel multidentate ligands.

Kevin G. Owens, PhD (*Indiana University*). Associate Professor. Mass spectrometry research, including the development of sample preparation techniques for quantitative analysis and mass spectrometric imaging using matrix-assisted laser desorption/ionization (MALDI) time-of-flight mass spectrometry (TOFMS) techniques for both biological and synthetic polymer systems, the development of laser spectroscopic techniques for combustion analysis, and the development of correlation analysis and other chemometric techniques for automating the analysis of mass spectral information.

Lynn S. Penn, PhD (*Bryn Mawr College*). Professor. Surface modification for specific applications: chemically derivatize metal and ceramic solid surfaces; designing and executing sequential chemical processes, building complex and layered structures on surfaces, with specific focus on behavior of polymer brushes (investigating the fundamental transport-selective behavior of polymer brushes because of potential in drug delivery, biomedical devices and as an explanation of some biological processes).

Reinhard Schweitzer-Stenner, PhD (*Universitat Bremen (Germany)*). Professor. Exploring conformational ensembles of unfolded or partially folded peptides and proteins; determining the parameters governing peptide self-aggregation; structure and function of heme proteins; investigating protein-membrane interactions; use of IR, VCD, Raman, NMR and absorption spectroscopy for structure analysis.

Karl Sohlberg, PhD (*University of Delaware*). Associate Professor. Chemistry Computational and theoretical materials-related chemistry: (1) complex catalytic materials; (2) mechanical and electrical molecular devices.

Peter A. Wade, PhD (*Purdue University*). Associate Professor. Exploration of a newly discovered [3,3]-sigmatropic rearrangement in which O-allyl nitronic esters are thermally converted to #, #-unsaturated nitro compounds; development and exploitation of a carbon-based hemiacetal mimic; and exploration of cycloaddition reactions involving nitroethylene derivatives and novel nitrile oxides.

Anthony Wambsgans, PhD (*Rice University*). Associate Teaching Professor.

Jun Xi, PhD (*Cornell University*). Associate Teaching Professor. Biomacromolecular interactions both in solution and in confined environment; mechanisms of DNA replication and DNA repair; structure and function of molecular chaperones; drug target identification and new

therapeutic development; single molecule enzymology; DNA directed organic synthesis.

Emeritus Faculty

Amar Nath, PhD (*Moscow State University, Moscow USSR*). Professor Emeritus.

Communication BA / Strategic & Digital Communication MS

Major: Communication and Strategic & Digital Communication

Degree Awarded: Bachelor of Science (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years); Three Co-ops (Five years)

About the Program

The ability to communicate effectively is one of the most sought-after skills by prospective employers across many industries. Drexel University is committed to building this strong foundation through the Accelerated Communication degree, which enables academically qualified students to earn both a bachelor's and master's degree—graduating sooner than they would in traditional programs. While enrolled in the accelerated program, students can still participate in co-op, study abroad and other programs characteristic of the Drexel experience. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of a Master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

The BA in Communication program requires 180.0 UG credits and is committed to helping students become broadly educated and professionally competent communicators. Students are exposed to a variety of media and are guided in the development of their interpretive and expressive skills. Students may complete the BA in Communication with a concentration in Public Relations, Journalism, or Communication and Media Studies. Independent of their chosen concentration, all BA in Communication majors take a common core of courses that emphasize communication theory and methods, as well as a modern language.

Students in the Public Relations concentration take courses and pursue careers in public relations, event planning, media relations, social media, and corporate communication. Journalism students take courses and pursue careers as reporters, copyeditors, editors, and media specialists. Students in the Communication and Media Studies concentration have the flexibility of crafting their path through the major to design an academically rigorous, inclusive program of study around expanding media's potential to positively transform the self and society.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits, and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches to communication, ethics, and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will

help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum, students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university, allowing students to continue to tailor their plan of study.

In order to gain valuable practical experience outside the classroom, students are expected to complete the equivalent of a six-month, full-time, non-credit bearing internship. To complete the internship component, students can either enroll in Drexel's undergraduate coop program, or they can work in one or several full-time or part-time communication positions of their choosing. Students entering the program already possessing significant communication-related experience and thereby meeting the internship requirement can apply for an internship waiver. The program director works with each student on an individual basis to see what option best meets their needs.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for additional information.

Admission Requirements

Both incoming freshmen and current Communication majors are eligible to apply for this program. Students who are already matriculated may apply after completing a minimum of 90.0 credits but no more than 120.0 credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the accelerated program.

In addition to formally applying, **already matriculated applicants** must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3 minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applicants who already received preliminary acceptance in the accelerated degree program as freshmen should finish the application process after completing a minimum of 90.0 undergraduate credits but no more than 120.0 credits with a GPA of 3.0. Students accepted as **incoming freshmen** need to submit:

- The name of one faculty reference who can speak to the applicant's academic qualifications and preparedness for graduate studies. The admissions committee might request the name of a second reference as needed.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

For more information, contact Dr. Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu.

Degree Requirements

BA Communication Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0

Communication Major Requirements

Theory and Key Concepts		12.0
COM 101	Human Communication	
COM 150	Mass Media and Society	
COM 210	Theory and Models of Communication	
LING 101	Introduction to Linguistics	

or LING 102 Language and Society		
Methods Sequence		6.0
COM 220	Qualitative Research Methods	
COM 221	Quantitative Research Methods in Communication	
or COM 284 Public Relations Research, Measurement and Evaluation		
Application Sequence		6.0
COM 491	Senior Project in Communication I	
COM 492	Senior Project in Communication II	
Concentration Requirements		21.0-24.0
Communication and Media Studies Concentration Requirements		
COM 215 [WI]	Communication Resources for Media Studies	
COM 341	Communication Past and Present	
Select five communication and media studies electives from the list below:		
COM 200	Current Events in Media and Communication	
COM 211	Media and Youth Culture	
COM 246	Media and Identity	
COM 250	Diversity in Media	
COM 290	Sports and the Media	
COM 317 [WI]	Environmental Communication	
COM 318	Film, Celebrity and the Environmental Movement	
COM 325	Celebrity and Authenticity	
COM 342	English Worldwide	
COM 355	Ethnography of Communication	
COM 365	Journalists, the Courts, and the Law	
COM T180	Special Topics in Communication Theory	
COM T380	Special Topics in Communication Theory	
COM T480	Special Topics in Communication Theory	
AFAS 255	Gender and Black Popular Culture	
AFAS 301	Politics of Hip Hop	
GST 251	Introduction to Global Media, Arts, and Cultures	
PHIL 305	Ethics and the Media	
Public Relations Concentration Requirements		
COM 160 [WI]	Introduction to Journalism	
COM 181	Public Relations Principles and Theory	
COM 247	Strategic Social Media Communication	
COM 248	Reputation Management in Public Relations	
COM 282 [WI]	Public Relations Writing in the Digital Age	
COM 286	Public Relations Strategies and Tactics	
COM 386	Public Relations Campaign Planning	
Journalism Concentration Requirements		
COM 160 [WI]	Introduction to Journalism	
COM 216	Sourcing Challenges in Journalism	
COM 261 [WI]	Advanced Journalism	
COM 263	Multiplatform Journalism	
COM 266	Copy Editing for the Media	
COM 315 [WI]	Investigative Journalism	
COM 365	Journalists, the Courts, and the Law	
COM 391	Critiques of Journalism and News Media	
Communication Electives		18.0-21.0
Select an additional six or seven COM (100-499) courses depending on the concentration		
Free Electives		68.0
MS Strategic & Digital Communication Requirements		
Required Core Courses		
COM 500	Reading & Research in Communication	3.0
COM 574	Organizational Communication in Project Management	3.0
COM 610	Theories of Communication and Persuasion	3.0
COM 613	Ethics for Professional Communication	3.0
COM 615	Media Environments in a Digital World	3.0
COM 651	Media and Communication Policy in a Digitized World	3.0
COM 698	Managing Communication Professionals' Identities in a Digital Age	3.0

Program Electives 12.0

Choose four of the following courses:

COM 516	Campaigns for Health and Environment
COM 518	Communicating Health and Risk in a 'Fake News' World
COM 520	Science Writing
COM 525	Document Design and Usability
COM 533	Modern Desktop Publishing
COM 535	Digital Publishing
COM 536	Strategic Social Media Communication
COM 538	Copy Editing
COM 541	Foundations of Public Relations
COM 542	Public Relations Writing
COM 543	Public Relations Planning
COM 544	Media Relations in a Digital Age
COM 545	Crisis Communication
COM 551	Creative Content Production
COM 561	Fundamentals of Journalism & Newswriting
COM 562	International Negotiations
COM 563	Event Planning
COM 575	Grant Writing
COM 576	Nonprofit Communication
COM 577	Communication for Civic Engagement
COM 578	Focus Groups
COM 586	Strategic International Communication
COM 600	Graduate Seminar in Communication
COM 614	Social Media Concepts that Matter
COM 660	Investigative Journalism
COM I599	Independent Study in Communication
COM I699	Independent Study in Communication
COM T580	Special Topics in Communication
COM T680	Special Topics in Communication

Graduate Electives * 12.0****Total Credits 225.0-239.0**

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Students not participating in co-op will take one additional credit of free elective instead of COOP 001.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (p. 5) for complete list of course options.

★★★

Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas (AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENVS, EOH, HMP, HRM, LING, MGMT, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRP, SCTS, SMT, TVMN). Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the

sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Students should complete undergraduate requirements in four years then convert to graduate status in their final year.

A full-time, academically qualified undergraduate student may take up to 9.0 quarter credits of graduate coursework with departmental permission while in an undergraduate degree program. This coursework may be counted to fulfill undergraduate degree requirements with departmental permission.

Students admitted to an accelerated degree program may take up to a total of 15.0 quarter credits of graduate coursework with departmental permission while in an undergraduate degree program. This graduate coursework must be counted to fulfill undergraduate degree requirements with departmental permission.

This graduate coursework may be used as Shared Credits toward an advanced degree. The course credits for each graduate course taken as an undergraduate student shall only be applied to one graduate degree with departmental permission.

Matriculated students should consult Drexel Central about maintaining Federal/State financial aid eligibility regarding graduate credits taken while in an undergraduate degree program.

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 101	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
COM 150	3.0 COOP 101*	1.0 Analyzing Cultures & Histories	3.0-4.0	
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 (UG) COM Elective	3.0	
UNIV H101	1.0 (UG) Concentration Requirement	6.0 (UG) Concentration Requirement	3.0	
Cultivating Global Competence	3.0-4.0 Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0	

Developing Quantitative Reasoning	3.0-4.0			
	16-18	14-15	15-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 210	3.0 COM 221 or 284	3.0 (UG) COM Elective	3.0 Cultivating Global Competence	3.0-4.0
COM 220	3.0 LING 101 or 102	3.0 (UG) Free Electives	9.0 (UG) Free Electives	14.0
Analyzing Cultures & Histories	3.0-4.0 (UG) COM Elective	3.0 Understanding Society & Human Behavior	3.0-4.0	
(UG) COM Elective	3.0 (UG) Concentrati Requirement	3.0		
Engaging the Natural World	3.0-4.0 Understanding Society & Human Behavior	3.0-4.0		
	15-17	15-16	15-16	17-18
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	UNIV H201	1.0 (UG) COM Elective	3.0
		(UG) Concentrati Requirement	3.0 (UG) Concentrati Requirement	3.0
		(UG) Free Electives	9.0 (UG) Free Electives	9.0
		Perspective: in Diversity	3.0-4.0 COM 574	3.0
		(GR) SDC Program Elective	3.0	
	0	0	19-20	18
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 491	3.0 COM 492	3.0 (UG) COM Elective	3.0 Student converts to Graduate Status	
(UG) Concentrati Requirement	3.0 (UG) COM Elective	3.0 (UG) Free Electives	9.0	
(UG) Free Electives	9.0 (UG) Free Electives	9.0 COM 615	3.0	
COM 613	3.0 COM 651	3.0 (GR) SDC Program Elective	3.0	
		Student graduates with BA degree		
	18	18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
COM 500	3.0 COM 610	3.0 COM 698	3.0	
(GR) Graduate Elective	3.0 (GR) Graduate Elective	3.0 (GR) Graduate Electives	6.0	

(GR) SDC Program Elective	3.0 (GR) SDC Program Elective	3.0
9	9	9

Total Credits 225-236

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Communication Faculty

Ronald Bishop, III, PhD (*Temple University*). Professor. Investigative reporting, sports journalism, journalism history, journalism sourcing patterns, textual narrative and ideological analysis, cultural history of fame.

Joan W. Blumberg, BA (*Pennsylvania State University*). Instructor. Publishing, electronic publishing, publishing and communications, publishing and mass-media.

Karen Cristiano, MS (*Temple University*) *Assistant Department Head of Communication*. Associate Teaching Professor. Journalism, medical writing, feature writing, copy editing, mass media and society.

Richard Forney Instructor. Broadcast journalism technology and the effects of new technologies on personal and corporate communication skills.

Alexander Friedlander, PhD (*Carnegie Mellon University*) *Interim Department Head of Communication; Associate Dean for Undergraduate Education, College of Arts and Sciences*. Associate Professor. Rhetorical theory and practice, document design, writing and technology.

Ernest A. Hakanen, PhD (*Temple University*). Professor. Telecommunications policy, adolescent media use, communication theory and history, global media, and semiotics.

Barbara Hoekje, PhD (*University of Pennsylvania*) *Director, English Language Center*. Associate Professor. Sociolinguistic theory, discourse analysis, applied linguistics (language teaching, learning, and testing).

Frank Kelley, PhD (*Temple University*). Associate Teaching Professor. Corporate university systems online, power structure of media enterprises, public relations, event planning.

Julia May, PhD (*Drexel University*). Assistant Teaching Professor. Political communication; international politics and its news coverage; public opinion; transatlantic relations; war, torture and human rights; debate in the public sphere.

Jordan McClain, PhD (*Temple University*). Assistant Teaching Professor. Media framing and music journalism; relationship between television and music; American popular culture; celebrity, consumerism, and consumer behavior; branding, brand positioning, and advertising criticism.

Alexander Nikolaev, PhD (*Florida State University*) *Interim Director, Communication Undergraduate Programs*. Associate Professor. Public relations, political communication, organizational communication,

mass communication, international communications and negotiations, communications theory.

Rosemary Rys, MA. Instructor. Public relations and marketing.

Lawrence Souder, PhD (*Temple University*). Associate Teaching Professor. Science and technical writing, communication ethics, nonprofit communication.

Allan Stegeman, MA (*University of Houston*). Teaching Professor. Communication, technology and mass media, video.

Susan Stein, PhD (*University of Wisconsin*) Graduate Director. Associate Teaching Professor. Science, environmental, and health communication

Asta Zelenkauskaitė, PhD (*Indiana University*). Assistant Professor. Social media; user-generated content; computer-mediated communication; interactivity; active audience analysis; mobile communication; gender and online identity; prosumer culture; internet of things; quantitative/qualitative research.

English BA / Strategic & Digital Communication MS

Major: English and Strategic & Digital Communications

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five Years); Three Co-ops (Five years)

About the Program

The ability to communicate effectively is one of the most sought-after skills by prospective employers industry wide. Drexel University is committed to building this strong foundation through the accelerated degree option, which enables academically qualified students to earn both a bachelor's and master's degree—graduating sooner than they would in traditional programs. While enrolled in the accelerated program, students can still enjoy the benefits of co-op, study abroad and other programs characteristic for the Drexel experience. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of both a bachelor's degree in English and a master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

The BA in English focuses on three areas:

- A rich academic core grounded in disciplinary expertise that promotes literary exploration, sophisticated textual literacy, excellent writing, and other transferable skills;
- Applied learning opportunities using skills in research, interpretation, analysis, and writing to solve real-world problems;
- Opportunities for civic engagement, connecting with community partners to promote social justice and the common good.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits, and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches

to communication, ethics, and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum, students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university, allowing students to continue to tailor their plan of study.

In order to gain valuable practical experience outside the classroom, students are expected to complete the equivalent of a six-month, full-time, non-credit bearing internship. To complete the internship component, students can either enroll in Drexel's undergraduate coop program, or they can work in one or several full-time or part-time communication positions of their choosing. Students entering the program already possessing significant communication-related experience and thereby meeting the internship requirement can apply for an internship waiver. The program director works with each student on an individual basis to see what option best meets their needs.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Admission Requirements

Both incoming freshmen and current ENGL students are eligible to apply for this program. Students who are already matriculated may apply after completing a minimum of 90.0 credits but no more than 120.0

credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the program.

In addition to formally applying, **already matriculated** applicants must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3-minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applicants who already received preliminary acceptance in the accelerated degree program as freshmen should finish the application process after completing a minimum of 90.0 undergraduate credits but no more than 120.0 credits with a GPA of 3.0. Students accepted as **incoming freshmen** need to submit:

- The name of one faculty reference who can speak to the applicant's academic qualifications and preparedness for graduate studies. The admissions committee might request the name of a second reference as needed.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

For more information, contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu.

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum **		
Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Understanding Society and Human Behavior **		6.0-8.0
Analyzing Cultures and Histories **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Language Requirement (two consecutive courses in a foreign language, reaching at least 103) ***		8.0

Major Requirements		
English Core Courses, Required for All Concentrations		
Seminars		
ENGL 195	English Freshman Seminar	3.0
ENGL 301	English Major Colloquium †	3.0
ENGL 490	Seminar in English and American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
Language at Work (choose 1)		3.0
WRIT 212	Intro to Rhetorical Theory	
or ENGL 250	Intro to Digital Humanities	
Writing		
WRIT 195	Threshold Concepts in Writing Studies	3.0
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	3.0
WRIT 225 [WI]	Creative Writing	3.0
Literature		
ENGL 207 [WI]	African American Literature	3.0
ENGL 315 [WI]	Shakespeare	3.0
ENGL 325	Topics in World Literature	3.0
ENGL 355 [WI]	Women and Literature	3.0
Senior Project		3.0
ENGL 495	Senior Project in Literature	
Concentrations (Choose 1)		27.0
A) Literary Studies Concentration		
Surveys (choose 3 for 9.0 credits)		
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 202 [WI]	Romanticism to Modernism	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 205 [WI]	American Literature I	
ENGL 206 [WI]	American Literature II	
ENGL 211 [WI]	British Literature I	
ENGL 212	British Literature II	
Authors and Periods (choose 1 for 3.0 credits)		
ENGL 310 [WI]	Period Studies	
or ENGL 32	Major Authors	
Literary Impacts (choose 1 for 3.0 credits)		
ENGL 300 [WI]	Literature & Science	
or ENGL 32	Literature and Other Arts	
or ENGL 36	Literature and Society	
Literary Traditions (choose 1 for 3.0 credits)		
ENGL 330	The Bible as Literature	
or ENGL 33	Mythology	
Literary Theory (3.0 credits)		
ENGL 380	Literary Theory	
English Electives (choose 2 for minimum of 6.0 credits)		
Choose any additional 2 courses (300+) in ENGL or WRIT		
B) Writing Concentration		
Foundations		
WRIT 210 [WI]	The Peer Reader in Context	
WRIT 211	Advanced Composition	
Audience Awareness (choose 1 for 3.0 credits)		
WRIT 312 [WI]	Writing for Target Audiences	
or WRIT 31	Writing for Social Change	
Writing Practices (choose 6 additional courses for a minimum of 18.0 credits; at least 4 must be WRIT or ENGL courses)		
COM 160 [WI]	Introduction to Journalism	
COM 270 [WI]	Business Communication	
COM 310 [WI]	Technical Communication	
COM 375 [WI]	Grant Writing	
ENGL 312	Research Project Development	

SCRIP 220	Playwriting I	
SCRIP 270 [WI]	Screenwriting I	
WRIT 212	Intro to Rhetorical Theory	
WRIT 215 [WI]	Story Medicine	
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 226	Writing in Public Spaces	
WRIT 290	Writers Room Experience	
WRIT 295	Forms Seminar	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT 303	Writing Humor and Comedy	
WRIT 305	Life is Beautiful	
WRIT 306	Writing About the Media	
WRIT 310	Literary Editing & Publication	
WRIT 311	Writing and Reading the Memoir	
WRIT 312 [WI]	Writing for Target Audiences	
WRIT 315	Writing for Social Change	
WRIT 320	Publishing Veterans' Memoirs for the Library of Congress	
WRIT 330	Writing and Contexts	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
WRIT 401	Advanced Poetry Workshop	
WRIT 402	Advanced Fiction Workshop	
WRIT 405	Internship in Publishing	
WRIT T380	Special Topics in Writing	
Electives		60.0-62.0
MS Strategic & Digital Communication Requirements		
Required Core Courses		
COM 500	Reading & Research in Communication	3.0
COM 574	Organizational Communication in Project Management	3.0
COM 610	Theories of Communication and Persuasion	3.0
COM 613	Ethics for Professional Communication	3.0
COM 615	Media Environments in a Digital World	3.0
COM 651	Media and Communication Policy in a Digitized World	3.0
COM 698	Managing Communication Professionals' Identities in a Digital Age	3.0
Program Electives		12.0
Choose four of the following courses:		
COM 516	Campaigns for Health and Environment	
COM 518	Communicating Health and Risk in a 'Fake News' World	
COM 520	Science Writing	
COM 525	Document Design and Usability	
COM 533	Modern Desktop Publishing	
COM 535	Digital Publishing	
COM 536	Strategic Social Media Communication	
COM 538	Copy Editing	
COM 541	Foundations of Public Relations	
COM 542	Public Relations Writing	
COM 543	Public Relations Planning	
COM 544	Media Relations in a Digital Age	
COM 545	Crisis Communication	
COM 551	Creative Content Production	
COM 561	Fundamentals of Journalism & Newswriting	
COM 562	International Negotiations	
COM 563	Event Planning	
COM 575	Grant Writing	
COM 576	Nonprofit Communication	
COM 577	Communication for Civic Engagement	
COM 578	Focus Groups	
COM 586	Strategic International Communication	
COM 600	Graduate Seminar in Communication	
COM 614	Social Media Concepts that Matter	

COM 660	Investigative Journalism	
COM I599	Independent Study in Communication	
COM I699	Independent Study in Communication	
COM T580	Special Topics in Communication	
COM T680	Special Topics in Communication	
Graduate Electives ^{††}		12.0
Total Credits		225.0-238.0

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

See Core Curriculum List (p. 5) for complete list of course options.

Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN.

Language courses may count toward the College Core Curriculum requirements in Cultivating Global Competence, in which case students may take a corresponding number of free electives.

†

1.0 credit course taken three times for a total of 3.0 credits.

††

Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas: AADM, AAML, AACT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENV, EOH, HMP, HRM, LING, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRP, SCTS, SMT, TVMN. Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Students should complete undergraduate requirements in four years then convert to graduate status in their final year.

A full-time, academically qualified undergraduate student may take up to 9.0 quarter credits of graduate coursework with departmental permission while in an undergraduate degree program. This coursework may be counted to fulfill undergraduate degree requirements with departmental permission.

Students admitted to an accelerated degree program may take up to a total of 15.0 quarter credits of graduate coursework with departmental permission while in an undergraduate degree program. This graduate coursework must be counted to fulfill undergraduate degree requirements with departmental permission.

This graduate coursework may be used as Shared Credits toward an advanced degree. The course credits for each graduate course taken as an undergraduate student shall only be applied to one graduate degree with departmental permission.

Matriculated students should consult Drexel Central about maintaining Federal/State financial aid eligibility regarding graduate credits taken while in an undergraduate degree program.

Literary Studies Concentration

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 WRIT 200	3.0 ENGL 207	3.0	
(UG) Foreign Language Course	4.0 (UG) Foreign Language Course (level 103+)	4.0 WRIT 195	3.0	
(UG) Developing Quantitative Reasoning	3.0-4.0 (UG) Developing Quantitative Reasoning	3.0-4.0 (UG) Free Elective	3.0	
(UG) Understanding Society and Human Behavior	3.0-4.0 (UG) Understanding Society and Human Behavior	3.0-4.0 (UG) Engaging the Natural World	3.0-4.0	
	17-19	17-19	16-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 (UG) Literature Survey	3.0 ENGL 301	1.0 ENGL 325	3.0
WRIT 225	3.0 (UG) Authors & Periods	3.0 ENGL 315	3.0 (UG) Literature Survey	3.0
(UG) Engaging the Natural World	3.0-4.0 (UG) Diversity Studies	3.0 WRIT 212 or ENGL 250	3.0 (UG) Literary Impacts	3.0

(UG) Literature Survey	3.0 (UG) Cultivating Global Competence	3.0-4.0 (UG) Free Elective	3.0 (UG) Free Electives	6.0-9.0
(UG) Cultivating Global Competence	3.0-4.0 (UG) Analyzing Cultures and Histories	3.0-4.0 (UG) Analyzing Cultures and Histories	3.0-4.0	
(UG) Free Elective	3.0	(UG) Free Elective	3.0	
	16-18	15-17	16-17	15-18
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 (UG) Free Electives	12.0 COOP EXPERIENCE	COOP EXPERIENCE	
ENGL 380	3.0 COM 610	3.0	COM 574	3.0
(UG) Free Electives	9.0			
COM 500	3.0			
	16	15	0	3
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0 Student classified as Graduate	
UNIV H201	1.0 ENGL 492	3.0 (UG) Free Electives	9.0	
(UG) Literary Traditions	3.0 (UG) English Elective (ENGL or WRIT)	3.0 COM 615	3.0	
(UG) English Elective	3.0 (UG) Free Electives	6.0 (GR) SDC Program Elective	3.0	
(UG) Free Electives	6.0 COM 651	3.0 Student graduates with BA degree		
COM 613	3.0			
	19	18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
(GR) SDC Program Electives	6.0 (GR) SDC Program Elective	3.0 COM 698	3.0	
(GR) Graduate Elective	3.0 (GR) Graduate Electives	6.0 (GR) Graduate Electives	3.0	
	9	9	6	

Total Credits 225-238

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Writing Concentration

4 year, 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	

ENGL 195	3.0 ENGL 102 or 112	3.0 ENGL 207	3.0
UNIV H101	1.0 WRIT 200	3.0 WRIT 195	3.0
(UG) Foreign Language Course	4.0 (UG) Foreign Language Course (level 103+)	4.0 (UG) Free Elective	3.0
(UG) Developing Quantitative Reasoning	3.0-4.0 (UG) Developing Quantitative Reasoning	3.0-4.0 (UG) Engaging the Natural World	3.0-4.0
(UG) Understanding Society and Human Behavior	3.0-4.0 (UG) Understanding Society and Human Behavior	3.0-4.0	
17-19		17-19	15-16

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 WRIT 212 or ENGL 250	3.0 ENGL 301	1.0 COOP 101 *	1.0
WRIT 210	3.0 (UG) Writing Practice Course	3.0 ENGL 315	3.0 ENGL 325	3.0
WRIT 225	3.0 (UG) Diversity Studies	3.0 (UG) Writing Practice Course	3.0 (UG) Writing Practice Course	6.0
(UG) Engaging the Natural World	3.0-4.0 (UG) Cultivating Global Competence	3.0-4.0 (UG) Free Elective	6.0 (UG) Free Electives	6.0-9.0
(UG) Cultivating Global Competence	3.0-4.0 (UG) Analyzing Cultures and Histories	3.0-4.0 (UG) Analyzing Cultures and Histories	3.0-4.0	
(UG) Free Elective	3.0 3			
16-18		15-17	16-17	16-19

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 301	1.0 WRIT 211	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Writing Practice Course	3.0 (UG) Audience Awareness Course	3.0	COM 574	3.0
(UG) Free Electives	9.0 (UG) Free Electives	9.0		
COM 500	3.0 COM 610	3.0		
16		18	0	3

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 490	3.0 ENGL 355	3.0 ENGL 495	3.0 Student classified as Graduate	
UNIV H201	1.0 ENGL 492	3.0 (UG) Free Electives	9.0	
(UG) Writing Practice Course	3.0 (UG) Free Electives	9.0 COM 615	3.0	

(UG) Free Electives	6.0 COM 651	3.0 (GR) SDC Program Elective	3.0
COM 613	3.0	Student graduates with BA degree	
16		18	18
Fifth Year		18	0
Fall	Credits Winter	Credits Spring	Credits
(GR) SDC Program Electives	6.0 (GR) SDC Program Elective	3.0 COM 698	3.0
(GR) Graduate Elective	3.0 (GR) Graduate Electives	6.0 (GR) Graduate Electives	3.0
9		9	6
Total Credits 225-238			

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Environmental Science BS / Ecology, Evolution, and Earth Systems MS

Major: Environmental Science and Ecology, Evolution, and Earth Systems
Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)
Calendar Type: Quarter
Minimum Required Credits: 225.5
Co-op Options: One Co-op (Five years)

About the Program

The BS/MS program in Ecology, Evolution and Earth Systems is designed to provide an opportunity for highly motivated and qualified undergraduates to begin pursuing a graduate degree prior to completion of their bachelor's degree in a 4+1 year format with one coop.

The MS in Ecology, Evolution and Earth Systems builds on the knowledge undergraduates gain in their Environmental Science program and allows students to advance into higher level courses with greater depth. Students interested in a course-based program can choose to do the BS/MS as a non-thesis student, which has advantages when seeking positions in consulting, government or nonprofit organizations. Students interested in research careers or future doctoral studies can opt to pursue the thesis option, which provides an opportunity to conduct independent research and gain valuable research experience. Students interested in the thesis option require early planning and a faculty mentor.

The 4+1 program combines the four-year undergraduate COOP program (4COP) with one year of graduate school. The 4COP program provides students with the benefit of a coop in spring/summer of their third year while maintaining flexibility in course loads per term. Graduate coursework begins in year four (concurrent with the final year of the BS program) and the MS degree is completed at the end of year five.

Additional Information

For more information about the program, visit the Department of Biodiversity, Earth & Environmental Science's (<http://www.drexel.edu/coas/academics/departments-centers/bees/>) web page.

Admission Requirements

To be eligible for the BS/MS program, students must apply between 90-120 credits and have a minimum 3.25 cumulative GPA overall and in their math and science courses. Applicants should meet with their advisor to create a plan of study and submit a 1-page personal statement. After a review of the initial plan of study and personal statement, the applicant will meet with the Undergraduate and Graduate Chairs for an interview. If accepted, the student will receive an Accelerated Degree Program Application form and will use this form to obtain permission from all approving parties listed. Students planning to pursue an MS Thesis as part of the BS/MS program should have a defined project planned out with a faculty mentor.

Degree Requirements

Degree Requirements		
Humanities and Social Science		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COM 310 [WI]	Technical Communication	3.0
COOP 101	Career Management and Professional Development	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
PHIL 340	Environmental Ethics	3.0
or PHIL 341	Environmental Philosophy	
Humanities/Social Science electives		6.0
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Mathematics, Statistics & Computing		21.0
CS 171	Computer Programming I	
or CS 150	Computer Science Principles	
MATH 101	Introduction to Analysis I	
or MATH 12	Calculus I	
MATH 102	Introduction to Analysis II	
or MATH 12	Calculus II	
MATH 239	Mathematics for the Life Sciences	
or MATH 12	Calculus III	
MATH 410	Scientific Data Analysis I	
MATH 411	Scientific Data Analysis II	
Physical Sciences		
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
Choose two chemistry electives from:		5.0-7.0
CHEM 241	Organic Chemistry I	
ENVS 302	Environmental Chemistry Laboratory	
ENVS 310	Introduction to Environmental Chemistry	
Physics sequence		
PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0

Biological Sciences		
BIO 131	Cells and Biomolecules	4.0
BIO 132	Genetics and Evolution	4.0
BIO 133	Physiology and Ecology	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 135	Genetics and Evolution Lab	1.0
BIO 136	Anatomy and Ecology Lab	1.0
Geoscience Requirements		
GEO 101	Physical Geology	4.0
GEO 201 [WI]	Earth Systems Processes	3.0
Environmental Science Core Requirements		
ENVS 101	Introduction to Environmental Science	5.0
ENVS 102	Natural History, Research and Collections	2.0
ENVS 201	Practical Identification of Plants and Animals	2.0
ENVS 212	Evolution	4.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 308	GIS and Environmental Modeling	3.0
ENVS 441 [WI]	Issues in Global Change I: Seminar	2.0
ENVS 442	Issues in Global Change II: Research	2.0
ENVS 443	Issues in Global Change III: Synthesis	2.0
Choose one of the following:		3.0-4.0
ENSS 283	Introduction to Environmental Policy	
ENSS 348	Delaware River Issues and Policy	
PSCI 284	Environmental Politics	
Environmental Science Lab Requirements		2.0
BIO 222	Microbiology Laboratory	
BIO 225	Vertebrate Biology and Evolution Laboratory	
BIO 257	Vertebrate Morphology & Physiology Lab	
ENVS 323	Tropical Field Studies	
ENVS 327	Molecular Ecology Laboratory	
ENVS 353	Field Ornithology Lab	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 383	Ecology of the New Jersey Pine Barrens	
ENVS 387	Restoration Ecology	
ENVS 388	Marine Field Methods	
ENVS 394	Entomology Laboratory	
Environmental Concentration Requirements		14.0-15.0
Ecology and Evolution Concentration (choose 5 from below)		
BIO 244	Genetics I	
BIO 436	Population Genetics	
ENVS 202	Tree of Life	
ENVS 312	Systematic Biology	
ENVS 328	Conservation Biology	
ENVS 470	Advanced Topics in Evolution	
Applied Environmental Science Concentration		
ENVS 203	The Watershed Approach	
ENVS 275	The Science of Climate Change	
ENVS 372	Environmental Assessment	
ENVS 376	Environmental and Ecological Remediation	
GEO 306	Environmental Geology	
Environmental Electives *		9.0
BIO 221	Microbiology	
BIO 224	Form, Function & Evolution of Vertebrates	
BIO 256	Vertebrate Morphology and Physiology	
ENVS 247	Native Plants and Sustainability	
ENVS 289	Global Warming, Biodiversity and Your Future	
ENVS 304	Energy and the Environment: Iceland	
ENVS 315	Plant Animal Interactions	
ENVS 322	Tropical Ecology	
ENVS 326	Molecular Ecology	
ENVS 330	Aquatic Ecology	

ENVS 333	Wetland Ecology	
ENVS 335	Aquatic Insects and Water Quality	
ENVS 352	Ornithology	
ENVS 354	Ichthyology	
ENVS 355	Biogeography	
ENVS 362	Urban Ecology	
ENVS 364	Animal Behavior	
ENVS 385	Systems Ecology	
ENVS 390	Marine Ecology	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 405	Atmospheric Chemistry	
ENVS 410	Physiological Ecology	
ENVS 412	Biophysical Ecology	
ENVS 415	Advanced Environmental GIS	
ENVS 418	Coastal Biogeochemistry	
ENVS 438	Biodiversity	
GEO 205	Dinosaurs and Their World	
GEO 207	Introduction to Oceanography	
GEO 215	Mineralogy	
GEO 301	Advanced Field Methods in Earth Science	
GEO 309	Geochemistry	
GEO 312	Sedimentology and Stratigraphy	
GEO 320	Invertebrate Paleobiology and Paleocology	
GEO 322	Vertebrate Paleontology	
GEO 325	Structural Geology	
GEO 350	Volcanology	
GEO 401	Igneous and Metamorphic Petrology	
GEO 412	Geology of Groundwater	
GEO 444	Plate Tectonics	
ENSS 244	Sociology of the Environment	
ENSS 346	Environmental Justice	
Free Electives		24.0
Graduate Courses		
ENVS 501	Chemistry of the Environment	3.0
ENVS 506	Biostatistics	3.0
ENVS 511	Evolutionary Ecology (Counts toward UG Environmental Elective) *	3.0
Optional Research **		12.0
ENVS 797	Research	
MS ENVS electives **		24.0-36.0
Total Credits		225.5-241.5

*

Up to two GEO or ENSS courses may count as ENVS electives. ENVS 511 counts as 1 undergraduate Environmental Elective.

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Students interested in research careers or future doctoral studies can opt to pursue the thesis research option. Those students will take 24.0 credits of MS electives. Students who do not opt to pursue the thesis research option will take 36.0 credits of MS electives.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

4+1 (4COP), 1 co-op

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CHEM 101	3.5 BIO 132	4.0 BIO 133	4.0 VACATION	
ENGL 101 or 111	3.0 BIO 135	1.0 BIO 136	1.0	
ENVS 101	5.0 CHEM 102	4.5 CHEM 103	4.5	
MATH 101 or 121	4.0 CIVC 101	1.0 COOP 101	1.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
	MATH 102 or 122	4.0 MATH 239 or 123	4.0	
	16.5	17.5	17.5	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
BIO 131	4.0 ENVS 286	3.0 ENVS 212	4.0 COM 230	3.0
BIO 134	1.0 ENVS 308	3.0 GEO 101	4.0 PHYS 153	4.0
ENVS 102	2.0 GEO 201	3.0 PHYS 152	4.0 (UG) ENVS Lab elective	2.0
ENVS 201	2.0 UNIV S201	1.0 (UG) Humanities/Social Science elective	3.0 (UG) Humanities/Social Science elective	3.0
ENVS 284	3.0 (UG) ENVS Concentration course	2.0 (UG) Free elective	3.0 (UG) Free elective	3.0
CS 150 or 171	3.0 (UG) Free elective	3.0		
	15	15	18	15
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 410	3.0 ENSS 283 or PSCI 284	3.0-4.0 COOP EXPERIENCE	COOP EXPERIENCE	
PHIL 340 or 341	3.0 MATH 411	3.0		
PHYS 154	4.0 (UG) ENVS elective	3.0		
(UG) ENVS Concentration course	3.0 (UG) ENVS Concentration course	3.0		

(UG) CHEM elective	3.0 (UG) CHEM elective	2.0		
	16	14-15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 310	3.0 ENVS 442	2.0 ENVS 443	2.0 STUDENT CONVERTS TO GRADUATE STATUS	
ENVS 441	2.0 (UG) ENVS Concentrati course	3.0 (UG) ENVS electives	3.0	
(UG) ENVS Concentration course	3.0 (UG) ENVS elective	3.0 (UG) Free elective	7.0	
(UG) Free elective	4.0 (UG) Free elective	4.0 ENVS 506	3.0	
ENVS 501	3.0 ENVS 511 (Counts as UG Environmental Elective)	3.0 (GR) Electives	3.0	
(GR) Elective	3.0 (GR) Elective	3.0		
	18	18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
(GR) Electives	9.0 (GR) Electives	9.0 (GR) Electives	9.0	
	9	9	9	
Total Credits 225.5-226.5				

Environmental Science BS / Environmental Policy MS

Major: Environmental Science and Environmental Policy

Degree Awarded: Bachelor of Science (BS) and Master of Science in Environmental Policy (MSEP)

Calendar Type: Quarter

Minimum Required Credits: 225.5

Co-op Options: One Co-op (Five years)

About the Program

The BS/MS program in Environmental Science (BS) and Environmental Policy (MS) is designed to bring two distinct but mutually enhancing disciplines together in one program. It provides an opportunity for highly motivated and qualified undergraduates to begin pursuing a graduate degree prior to completion of their bachelor's degree in the 4+1 co-op program.

Environmental policy pairs naturally with environmental science by helping students bridge the gap between their strength in science and their interest in making change through policy. Science without an effective avenue toward working with decision makers and supporting public policy runs short of its reach and potential benefit. The BS/MS in ENVS-ENVP prepares students both as scientists and professionals who can communicate science and translate environmental data into actionable environmental policy with tangible impact. Students can also conduct real-world research writing through a case study thesis, select elective

courses tailored to their interests, or complete their degree with research experience.

The accelerated program is appropriate for Environmental Science majors interested in learning about public policy and who have a desire to work in environmental policy, such as in government, advocacy work, consulting, or the nonprofit sector.

Additional Information

For more information about the program, visit the Department of Biodiversity, Earth and Environmental Science's (<http://www.drexel.edu/coas/academics/departments-centers/bees/>) web page.

Admission Requirements

To be eligible for the BS/MS program, students must apply between 90.0-120.0 credits and have a minimum 3.25 cumulative GPA. Applicants should meet with their advisor to create a plan of study and email that plan of study and a one-page essay to the director of the ENVP program along with a short email of introduction including their current major and proposed ENVP track. After a review of the initial plan of study, the director and the student will have a 20-minute interview. If accepted, the student will receive an Accelerated Degree Program Application form and will use it to obtain permission from all approving parties listed on the form.

Degree Requirements

Degree Requirements

Humanities and Social Science		
CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COM 310 [WI]	Technical Communication	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
PHIL 340	Environmental Ethics	3.0
or PHIL 341	Environmental Philosophy	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
Humanities/Social Science electives		6.0
Mathematics, Statistics & Computing		
Select one of the following sequences:		
Calculus sequence		
MATH 121	Calculus I	
MATH 122	Calculus II	
MATH 123	Calculus III	
Analysis sequence		
MATH 101	Introduction to Analysis I	
MATH 102	Introduction to Analysis II	
MATH 239	Mathematics for the Life Sciences	
Additional required math & computing courses:		
CS 171	Computer Programming I	
or CS 150	Computer Science Principles	
MATH 410	Scientific Data Analysis I	
MATH 411	Scientific Data Analysis II	
Physical Sciences		
CHEM 101	General Chemistry I	3.5

CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	4.5
Choose two chemistry electives from:		5.0
CHEM 241	Organic Chemistry I	
ENVS 302	Environmental Chemistry Laboratory	
ENVS 310	Introduction to Environmental Chemistry	
Physics sequence		
PHYS 152	Introductory Physics I	4.0
PHYS 153	Introductory Physics II	4.0
PHYS 154	Introductory Physics III	4.0
Biological Sciences		
BIO 131	Cells and Biomolecules	4.0
BIO 132	Genetics and Evolution	4.0
BIO 133	Physiology and Ecology	4.0
BIO 134	Cells and Biomolecules Lab	1.0
BIO 135	Genetics and Evolution Lab	1.0
BIO 136	Anatomy and Ecology Lab	1.0
Geoscience Requirements		
GEO 101	Physical Geology	4.0
GEO 201 [WI]	Earth Systems Processes	3.0
Environmental Science Core Requirements		
ENVS 101	Introduction to Environmental Science	5.0
ENVS 102	Natural History, Research and Collections	2.0
ENVS 201	Practical Identification of Plants and Animals	2.0
ENVS 212	Evolution	4.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 308	GIS and Environmental Modeling	3.0
ENVS 441 [WI]	Issues in Global Change I: Seminar	2.0
ENVS 442	Issues in Global Change II: Research	2.0
ENVS 443	Issues in Global Change III: Synthesis	2.0
Choose one of the following:		3.0
ENSS 283	Introduction to Environmental Policy	
ENSS 348	Delaware River Issues and Policy	
PSCI 284	Environmental Politics	
Environmental Science Lab Requirements		2.0
BIO 222	Microbiology Laboratory	
BIO 225	Vertebrate Biology and Evolution Laboratory	
BIO 257	Vertebrate Morphology & Physiology Lab	
ENVS 323	Tropical Field Studies	
ENVS 327	Molecular Ecology Laboratory	
ENVS 353	Field Ornithology Lab	
ENVS 394	Entomology Laboratory	
Environmental Concentration Requirements		14.0
See list of concentration requirements below.		
Environmental Electives (plus 3.0 credits shared with ENVP 522)		9.0
BIO 221	Microbiology	
BIO 224	Form, Function & Evolution of Vertebrates	
BIO 256	Vertebrate Morphology and Physiology	
BIO 436	Population Genetics	
GEO 205	Dinosaurs and Their World	
GEO 207	Introduction to Oceanography	
GEO 215	Mineralogy	
GEO 301	Advanced Field Methods in Earth Science	
GEO 306	Environmental Geology	
GEO 309	Geochemistry	
GEO 312	Sedimentology and Stratigraphy	
GEO 320	Invertebrate Paleobiology and Paleocology	
GEO 322	Vertebrate Paleontology	
GEO 325	Structural Geology	
GEO 342	Geomorphology	
GEO 346	Coastal Geology	

GEO 348	Oceanography	
GEO 350	Volcanology	
GEO 375	Field Camp	
GEO 401	Igneous and Metamorphic Petrology	
GEO 412	Geology of Groundwater	
GEO 418	Geophysics	
GEO 444	Plate Tectonics	
ENSS 244	Sociology of the Environment	
ENSS 285	Introduction to Urban Planning	
ENSS 341	Environmental Movements in America	
ENSS 346	Environmental Justice	
ENVS 247	Native Plants and Sustainability	
ENVS 275	The Science of Climate Change	
ENVS 289	Global Warming, Biodiversity and Your Future	
ENVS 304	Energy and the Environment: Iceland	
ENVS 312	Systematic Biology	
ENVS 315	Plant Animal Interactions	
ENVS 322	Tropical Ecology	
ENVS 326	Molecular Ecology	
ENVS 328	Conservation Biology	
ENVS 330	Aquatic Ecology	
ENVS 333	Wetland Ecology	
ENVS 335	Aquatic Insects and Water Quality	
ENVS 352	Ornithology	
ENVS 354	Ichthyology	
ENVS 355	Biogeography	
ENVS 362	Urban Ecology	
ENVS 364	Animal Behavior	
ENVS 372	Environmental Assessment	
ENVS 376	Environmental and Ecological Remediation	
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 383	Ecology of the New Jersey Pine Barrens	
ENVS 385	Systems Ecology	
ENVS 387	Restoration Ecology	
ENVS 388	Marine Field Methods	
ENVS 390	Marine Ecology	
ENVS 391	Freshwater and Marine Algae	
ENVS 393	Entomology	
ENVS 401	Chemistry of the Environment	
ENVS 405	Atmospheric Chemistry	
ENVS 410	Physiological Ecology	
ENVS 415	Advanced Environmental GIS	
ENVS 418	Coastal Biogeochemistry	
ENVS 438	Biodiversity	
ENVS 470	Advanced Topics in Evolution	
Free Electives		24.0
MS Environmental Policy		
Public Policy Core Graduate Courses		12.0
PLCY 503	Theory and Practice of Policy Analysis	
PLCY 504	Methods of Policy Analysis	
PLCY 506	Institutional Dynamics of the Policy Process	
PLCY 507	Nonprofit Organizations	
Environmental Core Graduate Courses		9.0
ENVP 522	Environmental Law	
ENVP 572	Environmental Policy	
ENVS 506	Biostatistics	
Environmental Science or Environmental and Occupational Health Track		6.0
Environmental Science Track (2 of the following courses):		
ENVS 501	Chemistry of the Environment	
ENVS 528	Conservation Biology	
ENVS 538	Biodiversity	

Environmental and Occupational Health Track (EOH 510 and one of the following 600-level EOH courses):	
EOH 510	Principles and Practice of Environmental and Occupational Health
EOH 605	Evidence Evaluation for Identification of Environmental Hazards
EOH 610	Environmental and Occupational Toxicology
EOH 615	Environmental and Occupational Health Policy
EOH 665	Quantitative Risk Analysis for Environmental Health
Economics Core	
BUSN 502	Essentials of Economics
or ECON 60 Managerial Economics	
ECON 616	Public Finance and Cost Benefit Analysis
Research Experience and/or Approved Courses in Environmental Policy	
Case Study Sequence (optional 9.0 credits)	
Approved Electives: The remaining 3-12 credits may be any graduate ENVP or PLCY courses. **	
Total Credits	

*
Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

**
In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree.

Environmental Science Concentrations

Ecology & Evolution Concentration	
Choose 5 from below:	
BIO 244	Genetics I
BIO 436	Population Genetics
ENVS 202	Tree of Life
ENVS 312	Systematic Biology
ENVS 328	Conservation Biology
ENVS 470	Advanced Topics in Evolution
Total Credits	
Applied Environmental Science Concentration	
Required Courses	
ENVS 203	The Watershed Approach
ENVS 275	The Science of Climate Change
ENVS 372	Environmental Assessment
Choose 2 from below:	
ENVS 376	Environmental and Ecological Remediation
ENVS 401	Chemistry of the Environment
GEO 306	Environmental Geology
Total Credits	

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits	Winter	Credits	Spring
CHEM 101	3.5	BIO 132	4.0	BIO 136
ENGL 101 or 111	3.0	BIO 135	1.0	BIO 133
ENVS 101	5.0	CHEM 102	4.5	CHEM 103
MATH 101 or 121	4.0	CIVC 101	1.0	COOP 101
UNIV S101	1.0	ENGL 102 or 112	3.0	ENGL 103 or 113
		MATH 102 or 122	4.0	MATH 239 or 123
16.5		17.5		17.5
Second Year				
Fall	Credits	Winter	Credits	Spring
BIO 131	4.0	ENVS 286	3.0	ENVS 212
BIO 134	1.0	ENVS 308	3.0	GEO 101
CS 150 or 171	3.0	GEO 201	3.0	PHYS 152
			4.0	(UG) ENVS Lab elective
ENVS 102	2.0	UNIV S201	1.0	(UG) Free elective
			3.0	(UG) Humanities/ Social Science elective
ENVS 201	2.0	(UG) ENVS Concentration course	2.0	(UG) Humanities/ Social Science elective
ENVS 284	3.0	(UG) Free elective	3.0	
15		15		18
Third Year				
Fall	Credits	Winter	Credits	Spring
MATH 410	3.0	ENSS 283 or PSCI 284	3.0-4.0	COOP EXPERIENCE
PHIL 340 or 341	3.0	MATH 411	3.0	
PHYS 154	4.0	(UG) ENVS elective	3.0	

(UG) CHEM elective	3.0 (UG) CHEM elective	2.0		
(UG) ENVS Concentration course	3.0 (UG) ENVS Concentration course	3.0		
16		14-15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 310	3.0 ENVS 442	2.0 ENVS 443	2.0 Student converted to Graduate status	
ENVS 441	2.0 (UG) ENVS Concentration course	3.0 (UG) ENVS electives	3.0	
(UG) ENVS Concentration course	3.0 (UG) ENVS elective	3.0 (UG) Free elective	7.0	
(UG) Free elective	4.0 (UG) Free elective	4.0 ENVS 506	3.0	
ENVP 522 (Counts as UG Environmental Elective)	3.0 ENVP 572	3.0 (GR) Elective	3.0	
(GR) Track Elective	3.0 (GR) Track Elective	3.0		
18		18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
PLCY 506	3.0 BUSN 502	3.0 ECON 616	3.0	
(GR) elective	6.0 PLCY 503	3.0 PLCY 504	3.0	
	(GR) Elective	3.0 PLCY 507	3.0	
9		9	9	
Total Credits 225.5-226.5				

Environmental Studies & Sustainability BA / Environmental Policy MSEP

Major: Environmental Studies & Sustainability and Environmental Policy

Degree Awarded: Bachelor of Arts (BA) and Master of Science in Environmental Policy (MSEP)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years)

About the Program

The BAMS program in Environmental Studies and Sustainability (BA) and Environmental Policy (MS) is designed to provide an opportunity for highly motivated and qualified undergraduates to begin pursuing a graduate degree prior to completion of their bachelor's degree. The MS in Environmental Policy builds on the knowledge that undergraduates gain in the Environmental Studies and Sustainability program and provides advanced training for careers in environmental law, research, advocacy, and more.

Creating public policy that supports environmental stewardship is a challenging and critical endeavor. The BAMS program prepares students to critically engage with complex environmental challenges; devise and communicate innovative policy solutions; and work with decision makers to effect policy change. Coursework spans the disciplines of law, political science, economics, engineering, business, and public health. Students have the opportunity to select elective courses tailored to their interests, gain hands-on research experience, and complete a case-based thesis with real-world impact.

The BAMS ENSS-ENVP program is appropriate for environmental studies and sustainability majors interested in advanced studies in public policy, and who have a desire to work in a range of environmental sectors.

For additional information about this program, contact Senior Academic Advisor Florette Press flp24@drexel.edu.

Admission Requirements

To be eligible for the BAMS program, students must apply between 90.0-120.0 credits and have a minimum 3.25 cumulative GPA. Applicants should meet with their advisor to create a plan of study and email that plan of study and a one-page essay to the Director of the ENVP Program along with a short email of introduction including their current major and proposed ENVP track. After a review of the initial plan of study, the director and the student will have a twenty-minute interview. If accepted, the student will receive an Accelerated Degree Program Application form and will use it to obtain permission from all approving parties listed on the form.

Degree Requirements

General Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
MATH 101	Introduction to Analysis I	4.0
MATH 107	Probability and Statistics for Liberal Arts	3.0
UNIV S101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

Social and Behavioral Sciences

SOC 101	Introduction to Sociology	3.0
or ANTH 101	Introduction to Cultural Diversity	
PSY 101	General Psychology I	3.0
PSCI 110	American Government	4.0
Social Behavior elective		3.0

Physical and Natural Sciences

BIO 109	Biological Diversity, Ecology & Evolution	3.0
BIO 110	Biological Diversity, Ecology and Evolution Laboratory	1.0
ENVS 101	Introduction to Environmental Science	5.0
ENVS 230	General Ecology	3.0
ENSS 275	Global Climate Change	3.0
or ENVS 289	Global Warming, Biodiversity and Your Future	
GEO 201 [W]	Earth Systems Processes	3.0

Humanities and Fine Arts

Humanities & Fine Arts Electives		6.0
COM 317 [W]	Environmental Communication	3.0

or COM 320	Science Writing	
PHIL 340	Environmental Ethics	3.0
or PHIL 341	Environmental Philosophy	
Diversity Electives		6.0
International Studies		6.0
Foreign Language		8.0
Students must complete at least 8 credits of a foreign language and, at minimum, must complete the 103 level of the target language (or beyond if they place higher).		
ENSS Core Requirements		
ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
ENSS 120	Introduction to Environmental Studies	3.0
ENSS 244	Sociology of the Environment	4.0
ENSS 283	Introduction to Environmental Policy	3.0
ENSS 285	Introduction to Urban Planning	3.0
ENSS 346	Environmental Justice	4.0
ENVS 260	Environmental Science and Society	3.0
PBHL 101	Public Health 101	3.0
PSCI 284	Environmental Politics	4.0
PSCI 338	Cities and Climate Change	3.0
Modeling and Research		
ENVS 308	GIS and Environmental Modeling	3.0
SOC 241	Research Design: Qualitative Methods	4.0
SOC 242	Research Design: Quantitative Methods	4.0
ENSS Electives (plus 3crs shared GR course ENVP 522)		18.0
Senior Sequence		
ENVS 441 [WI]	Issues in Global Change I: Seminar	2.0
ENVS 442	Issues in Global Change II: Research	2.0
ENVS 443	Issues in Global Change III: Synthesis	2.0
Free Electives		24.0
MS Environmental Policy		
Public Policy Core Graduate Courses		12.0
PLCY 503	Theory and Practice of Policy Analysis	
PLCY 504	Methods of Policy Analysis	
PLCY 506	Institutional Dynamics of the Policy Process	
PLCY 507	Nonprofit Organizations	
Environmental Core Graduate Courses		9.0
ENVP 522	Environmental Law	
ENVP 572	Environmental Policy	
ENVS 506	Biostatistics	
Environmental Science or Environmental and Occupational Health Track		6.0
Environmental Science Track (2 of the following courses):		
ENVS 501	Chemistry of the Environment	
ENVS 528	Conservation Biology	
ENVS 538	Biodiversity	
Environmental and Occupational Health Track (EOH 510 and one of the following 600-level EOH courses):		
EOH 510	Principles and Practice of Environmental and Occupational Health	
EOH 605	Evidence Evaluation for Identification of Environmental Hazards	
EOH 610	Environmental and Occupational Toxicology	
EOH 615	Environmental and Occupational Health Policy	
EOH 665	Quantitative Risk Analysis for Environmental Health	
Economics Core		6.0
BUSN 502	Essentials of Economics	
or ECON 606	Managerial Economics	
ECON 616	Public Finance and Cost Benefit Analysis	
Research Experience and/or Approved Courses in Environmental Policy		12.0
Case Study Sequence (optional 9 credits)		

Approved Electives: The remaining 3-12 credits may be any graduate ENVP or PLCY courses. In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree.

Total Credits	225.0
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Students not participating in co-op will not take COOP 101; 1 credit of Free Elective will be added in place of COOP 101.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1 (4COP), 1 co-op

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	BIO 109	3.0	ENGL 103 or 113	3.0	VACATION	
ENSS 120	3.0	BIO 110	1.0	MATH 107	3.0		
ENVS 101	5.0	CIVC 101	1.0	SOC 101 or ANTH 101	3.0		
MATH 101	4.0	ENGL 102 or 112	3.0	(UG) Foreign Language	4.0		
UNIV S101	1.0	PSY 101	3.0	(UG) Free elective	3.0		
		(UG) Foreign Language	4.0				
	16		15		16		0
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENSS 283	3.0	ENSS 244	4.0	ECON 201	4.0	COOP 101	1.0
ENSS 285	3.0	GEO 201	3.0	ENSS 275 or ENVS 289	3.0	ECON 202	4.0
PSCI 110	4.0	(UG) ENSS electives	6.0	ENVS 230	3.0	ENVS 260	3.0

UNIV H201	1.0 (UG) Free elective	3.0 (UG) Internationa elective	3.0 (UG) Humanities/ Fine Arts elective	3.0
(UG) ENSS elective	3.0	(UG) Diversity elective	3.0 (UG) Diversity elective	3.0
(UG) Free elective	3.0		(UG) Free elective	3.0
	17	16	16	17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 317 or 320	3.0 ENVS 308	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
PBHL 101	3.0 PSCI 284	4.0		
PHIL 340 or 341	3.0 SOC 242	4.0		
SOC 241	4.0 (UG) Free electives	4.0		
(UG) Humanities/ Fine Arts elective	3.0			
	16	15	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENSS 346	4.0 ENVS 442	2.0 ENVS 443	2.0 Student Classified as Graduate	
ENVS 441	2.0 (UG) ENSS elective	3.0 (UG) ENSS elective	3.0	
PSCI 338	3.0 (UG) Social Science/ Beahvior Elective	3.0 (UG) International elective	3.0	
(UG) ENSS elective	3.0 (UG) Free elective	4.0 (UG) Free elective	4.0	
ENVP 522 (Counts as UG Environmental Elective)	3.0 ENVP 572	3.0 ENVS 506	3.0	
GR Track Course	3.0 (GR) Track Course	3.0 (GR) Approved Elective	3.0	
	18	18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
PLCY 503	3.0 BUSN 502	3.0 ECON 616	3.0	
(GR) Approved Electives	6.0 PLCY 506	3.0 PLCY 504	3.0	
	(GR) Approved Elective	3.0 PLCY 507	3.0	
	9	9	9	
Total Credits 225				

Degree Awarded: Bachelor of Arts (BA) and Master of Business Administration (MBA)

Calendar Type: Quarter

Minimum Required Credits: 228.0

Co-op Options: One Co-op (Five Years)

About the Program

To further prepare students for careers in the international sphere, Drexel University now offers an accelerated degree that allows students to complete an accelerated bachelor's degree (BA) in Global Studies and an MBA. Students apply in their third year to Drexel's LeBow College of Business. Those accepted begin working on their MBA as they complete their BA, getting their MBA a year earlier than if they had done the two degrees separately. They also have a chance to complete an undergraduate co-op and gain valuable work experience as they go.

The Drexel BA degree prepares students for exciting international careers or at home working with diverse international populations. It prepares them by building foreign language fluency and offering a wide variety of courses in the social sciences, humanities, philosophy, hard sciences, cultural studies, and other fields. While working on their Global Studies degree, students also are encouraged to study abroad, adding to their global perspective as well as perfecting their foreign language skills. There are also many opportunities for doing co-op abroad: a chance to live overseas for six months while gaining valuable work experience and getting the opportunity to truly be part of the culture of the place where they are working. Study abroad opportunities exist in many countries in Europe, Africa, Latin America, and across Asia. Co-op abroad employers can also be found in almost any part of the world.

Added to this is the chance to get an accelerated degree with an MBA, a much-in-demand professional degree with many uses. Students interested in business, trade, accounting, and corporate careers, for example, can gain skills that make them attractive to international development agencies like the World Bank, or many government agencies, private multinational corporations, and regional companies. Students who want to work domestically can use their language and cultural skills in a wide variety of settings here, working with the diverse population within the US. A degree in Business Administration allows graduates to make a real impact on society, improving the lives of people around the world. To learn more about the Drexel LeBow MBA (<https://www.lebow.drexel.edu/academics/graduate/mba/>) please visit their website.

Drexel Global Studies students have won a wide variety of international fellowships, including Fulbright, Boren, and other US government programs. They have studied abroad in countries as diverse as France, Senegal, Equatorial Guinea, Argentina, Costa Rica, China, Japan, and Korea. They have gone on to work with the US State Department and other government agencies, with large Silicon Valley tech firms, and with private corporations and nonprofits around the world. Adding an MBA will open even more doors for students interested in making a difference at home and abroad.

Additional Information

For more information, contact:

Kate Hughes
Associate Director of Academic Partnerships
Department of Global Studies and Modern Languages
Academic Bulding 311
kfh28@drexel.edu

Global Studies BA / Business Administration MBA

Major: Global Studies

Phone: 215.895.1208

Admission Requirements

Same as regular requirements for Global Studies majors.

Degree Requirements

General Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
Global Studies Core Requirements		
GST 101	Becoming Global: Language and Cultural Context	4.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 105	Introduction to Research in Global Studies	4.0
Three 200+ level GST courses		12.0
GST 400	Senior Project in Global Studies	4.0
Language minor in Spanish, French, or Japanese, or minor in Asian Studies, European Studies, or Middle East and North Africa Studies **		24.0
Free Electives OR Concentration (Select one from below) ***		82.0-86.0
CoAS Core Requirements †		
Analyzing Cultures & Histories †		6.0-8.0
Cultivating Global Competence †		6.0-8.0
Developing Quantitative Reasoning †		6.0-8.0
Any two Math courses based on placement OR		
PHIL 111 Symbolic Logic I or PHIL 121 Symbolic Logic II		
Engaging the Natural World †		6.0-8.0
Perspectives in Diversity †		3.0-4.0
Understanding Society & Human Behavior †		6.0-8.0
MBA Requirements		
ACCT 510	Essentials of Financial Reporting	3.0
BLAW 510	Analyzing Legal Options in Decision-Making	3.0
BUSN 610	Strategic Career Management & Professional Development	3.0
or BUSN 611	Strategic Career Advancement for Professionals	
BSAN 601	Business Analytics for Managers	3.0
ECON 601	Managerial Economics	3.0
FIN 601	Corporate Financial Management	3.0
MGMT 529	Strategic Management	3.0
MKTG 601	Marketing Strategy & Planning	3.0
ORGB 511	Leading in Dynamic Environments: A Personal, Relational, and Strategic Approach	3.0
POM 601	Operations and Supply Chain Management	3.0
Experiential Requirements		
Select one from the list below:		3.0
BUSN 615	Graduate Internship	
INDS T680	Special Topics in Interdisciplinary Business	
INDS T780	Special Topics in STEM Interdisciplinary Subject	
INTB 790	International Business Seminar and Residency	
MGMT 690	Change Management Experiential Capstone	
MGMT 770	MBA Capstone	
MGMT 715	Business Consulting	
MIS 652	Business Agility and IT	
MIS 653	Design Thinking for Digital Innovations	
MKTG 627	Digital Marketing	

ORGB 620	Leading Virtual Teams
ORGB 640	Negotiations for Leaders
SMT 621	Leadership in Sport Management
TAX 715	Tax Experiential Learning
MBA Major Requirements	
Select one major from the list below:	
Graduate Free Electives	
Total Credits	

* Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

*** any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement

† See Core Curriculum List (https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/?_gl=1*shcg1p*_ga*OTM5NTEzMdc4LjE2MDYzMzg1MDM.*_ga_6KJ1PNLE19*MTY) for complete list of options. Note: any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement.

Global Justice and Human Rights Concentration

Global Justice and Human Rights Concentration Requirements		
ENGL 360 [WI]	Literature and Society	3.0
or ENGL 325	Topics in World Literature	
PHIL 335	Global Ethical Issues	3.0-4.0
or PSCI 352	Ethics and International Relations	
PSCI 150	International Politics	4.0
Select one of the following:		
PSCI 120	History of Political Thought	
PSCI 229	Theories of Justice	
PSCI 351	The United Nations in World Politics	
PSCI 353	International Human Rights	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
Global Justice and Human Rights Distribution Options		15.0
Students must complete at least 15.0 distribution credits from the approved list		
AFAS T280	Special Topics in Africana Studies	course must have a global theme
CJS 210	Race, Crime, and Justice	
CJS 260	Justice in Our Community	
CJS 261	Prison, Society and You	
CJS 262	Places of Justice	
CJS 289	Terrorism	
CJS 320	Comparative Justice Systems	
COM 360	Strategic International Communication	
COM 362	International Negotiations	
COM 375 [WI]	Grant Writing	
CULA 426	The Kitchen Garden: Summer	
or CULA 42	The Kitchen Garden: Fall	

ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 342	Economic Development
ECON 351	Resource and Environmental Economics
ENGL 325	Topics in World Literature
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance (Model Organization of American States)
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
LAW 304	Comparative Legal Institutions
LAW 312	Immigration Law
PHIL 241	Social & Political Philosophy
PHIL 335	Global Ethical Issues
PHIL 341	Environmental Philosophy
PHIL 385	Philosophy of Law
PHIL 391	Philosophy of Religion
PBHL 303	Overview of Issues in Global Health
PBHL 304	Introduction to Health & Human Rights
PSCI 120	History of Political Thought
PSCI 229	Theories of Justice
PSCI 240	Comparative Politics II
PSCI 250	American Foreign Policy
PSCI 252	Global Governance
PSCI 255	International Political Economy
PSCI 260 [WI]	Power in Protest: Social Movements in Comparative Perspective
PSCI 305	Social Development: A Global Approach
PSCI 310	Civilians in Armed Conflict
PSCI 351	The United Nations in World Politics
PSCI 352	Ethics and International Relations
PSCI 353	International Human Rights
SCTS 202	Innovation and Social Justice
SOC 210	Race, Ethnicity and Social Inequality
SOC 220	Wealth and Power
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization
SOC 346	Environmental Justice
SOC 355 [WI]	Classical Social Theory
SOC 444	Social Movements
WGST 240	Women and Society in a Global Context
WGST T280	Special Topics in Women's and Gender Studies must have a global theme
Electives	
36.0-41.0	
Total Credits	
61.0-67.0	

Global Health and Sustainability Concentration

Global Health and Sustainability Concentration Requirements

PBHL 101	Public Health 101	3.0
Select one of the following:		
PBHL 303	Overview of Issues in Global Health	
PSCI 334	Politics of Environment and Health	

SOC 244	Sociology of the Environment
SOC 340	Globalization
SOC 346	Environmental Justice
Choose one of the following English courses:	
3.0	
ENGL 300 [WI]	Literature & Science
ENGL 302	Environmental Literature
ENGL 370	Topics in Literature and Medicine
Choose one of the following Ethics courses:	
3.0	
PBHL 309	Public Health Ethics
PHIL 321	Biomedical Ethics
PHIL 340	Environmental Ethics
Global Health and Sustainability Distribution Options	
15.0	
Students must complete at least 15.0 distribution credits from the approved list	
BIO 109	Biological Diversity, Ecology & Evolution
BIO 264	Ethnobotany
CJS 373	Environmental Crime
COM 316	Campaigns for Health & Environment
COM 317 [WI]	Environmental Communication
COM 320 [WI]	Science Writing
COM 375 [WI]	Grant Writing
CULA 426	The Kitchen Garden: Summer
CULA 427	The Kitchen Garden: Fall
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 351	Resource and Environmental Economics
ENGL 300 [WI]	Literature & Science
ENGL 302	Environmental Literature
ENGL 370	Topics in Literature and Medicine
ENSS 285	Introduction to Urban Planning
ENSS 326	Cities and Sustainability
ENTP 390	Energy Entrepreneurship
ENVS 169	Environmental Science
ENVS 247	Native Plants and Sustainability
ENVS 275	The Science of Climate Change
ENVS 289	Global Warming, Biodiversity and Your Future
ENVS 328	Conservation Biology
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
HIST 287	History of Science: Ancient to Medieval
HIST 288	History of Science: Medieval to Enlightenment
HIST 289	History of Science: Enlightenment to Modernity
HIST 321	Themes in Global Environmental History
HIST 322	Empire and Environment
HSAD 312	Development of World Health Care
HSAD 316	Health Care across Cultures
NFS 345	Foods and Nutrition of World Cultures
PBHL 301	Epidemiology in Public Health
PBHL 302	History of Public Health
PBHL 303	Overview of Issues in Global Health
PBHL 304	Introduction to Health & Human Rights
PBHL 305	Women and Children: Health & Society
PBHL 306	Introduction to Community Health

PBHL 317	The World's Water	
PBHL 321	Disease Outbreak Investigations	
PBHL 333	Health Inequality	
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations	
PHIL 321	Biomedical Ethics	
PHIL 335	Global Ethical Issues	
PHIL 340	Environmental Ethics	
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 361	Philosophy of Science	
PSCI 252	Global Governance	
PSCI 284	Environmental Politics	
PSCI 305	Social Development: A Global Approach	
PSCI 334	Politics of Environment and Health	
PSCI 336	Political Economy of Climate Change	
PSCI 338	Cities and Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
PSCI 353	International Human Rights	
PSY 352	Psychology of Sustainability	
SCTS 202	Innovation and Social Justice	
SOC 235	Sociology of Health and Illness	
SOC 244	Sociology of the Environment	
SOC 313	Sociology of Global Health	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	
WGST 240	Women and Society in a Global Context	
WGST 275	Women's Health and Human Rights	
Electives		38.0-42.0
Total Credits		62.0-66.0

Global Business, Economics, and Development Concentration

Global Business, Economics, and Development Concentration Requirements		
ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
PHIL 301	Business Ethics	3.0
Select one of the following:		4.0
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	
Global Business, Economics, and Development Distribution Options		15.0
Students must complete at least 15.0 distribution credits from the approved list		
BLAW 340	International Business Law	
COM 270 [WI]	Business Communication	
COM 345	Intercultural Communication	
COM 360	Strategic International Communication	
COM 362	International Negotiations	
COM 375 [WI]	Grant Writing	
ECON 270	Using Big Data to Solve Economic and Social Problems	
ECON 301	Microeconomics	
ECON 321	Macroeconomics	
ECON 326	Economic Ideas	
[WI]		
ECON 331	International Macroeconomics	
ECON 342	Economic Development	
ECON 351	Resource and Environmental Economics	
ENGL 308 [WI]	The Literature of Business	
ENGL 325	Topics in World Literature	

ENGL 360 [WI]	Literature and Society	
ENTP 270	Social Entrepreneurship	
ENTP 370	Global Entrepreneurship	
ENTP 375	3BL - Triple Bottom Line	
ENTP 390	Energy Entrepreneurship	
FIN 301	Introduction to Finance	
FIN 346	Global Financial Management	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
GST T380	Special Topics in Global Studies	
HIST 315	History of Capitalism	
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	
INTB 338	Regional Studies in Economic Policies and International Business	
MGMT 370	For-Profit Business Consulting	
MGMT 371	Nonprofit Business Consulting	
MGMT 380	International Business Consulting	
MKTG 201	Introduction to Marketing Management	
MKTG 322	Advertising & Integrated Marketing Communications	
MKTG 351	Marketing for Non-Profit Organizations	
MKTG 357	Global Marketing	
PSCI 255	International Political Economy	
PSCI 336	Political Economy of Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
SOC 220	Wealth and Power	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 355 [WI]	Classical Social Theory	
SOC 410	Imagining Multiple Democracies	
STAT 201	Introduction to Business Statistics	
STAT 202	Business Statistics II	
WGST 240	Women and Society in a Global Context	
Electives		35.0-39.0
Total Credits		65.0-69.0

Global Media, Arts, and Cultures Concentration

Global Media, Arts, and Cultures Concentration Requirements		
ENGL 325	Topics in World Literature	3.0
LING 102	Language and Society	3.0
or ENGL 323	Literature and Other Arts	
PHIL 305	Ethics and the Media	3.0
Select one of the following:		3.0
ARTH 301	Asian Art and Culture	
ARTH 302	Art of India	
ARTH 304	Art of Japan	
ARTH 312	Early Modernism (1850-1900)	
ARTH 313	20th Century Modernism	
ARTH 314	Contemporary Art	

ARTH 315	History of African-American Art
ARTH 316	African Art
ARTH 318	Latin American Art
Global Media, Arts, and Cultures Distribution Options	
15.0	
Students must complete at least 15.0 distribution credits from the approved list	
ANTH 330	Media Anthropology
ANTH 375	Digital Ethnography
ARCH 141	Architecture and Society I
ARTH 331 [WI]	Global Material Culture
COM 200	Current Events in Media and Communication
COM 210	Theory and Models of Communication
COM 246	Media and Identity
COM 250	Diversity in Media
COM 342	English Worldwide
COM 345	Intercultural Communication
COM 355	Ethnography of Communication
COM 360	Strategic International Communication
COM 375 [WI]	Grant Writing
COM 376	Nonprofit Communication
COM 377	Communication for Civic Engagement
COM 385	Media Effects
CULA 405 [WI]	Culture and Gastronomy I
ENGL 200 [WI]	Classical to Medieval Literature
ENGL 201	Renaissance to the Enlightenment
ENGL 203 [WI]	Survey of World Literature
ENGL 204	Post-Colonial Literature
ENGL 300 [WI]	Literature & Science
ENGL 323	Literature and Other Arts
ENGL 325	Topics in World Literature
ENGL 335	Mythology
ENGL 355 [WI]	Women and Literature
ENGL 360 [WI]	Literature and Society
FMST T280	Special Topics in Film Studies
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
MUSC 130	Introduction to Music
MUSC 331	World Musics
MUSC 333	Afro-American Music USA
PHIL 211	Metaphysics: Philosophy of Reality
PHIL 231	Aesthetics: Philosophy of Art
PHIL 241	Social & Political Philosophy
PHIL 335	Global Ethical Issues
PHIL 391	Philosophy of Religion
PSCI 120	History of Political Thought
PSCI 335	Political Communication
SOC 210	Race, Ethnicity and Social Inequality
SOC 340	Globalization
WEST 100	Introduction to Digital Design Tools
WGST 240	Women and Society in a Global Context
WRIT 310	Literary Editing & Publication

Electives	40.0-44.0
Total Credits	67.0-71.0

MBA Major Requirements

Students select one major from the following:

Major: Applied AI in Business

Select three (3) of the following:	9.0
BSAN 620	Data-driven AI for Management Decisions
INDS 605	Human Plus: Augmenting Decision Intelligence through AI
INDS T780	Special Topics in STEM Interdisciplinary Subject
MGMT 610	Artificial Intelligence in Strategic Decision Making
Total Credits	9.0

Major: Accounting Analytics

Required Courses	
Select three from the following:	9.0
ACCT 655	Data Analytics & Technology in Accounting
ACCT 665	Financial Statement Analysis
ACCT 635	Strategy & the Master Budgeting Process
TAX 660	Tax and Business Strategy
Total Credits	9.0

Major: Business Analytics

Select three of the following:	9.0
Any STAT course numbers 602-699	
Any BSAN course numbers 602-699	
MIS 612	Aligning Information Systems and Business Strategies
MIS 624	Systems Analysis & Design
MIS 630	Inter-Active Decision Support Systems
MIS 632	Database Analysis and Design for Business
MKTG 606	Customer Analytics
MKTG 607	Marketing Experiments
OPR 601	Managerial Decision Models and Simulation
Total Credits	9.0

Major: General Business

Select 9.0 credits from the same subject code from the following 500-700 level courses:	9.0
Any ACCT (Accounting)	
Any BLAW (Legal Studies)	
Any BUSN (General Business)	
Any ECON (Economics)	
Any FIN (Finance)	
Any INDS (Interdisciplinary Business)	
Any INTB (International Business)	
Any MGMT (Management)	
Any MIS (Management Information Systems)	
Any MKTG (Marketing)	
Any OPR (Operations Research)	
Any ORGB (Organizational Behavior)	
Any POM (Production Operations Management)	
Any SMT (Sport Management)	
Any STAT (Business Statistics)	
Any TAX (Taxation)	
Total Credits	9.0

Major: Project Management

Required Courses

PROJ 501	Introduction to Project Management	3.0
Select two of the following:		6.0
PROJ 502	Project Planning & Scheduling	
PROJ 510	Project Quality Management	
PROJ 515	Project Estimation & Cost Management	
PROJ 520	Project Risk Assessment & Management	
Total Credits		9.0

Major: Finance

Select three of the following:	9.0
Any FIN course numbers 602-699	
Total Credits	9.0

Major: Marketing Technology & Analytics

Select three of the following:		9.0
MKTG 606	Customer Analytics	
MKTG 607	Marketing Experiments	
MKTG 621	Marketing Technology and Automation	
MKTG 622	Buyer Behavior Theory	
MKTG 627	Digital Marketing	
MKTG 652	Marketing Information Management and Research	
Total Credits		9.0

Major: Marketing

Any MKTG course numbers 500-799	9.0
Total Credits	9.0

Major: Technology & Innovation Management

Required Courses

MGMT 603	Technology Strategy	3.0
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Electives

Select two of the following:		6.0
MGMT 600	Introduction to Change Management: An Integration of Macro and Micro Perspectives	
MGMT 602	Innovation Management	
MGMT 604	Strategic Change Management	
MGMT 610	Artificial Intelligence in Strategic Decision Making	
MGMT 640	Strategic Human Resource Management	
MGMT 655	Knowledge Management	
MGMT 676	Sustainability and Value Creation	
MGMT 680	Leading for Innovation	
MGMT 686	Strategy Implementation	
MGMT 690	Change Management Experiential Capstone	
MIS 641	MIS Policy and Strategy	
MKTG 638	New Product Planning, Strategy, and Development	
ORGB 602	Leading and Executing Change	
ORGB 640	Negotiations for Leaders	
Total Credits		9.0

Major: Corporate Sustainability and Social Impact

Choose three of the following		9.0
BLAW 620	Legal Aspects of Employment	
ENTP 535	Social Entrepreneurship	
ENTP 601	Social and Sustainable Innovation	
FIN 610	Corporate Governance	

INDS 601	Corporate Sustainability for Managers	
MGMT 670	Business Ethics	
MGMT 676	Sustainability and Value Creation	
MKTG 620	Social Impact Marketing	
POM 642	Sustainable Supply Chain Management and Logistics	
Total Credits		9.0

Major: Leadership

Choose three of the following		9.0
MGMT 610	Artificial Intelligence in Strategic Decision Making	
MGMT 660	Leading the Digital Supply Chain	
MGMT 670	Business Ethics	
MGMT 676	Sustainability and Value Creation	
MGMT 680	Leading for Innovation	
ORGB 620	Leading Virtual Teams	
ORGB 640	Negotiations for Leaders	
Total Credits		9.0

Major: Customized

Students can self customize a major with coordination between their program manager and with faculty guidance. Please see your Program Manager/Academic Advisor for further information

Select 9.0 credits from any subject code from the following 500-700 level courses:	9.0
Any ACCT (Accounting)	
Any BLAW (Legal Studies)	
Any BUSN (General Business)	
Any ECON (Economics)	
Any FIN (Finance)	
Any INDS (Interdisciplinary Business)	
Any INTB (International Business)	
Any MGMT (Management)	
Any MIS (Management Information System)	
Any MKTG (Marketing)	
Any ORGB (Organizational Behavior)	
Any OPR (Operations Research)	
Any POM (Production Operations Management)	
Any SMT (Sport Management)	
Any STAT (Business Statistics)	
Any TAX (Taxation)	
Total Credits	9.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses

with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 CIVC 101	1.0 VACATION	
GST 101	4.0 GST 102	4.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 (UG) Language course	4.0 (UG) Language course	4.0	
(UG) Language course	4.0 Developing Quantitative Reasoning	3.0-4.0 GST 105	4.0	
Developing Quantitative Reasoning	3.0-4.0	Understanding Society & Human Behavior	3.0-4.0	
15-16		14-15	15-16	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
GST 200+ course	4.0 (UG) Free Elective or Concentration course	9.0 (UG) GST 200+ course	4.0 COOP 101	1.0
(UG) Free Elective or Concentration course	6.0 Engaging the Natural World	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 (UG) Free Elective or Concentration course	12.0
(UG) Language course	4.0 Analyzing Cultures & Histories	3.0-4.0 (UG) Free Elective or Concentration course	6.0 Engaging the Natural World	3.0-4.0
Understanding Society & Human Behavior	3.0-4.0	(UG) Language course	4.0	
17-18		15-17	17-18	16-17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Cultivating Global Competence	3.0-4.0 (UG) Free Elective or Concentration course	12.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Free Elective or Concentration course	6.0 Cultivating Global Competence	3.0-4.0		
(UG) Language course	4.0			
Perspective in Diversity	3.0-4.0			
16-18		15-16	0	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
UNIV H201	1.0 GST 400	4.0 (UG) Free Elective or Concentration course	13.0 Undergrad degree awarded	
(UG) GST 200+ course	4.0 (UG) Free Elective or Concentration course	9.0 ECON 601	3.0 Student converts to Grad status	
(UG) Free Elective or Concentration course	9.0 BSAN 601	3.0		
ACCT 510	3.0			
17		16	16	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MGMT 529	3.0 BLAW 510	3.0 (GR) Major Requirement	6.0 BUSN 610 or 611	3.0
MKTG 601	3.0 FIN 601	3.0 (GR) Elective	3.0 (GR) Experiential Elective	3.0
ORGB 511	3.0 (GR) Major Requirement	3.0	(GR) Elective	3.0
POM 601	3.0			
12		9	9	9
Total Credits 228-239				

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Global Studies BA / Public Health MPH

Major: Global Studies and Public Health

Degrees Awarded: Bachelor of Arts (BA) and Master of Public Health (MPH)

Calendar Type: Quarter

Minimum Required Credits: 236.0

Co-op Options: One Co-op (Five Years)

About the Program

To further prepare students for careers in the international sphere, Drexel University now offers an accelerated degree that allows students to complete an accelerated Bachelor's Degree (BA) in Global Studies and a Master's in Public Health (MPH). Students apply in their third year to Drexel's Dornsife School of Public Health; those accepted begin working on their MPH as they complete their BA, getting their MPH a year earlier than if they had done the two degrees separately. They also have a chance to complete an undergraduate co-op and gain valuable work experience as they go.

The Drexel BA degree prepares students for exciting international careers or at home working with diverse international populations. It prepares them by building foreign language fluency and offering a wide variety of courses in the social sciences, humanities, philosophy, hard sciences,

cultural studies, and many other fields. While working on their Global Studies degree, students also are encouraged to study abroad, adding to their global perspective as well as perfecting their foreign language skills. There are also many opportunities for doing co-op abroad: a chance to live overseas for six months while gaining valuable work experience and getting a chance to truly be part of the culture of the place where they are working. Study abroad opportunities exist in many countries in Europe, Africa, Latin America, and across Asia; co-op abroad employers can also be found in almost any part of the world.

Added to this is the chance to get an accelerated degree in Public Health, a much-in-demand professional degree with many uses. Students interested in global public health, for example, can gain skills that make them attractive to international development agencies, the UN, or many international charitable organizations. Students who want to work domestically can use their language and cultural skills in a wide variety of settings here, working with the diverse population within the US. A degree in public health allows people to make a real impact on society, improving the lives of people around the world.

Drexel Global Studies students have won a wide variety of international fellowships including Fulbright, Boren, and other US government programs. They have studied abroad in countries as diverse as France, Senegal, Equatorial Guinea, Argentina, Costa Rica, China, Japan, and South Korea. They have gone on to work with the US State Department and other government agencies, with large Silicon Valley tech firms, and with private corporations around the world. Adding an MPH will open even more doors for students interested in really making a difference at home and abroad.

Additional Information

For more information, contact:

Kate Hughes
Associate Director of Academic Partnerships
Department of Global Studies and Modern Languages
Academic Building 311
kfh28@drexel.edu
Phone: 215.895.1208

Admission Requirements

Undergraduate admissions are determined by Enrollment Management/Admissions (<http://drexel.edu/admissions/overview/>).

MPH requirements are set by the School of Public Health. Eligible students must:

- Be enrolled in the 4COP undergraduate program
- Maintain a minimum overall GPA of at least 3.25
- Be able to take undergraduate and graduate coursework during their senior year
- Complete the pre-requisite courses necessary for admission (determined by the School of Public Health) into the MPH program with no lower than a "C" grade
- Obtain one written recommendation from a faculty member and one from an advisor, supervisor or mentor
- Complete the online School of Public Health application to the MPH program at the Dornsife School of Public Health in their junior year
- Complete an interview with a Dornsife faculty member

Degree Requirements

Required Courses:

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

CoAS Core Requirements

Analyzing Cultures & Histories **	6.0-8.0
Developing Quantitative Reasoning **	6.0-8.0
Any two Math courses based on placement OR PHIL 111 Symbolic Logic I or PHIL 121 Symbolic Logic II	
Cultivating Global Competence **	6.0-8.0
Engaging the Natural World **	6.0-8.0
Perspectives in Diversity **	3.0-4.0
Understanding Society & Human Behavior **	6.0-8.0

Global Studies Core Courses

GST 101	Becoming Global: Language and Cultural Context	4.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 105	Introduction to Research in Global Studies	4.0
Three 200+ level GST courses		12.0
GST 400	Senior Project in Global Studies	4.0

Language minor in Spanish, French, or Japanese, or minor in Asian Studies, European Studies, or Middle East and North Africa Studies

Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.

Free Electives OR Concentration (Select one from the list below) ***

82.0-86.0

Graduate Coursework

MPH Core Requirements

BST 571	Introduction to Biostatistics	3.0
EPI 570	Introduction to Epidemiology	3.0
HMP 505	Qualitative Data and Mixed Methods Analysis	3.0
PBHL 510	Public Health Foundations and Systems I	4.0
PBHL 511	Public Health Foundations and Systems II	4.0

Applied Practical Experience

PBHL 500	Practical Experience for the Master of Public Health	0.0
MPH Major Courses, Integrative Learning Experience, and Electives/Graduate Minor †		39.0

Total Credits

236.0-251.0

*

Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum List (https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/?_gl=1*shcg1p*_ga*OTM5NTEzMDc4LjE2MDYzMzg1MDM.*_ga_6KJ1PNLE19) for a complete list of options. Note: any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement

Any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement. Recommended electives for this accelerated program: BIO 133 and PBHL 101, which is a pre-requisite for several PBHL courses.

†

Students will follow the required curriculum of their chosen MPH major.

Global Media, Arts, and Cultures Concentration

Global Media, Arts, and Cultures Concentration Requirements

ENGL 325	Topics in World Literature	3.0
LING 102	Language and Society	3.0
or ENGL 323	Literature and Other Arts	
PHIL 305	Ethics and the Media	3.0
Select one of the following:		3.0
ARTH 301	Asian Art and Culture	
ARTH 302	Art of India	
ARTH 303	Art of China	
ARTH 304	Art of Japan	
ARTH 312	Early Modernism (1850-1900)	
ARTH 313	20th Century Modernism	
ARTH 314	Contemporary Art	
ARTH 315	History of African-American Art	
ARTH 316	African Art	
ARTH 318	Latin American Art	
Global Media, Arts, and Cultures Distribution Options		15.0

Students must complete at least 15.0 distribution credits from the approved list:

ANTH 330	Media Anthropology	
ANTH 375	Digital Ethnography	
ARCH 141	Architecture and Society I	
ARTH 331 [WI]	Global Material Culture	
COM 200	Current Events in Media and Communication	
COM 210	Theory and Models of Communication	
COM 246	Media and Identity	
COM 250	Diversity in Media	
COM 342	English Worldwide	
COM 345	Intercultural Communication	
COM 355	Ethnography of Communication	
COM 360	Strategic International Communication	
COM 375 [WI]	Grant Writing	
COM 376	Nonprofit Communication	
COM 377	Communication for Civic Engagement	
COM 385	Media Effects	
CULA 405 [WI]	Culture and Gastronomy I	
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 300 [WI]	Literature & Science	
ENGL 323	Literature and Other Arts	
ENGL 325	Topics in World Literature	
ENGL 335	Mythology	

ENGL 355 [WI] Women and Literature

ENGL 360 [WI] Literature and Society

FMST T280 Special Topics in Film Studies

GST 221 Introduction to Global Capital and Development

GST 231 Introduction to Identities and Communities

GST 241 Introduction to Power and Resistance

GST 251 Introduction to Global Media, Arts, and Cultures

GST 261 Introduction to Global Health and Sustainability

GST 321 Advanced Studies in Global Capital and Development

GST 331 Advanced Studies in Identities and Communities

GST 341 Advanced Studies in Power and Resistance

GST 351 Advanced Studies in Global Media, Arts, and Cultures

GST 361 Advanced Studies in Global Health and Sustainability

GST T280 Special Topics in Global Studies

GST T380 Special Topics in Global Studies

MUSC 130 Introduction to Music

MUSC 331 World Musics

MUSC 333 Afro-American Music USA

PHIL 211 Metaphysics: Philosophy of Reality

PHIL 231 Aesthetics: Philosophy of Art

PHIL 241 Social & Political Philosophy

PHIL 335 Global Ethical Issues

PHIL 391 Philosophy of Religion

PSCI 120 History of Political Thought

PSCI 335 Political Communication

SOC 210 Race, Ethnicity and Social Inequality

SOC 340 Globalization

WEST 100 Introduction to Digital Design Tools

WGST 240 Women and Society in a Global Context

WRIT 210 [WI] The Peer Reader in Context

Electives	40.0-44.0
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Total Credits	67.0-71.0
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Global Business, Economics, and Development Concentration

Global Business, Economics, and Development Concentration Requirements

ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
PHIL 301	Business Ethics	3.0
Select one of the following:		4.0
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	

Global Business, Economics, and Development Distribution Options	15.0
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Students must complete at least 15.0 distribution credits from the approved list below:

BLAW 340	International Business Law	
COM 270 [WI]	Business Communication	
COM 345	Intercultural Communication	
COM 360	Strategic International Communication	
COM 362	International Negotiations	
COM 375 [WI]	Grant Writing	
ECON 270	Using Big Data to Solve Economic and Social Problems	
ECON 301	Microeconomics	
ECON 321	Macroeconomics	
ECON 326	Economic Ideas	
[WI]		
ECON 331	International Macroeconomics	
ECON 342	Economic Development	
ECON 351	Resource and Environmental Economics	
ENGL 308 [WI]	The Literature of Business	

ENGL 325	Topics in World Literature
ENGL 360 [WI]	Literature and Society
ENTP 270	Social Entrepreneurship
ENTP 370	Global Entrepreneurship
ENTP 375	3BL - Triple Bottom Line
ENTP 390	Energy Entrepreneurship
FIN 301	Introduction to Finance
FIN 346	Global Financial Management
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
HIST 315	History of Capitalism
INTB 332	Multinational Corporations
INTB 334	International Trade
INTB 336	International Money and Finance
INTB 338	Regional Studies in Economic Policies and International Business
MGMT 370	For-Profit Business Consulting
MGMT 371	Nonprofit Business Consulting
MGMT 380	International Business Consulting
MKTG 201	Introduction to Marketing Management
MKTG 322	Advertising & Integrated Marketing Communications
MKTG 351	Marketing for Non-Profit Organizations
MKTG 357	Global Marketing
PSCI 255	International Political Economy
PSCI 336	Political Economy of Climate Change
PSCI 351	The United Nations in World Politics
PSCI 352	Ethics and International Relations
SOC 220	Wealth and Power
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization
SOC 355 [WI]	Classical Social Theory
SOC 410	Imagining Multiple Democracies
STAT 201	Introduction to Business Statistics
STAT 202	Business Statistics II
WGST 240	Women and Society in a Global Context
Electives	35.0-39.0
Total Credits	65.0-69.0

Global Health and Sustainability Concentration

Global Health and Sustainability Concentration Requirements	
PBHL 101	Public Health 101 3.0
Select one of the following:	
PBHL 303	Overview of Issues in Global Health
PSCI 334	Politics of Environment and Health
SOC 244	Sociology of the Environment
SOC 340	Globalization
SOC 346	Environmental Justice
Choose one of the following English classes:	
ENGL 300 [WI]	Literature & Science 3.0
ENGL 302	Environmental Literature

ENGL 370	Topics in Literature and Medicine
Choose one of the following Ethics courses:	
PBHL 309	Public Health Ethics 3.0
PHIL 321	Biomedical Ethics
PHIL 340	Environmental Ethics
Global Health and Sustainability Distribution Options	
Students must complete at least 15.0 distribution credits from the approved list:	
BIO 109	Biological Diversity, Ecology & Evolution
BIO 264	Ethnobotany
CJS 373	Environmental Crime
COM 316	Campaigns for Health & Environment
COM 317 [WI]	Environmental Communication
COM 320 [WI]	Science Writing
COM 375 [WI]	Grant Writing
CULA 426	The Kitchen Garden: Summer
CULA 427	The Kitchen Garden: Fall
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 351	Resource and Environmental Economics
ENGL 300 [WI]	Literature & Science
ENGL 302	Environmental Literature
ENGL 370	Topics in Literature and Medicine
ENSS 285	Introduction to Urban Planning
ENSS 326	Cities and Sustainability
ENTP 390	Energy Entrepreneurship
ENVS 169	Environmental Science
ENVS 247	Native Plants and Sustainability
ENVS 275	The Science of Climate Change
ENVS 289	Global Warming, Biodiversity and Your Future
ENVS 328	Conservation Biology
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
HIST 287	History of Science: Ancient to Medieval
HIST 288	History of Science: Medieval to Enlightenment
HIST 289	History of Science: Enlightenment to Modernity
HIST 321	Themes in Global Environmental History
HIST 322	Empire and Environment
HSAD 312	Development of World Health Care
HSAD 316	Health Care across Cultures
NFS 345	Foods and Nutrition of World Cultures
PBHL 301	Epidemiology in Public Health
PBHL 302	History of Public Health
PBHL 303	Overview of Issues in Global Health
PBHL 304	Introduction to Health & Human Rights
PBHL 305	Women and Children: Health & Society
PBHL 306	Introduction to Community Health
PBHL 317	The World's Water
PBHL 321	Disease Outbreak Investigations
PBHL 333	Health Inequality
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations
PHIL 321	Biomedical Ethics

PHIL 335	Global Ethical Issues	
PHIL 340	Environmental Ethics	
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 361	Philosophy of Science	
PSCI 252	Global Governance	
PSCI 284	Environmental Politics	
PSCI 305	Social Development: A Global Approach	
PSCI 334	Politics of Environment and Health	
PSCI 336	Political Economy of Climate Change	
PSCI 338	Cities and Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
PSCI 353	International Human Rights	
PSY 352	Psychology of Sustainability	
SCTS 202	Innovation and Social Justice	
SOC 235	Sociology of Health and Illness	
SOC 313	Sociology of Global Health	
SOC 244	Sociology of the Environment	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	
WGST 240	Women and Society in a Global Context	
WGST 275	Women's Health and Human Rights	
Electives		38.0-42.0
Total Credits		62.0-66.0

Global Justice and Human Rights Concentration

Global Justice and Human Rights Concentration Requirements

ENGL 360 [WI]	Literature and Society	3.0
or ENGL 325	Topics in World Literature	
PHIL 335	Global Ethical Issues	3.0-4.0
or PSCI 352	Ethics and International Relations	
PSCI 150	International Politics	4.0

Select one of the following:

PSCI 120	History of Political Thought
PSCI 229	Theories of Justice
PSCI 351	The United Nations in World Politics
PSCI 353	International Human Rights
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization

Global Justice and Human Rights Distribution Options **15.0**

Students must complete at least 15.0 credits from the list below:

AFAS T280	Special Topics in Africana Studies (Must have global theme)
CJS 210	Race, Crime, and Justice
CJS 260	Justice in Our Community
CJS 261	Prison, Society and You
CJS 262	Places of Justice
CJS 289	Terrorism
CJS 320	Comparative Justice Systems
COM 360	Strategic International Communication
COM 362	International Negotiations
COM 375 [WI]	Grant Writing
CULA 426	The Kitchen Garden: Summer
or CULA 42	The Kitchen Garden: Fall
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 342	Economic Development
ECON 351	Resource and Environmental Economics
ENGL 325	Topics in World Literature

GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
GST T380	Special Topics in Global Studies	
LAW 304	Comparative Legal Institutions	
LAW 312	Immigration Law	
PHIL 241	Social & Political Philosophy	
PHIL 335	Global Ethical Issues	
PHIL 341	Environmental Philosophy	
PHIL 385	Philosophy of Law	
PHIL 391	Philosophy of Religion	
PBHL 303	Overview of Issues in Global Health	
PBHL 304	Introduction to Health & Human Rights	
PSCI 120	History of Political Thought	
PSCI 229	Theories of Justice	
PSCI 240	Comparative Politics II	
PSCI 250	American Foreign Policy	
PSCI 252	Global Governance	
PSCI 255	International Political Economy	
PSCI 260 [WI]	Power in Protest: Social Movements in Comparative Perspective	
PSCI 305	Social Development: A Global Approach	
PSCI 310	Civilians in Armed Conflict	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
PSCI 353	International Human Rights	
SCTS 202	Innovation and Social Justice	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 220	Wealth and Power	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	
SOC 355 [WI]	Classical Social Theory	
SOC 444	Social Movements	
WGST 240	Women and Society in a Global Context	
WGST T280	Special Topics in Women's and Gender Studies (Course must have a global theme)	
Electives		36.0-41.0
Total Credits		61.0-67.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments->

centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 ENGL 102 or 112	3.0 CIVC 101	1.0 VACATION	
GST 101	4.0 GST 102	4.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 Developing Quantitative Reasoning	3.0-4.0 GST 105	4.0	
Developing Quantitative Reasoning	3.0-4.0 Language course	4.0 Language course	4.0	
Language course	4.0	Understanding Society & Human Behavior	3.0-4.0	
	15-16	14-15	15-16	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
GST 200+ course	4.0 COOP 101*	1.0 Analyzing Cultures & Histories	3.0-4.0 (UG) Free Elective or Concentration course	12.0
(UG) Free Elective or Concentration course	9.0 Analyzing Cultures & Histories	3.0-4.0 GST 200+ level course	4.0 Engaging the Natural World	3.0-4.0
Language course	4.0 Engaging the Natural World	3.0-4.0 (UG) Free Elective or Concentration course	6.0	
	(UG) Free Elective or Concentration course	11.0 Language course	4.0	
	17	18-20	17-18	15-16

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COOP EXPERIENCE	COOP EXPERIENCE	Cultivating Global Competence	3.0-4.0 Cultivating Global Competence	3.0-4.0
EPI 570	3.0 BST 571	3.0 Language course	4.0 (UG) Free Elective or Concentration course	13.0
		Perspectives in Diversity	3.0-4.0	
		Understanding Society & Human Behavior	3.0-4.0	

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
UNIV H201	1.0 GST 400	4.0 (UG) Free Elective or Concentration course	12.0 Student converts to Graduate status	
GST 200+ course	4.0 (UG) Free Elective or Concentration course	9.0 (GR) MPH Discipline Specific course	3.0 PBHL 500	0.0
(UG) Free Elective or Concentration course	10.0 PBHL 511	4.0 (GR) MPH Elective	3.0	
PBHL 510	4.0			
	19	17	18	0

Fifth Year			
Fall	Credits Winter	Credits Spring	Credits
(GR) Integrative Learning Experience I	3.0 (GR) Integrative Learning Experience II	3.0 (GR) MPH Discipline Specific courses	6.0
(GR) MPH Discipline specific course	3.0 (GR) MPH Discipline Specific course	3.0 (GR) MPH elective	3.0
(GR) MPH electives	6.0 (GR) MPH electives	6.0	
	12	12	9

Total Credits 236-247

*

Co-op cycle may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Global Studies BA / Strategic & Digital Communication MS

Major: Global Studies and Strategic and Digital Communication Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five years)

About the Program

The accelerated BA in Global Studies provides students with an interdisciplinary, intercultural, and interactive program with four concentrations: media, arts and cultures; justice and human rights; business, economics, and development; and health and sustainability. Global Studies students develop the critical skills to understand global political, social, and economic trends, while the MS in Strategic and Digital Communication addition will further deepen students' practical and professional experience in the communications field.

Drexel University is committed to building a strong foundation through the accelerated Global Studies/Communication degree, which enables academically qualified students to earn both a bachelor's and master's

degree—graduating sooner than they would in traditional programs. While enrolled in the accelerated program, students can still enjoy the benefits of co-op, study abroad and other programs characteristic for the Drexel experience. Graduates of the accelerated degree enter the workforce one year sooner with the benefits of a Master's degree in Strategic and Digital Communication, using the year saved to gain full-time experience and earn a salary in the field.

Drexel's Master of Science in Strategic and Digital Communication requires 45.0 credits and prepares students for careers in a wide range of professional activities relating to communication in both media environments and communication contexts that are characterized by advanced digitization.

With a robust core curriculum consisting of seven courses (21.0 credits), the program provides a strong foundation in theoretical approaches to communication, ethics and media/communication policy. This theoretical basis is designed to ensure that, as the field changes, students will continue to have an intellectual framework for evaluating and implementing new technology and changing media environments. Furthermore, the program trains students in leadership skills that will help them to lead teams to be innovative communication professionals in digitized media environments and different organizational communication contexts.

The program emphasizes flexibility, encouraging each student, in consultation with a faculty advisor, to craft an individual course of study tailored to the student's individual interests and career goals. Throughout the curriculum students use four Communication electives (12.0 credits) to increase communication skills or to further develop areas of specialization. An additional four free elective courses (12.0 credits) can be taken in Communication or in other departments across the university. This allows students to continue to tailor their plan of study, to add on a graduate minor, or to complete a certificate program.

In order to gain valuable practical experience outside the classroom, students are expected to complete the equivalent of a six-month, full-time, non-credit bearing internship. To complete the internship component, students can either enroll in Drexel's undergraduate coop program, or they can work in one or several full-time or part-time communication positions of their choosing. Students entering the program already possessing significant communication-related experience and thereby meeting the internship requirement can apply for an internship waiver. The program director works with each student on an individual basis to see what option best meets their needs.

The program specializes in two areas:

- Strategic Communication (public relations)
- Digital and Social Media Communication

Strategic Communication

Strategic Communication has much to offer for those looking to work in public relations as well as for-profit and nonprofit organizations. Students typically choose from courses such as PR Writing and Planning courses, Crisis Communication, Media Relations, Nonprofit Communication, and others.

Digital Communication

With Communication being an area characterized by ongoing digitization, the program offers courses such as Strategic Social Media

Communication, Digital Publishing, Digital Media Environments, Social Media Concepts That Matter, and others.

Additional Information

For more information, visit the MS in Strategic and Digital Communication webpage (<https://drexel.edu/coas/academics/graduate-programs/communication/>).

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Admission Requirements

Both incoming freshmen and current GST students are eligible to apply for this program. Students who are already matriculated may apply after completing a minimum of 90.0 credits but no more than 120.0 credits. Applicants must have a minimum 3.0 GPA and maintain this GPA throughout the program.

In addition to formally applying, **already matriculated applicants** must provide:

- The name of two faculty references who can speak to the applicant's academic qualifications and preparedness for graduate studies.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.
- A brief 2-3-minute video in which the applicant introduces himself/herself to the admissions committee and discusses their career goals.

Applicants who already received preliminary acceptance in the accelerated degree program as freshmen should finish the application process after completing a minimum of 90.0 undergraduate credits but no more than 120.0 credits with a GPA of 3.0. Students accepted as **incoming freshmen** need to submit:

- The name of one faculty reference who can speak to the applicant's academic qualifications and preparedness for graduate studies. The admissions committee might request the name of a second reference as needed.
- A writing sample consisting of a written response to a series of questions about the applicant's interest in the program.

Applications are due by the end of week 6 for a program start in the following quarter. Example: If you intend to start the program in the Winter quarter, your application is due by the end of week 6 in the Fall quarter. Please reach out to the program director, Dr. Julia May, as soon as you decide to apply so we can assist you throughout the application process.

Additional Information

Contact Julia May, Director of the MS in Strategic and Digital Communication program, at julia.may@drexel.edu for more information.

Degree Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0

or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
CoAS Core Requirements		
Analyzing Cultures & Histories	**	6.0-8.0
Cultivating Global Competence	**	6.0-8.0
Developing Quantitative Reasoning	**	6.0-8.0
Any two Math courses based on placement OR		
PHIL 111	Symbolic Logic I	
or PHIL 121 Symbolic Logic II		
Engaging the Natural World	**	6.0-8.0
Perspectives in Diversity	**	3.0-4.0
Understanding Society & Human Behavior	**	6.0-8.0
Global Studies Core Requirements		
GST 101	Becoming Global: Language and Cultural Context	4.0
GST 102	Understanding Global: Markets and Governance	4.0
GST 105	Introduction to Research in Global Studies	4.0
Three 200+ level GST courses		12.0
GST 400	Senior Project in Global Studies	4.0
Language minor in Spanish, French, or Japanese, or minor in Asian Studies, European Studies, or Middle East and North Africa Studies		24.0
Students must complete at least 24.0 credits above the 103 language level to earn a language minor. Language courses could count towards free electives in some instances; consult with an advisor.		
Free Electives OR Concentration (Select one) ***		82.0-86.0
See additional concentration options below		
MS Strategic & Digital Communication		
Required Core Courses		
COM 500	Reading & Research in Communication	3.0
COM 574	Organizational Communication in Project Management	3.0
COM 610	Theories of Communication and Persuasion	3.0
COM 613	Ethics for Professional Communication	3.0
COM 615	Media Environments in a Digital World	3.0
COM 651	Media and Communication Policy in a Digitized World	3.0
COM 698	Managing Communication Professionals' Identities in a Digital Age	3.0
Program Electives		12.0
Choose four of the following courses:		
COM 516	Campaigns for Health and Environment	
COM 518	Communicating Health and Risk in a 'Fake News' World	
COM 520	Science Writing	
COM 525	Document Design and Usability	
COM 533	Modern Desktop Publishing	
COM 535	Digital Publishing	
COM 536	Strategic Social Media Communication	
COM 538	Copy Editing	
COM 541	Foundations of Public Relations	
COM 542	Public Relations Writing	
COM 543	Public Relations Planning	
COM 544	Media Relations in a Digital Age	
COM 545	Crisis Communication	
COM 551	Creative Content Production	
COM 561	Fundamentals of Journalism & Newswriting	
COM 562	International Negotiations	
COM 563	Event Planning	
COM 575	Grant Writing	
COM 576	Nonprofit Communication	
COM 577	Communication for Civic Engagement	
COM 578	Focus Groups	
COM 586	Strategic International Communication	
COM 600	Graduate Seminar in Communication	
COM 614	Social Media Concepts that Matter	

COM 660	Investigative Journalism	
COM I599	Independent Study in Communication	
COM I699	Independent Study in Communication	
COM T580	Special Topics in Communication	
COM T680	Special Topics in Communication	
Graduate Electives [†]		12.0
Total Credits		225.0-240.0

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

See Core Curriculum List (https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/?_gl=1*shcg1p*_ga*OTM5NTEzMdc4LjE2MDYzMzg1MDM.*_ga_6KJ1PNLE19*MTY) for complete list of options. Note: any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement

any required or elective concentration course cannot also be used to fulfill a CoAS Core requirement

†

Students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas: AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EDAM, EDHE, EDLT, EDUC, ENTP, ENVP, ENV5, EOH, HMP, HRM, LING, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRП, SCTS, SMT, TVMN. Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director.

Concentration Options

Global Media, Arts, and Cultures Concentration

Global Media, Arts and Cultures Concentration Requirements		
ENGL 325	Topics in World Literature	3.0
LING 102	Language and Society	3.0
or ENGL 323 Literature and Other Arts		
PHIL 305	Ethics and the Media	3.0
Select one of the following:		3.0
ARTH 301	Asian Art and Culture	
ARTH 302	Art of India	
ARTH 303	Art of China	
ARTH 304	Art of Japan	
ARTH 312	Early Modernism (1850-1900)	
ARTH 313	20th Century Modernism	
ARTH 314	Contemporary Art	
ARTH 315	History of African-American Art	
ARTH 316	African Art	
ARTH 318	Latin American Art	
Global Media, Arts, and Cultures Distribution Options		15.0
Students must complete at least 15.0 distribution credits from the approved list		
ANTH 330	Media Anthropology	
ANTH 375	Digital Ethnography	
ARCH 141	Architecture and Society I	
ARTH 331 [W]	Global Material Culture	
COM 200	Current Events in Media and Communication	

COM 210	Theory and Models of Communication	
COM 240	New Technologies In Communication	
COM 250	Diversity in Media	
COM 342	English Worldwide	
COM 345	Intercultural Communication	
COM 355	Ethnography of Communication	
COM 360	Strategic International Communication	
COM 375 [WI]	Grant Writing	
COM 376	Nonprofit Communication	
COM 377	Communication for Civic Engagement	
COM 385	Media Effects	
CULA 405 [WI]	Culture and Gastronomy I	
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 300 [WI]	Literature & Science	
ENGL 323	Literature and Other Arts	
ENGL 325	Topics in World Literature	
ENGL 355 [WI]	Women and Literature	
ENGL 360 [WI]	Literature and Society	
FMST T280	Special Topics in Film Studies	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
MUSC 130	Introduction to Music	
MUSC 331	World Musics	
MUSC 333	Afro-American Music USA	
PHIL 211	Metaphysics: Philosophy of Reality	
PHIL 231	Aesthetics: Philosophy of Art	
PHIL 241	Social & Political Philosophy	
PHIL 335	Global Ethical Issues	
PHIL 391	Philosophy of Religion	
PSCI 120	History of Political Thought	
PSCI 335	Political Communication	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 340	Globalization	
WEST 100	Introduction to Digital Design Tools	
WGST 240	Women and Society in a Global Context	
WRIT 310	Literary Editing & Publication	
Electives		40.0-44.0
Total Credits		67.0-71.0

Global Business, Economics, and Development Concentration

Global Business, Economics, and Development Concentration Requirements

ECON 201	Principles of Microeconomics	4.0
ECON 202	Principles of Macroeconomics	4.0
PHIL 301	Business Ethics	3.0
Select one of the following:		4.0
INTB 332	Multinational Corporations	
INTB 334	International Trade	
INTB 336	International Money and Finance	
Global Business, Economics, and Development Distribution Options		15.0

Students must complete at least 15.0 distribution credits from the approved list	
BLAW 340	International Business Law
COM 270 [WI]	Business Communication
COM 345	Intercultural Communication
COM 360	Strategic International Communication
COM 362	International Negotiations
COM 375 [WI]	Grant Writing
ECON 270	Using Big Data to Solve Economic and Social Problems
ECON 301	Microeconomics
ECON 321	Macroeconomics
ECON 326 [WI]	Economic Ideas
ECON 331	International Macroeconomics
ECON 342	Economic Development
ECON 351	Resource and Environmental Economics
ENGL 308 [WI]	The Literature of Business
ENGL 325	Topics in World Literature
ENGL 360 [WI]	Literature and Society
ENTP 270	Social Entrepreneurship
ENTP 370	Global Entrepreneurship
ENTP 375	3BL - Triple Bottom Line
ENTP 390	Energy Entrepreneurship
FIN 301	Introduction to Finance
FIN 346	Global Financial Management
GST 221	Introduction to Global Capital and Development
GST 231	Introduction to Identities and Communities
GST 241	Introduction to Power and Resistance
GST 251	Introduction to Global Media, Arts, and Cultures
GST 261	Introduction to Global Health and Sustainability
GST 321	Advanced Studies in Global Capital and Development
GST 331	Advanced Studies in Identities and Communities
GST 341	Advanced Studies in Power and Resistance
GST 351	Advanced Studies in Global Media, Arts, and Cultures
GST 361	Advanced Studies in Global Health and Sustainability
GST T280	Special Topics in Global Studies
GST T380	Special Topics in Global Studies
HIST 315	History of Capitalism
INTB 332	Multinational Corporations
INTB 334	International Trade
INTB 336	International Money and Finance
INTB 338	Regional Studies in Economic Policies and International Business
MGMT 370	For-Profit Business Consulting
MGMT 371	Nonprofit Business Consulting
MGMT 380	International Business Consulting
MKTG 201	Introduction to Marketing Management
MKTG 322	Advertising & Integrated Marketing Communications
MKTG 351	Marketing for Non-Profit Organizations
MKTG 357	Global Marketing
PSCI 255	International Political Economy
PSCI 336	Political Economy of Climate Change
PSCI 351	The United Nations in World Politics
PSCI 352	Ethics and International Relations
SOC 220	Wealth and Power
SOC 330	Development and Underdevelopment in the Global South
SOC 340	Globalization
SOC 355 [WI]	Classical Social Theory
SOC 410	Imagining Multiple Democracies
STAT 201	Introduction to Business Statistics
STAT 202	Business Statistics II
WGST 240	Women and Society in a Global Context

Electives	35.0-39.0
Total Credits	65.0-69.0

Global Health and Sustainability Concentration

Global Health and Sustainability Concentration Requirements		
PBHL 101	Public Health 101	3.0
Select one of the following:		
PBHL 303	Overview of Issues in Global Health	3.0
PSCI 334	Politics of Environment and Health	
SOC 244	Sociology of the Environment	
SOC 340	Globalization	
SOC 346	Environmental Justice	
Choose one of the following English Classes:		3.0
ENGL 300 [WI]	Literature & Science	3.0
ENGL 302	Environmental Literature	
ENGL 370	Topics in Literature and Medicine	
Choose one of the following Ethics courses:		3.0
PBHL 309	Public Health Ethics	3.0
PHIL 321	Biomedical Ethics	
PHIL 340	Environmental Ethics	
Global Health and Sustainability Distribution Options		15.0
Students must complete at least 15.0 distrubtion credits from the approved list		
BIO 109	Biological Diversity, Ecology & Evolution	3.0
BIO 264	Ethnobotany	
CJS 373	Environmental Crime	
COM 316	Campaigns for Health & Environment	
COM 320 [WI]	Science Writing	3.0
COM 375 [WI]	Grant Writing	
CULA 426	The Kitchen Garden: Summer	
CULA 427	The Kitchen Garden: Fall	
ECON 301	Microeconomics	3.0
ECON 321	Macroeconomics	
ECON 351	Resource and Environmental Economics	
ENGL 300 [WI]	Literature & Science	
ENGL 302	Environmental Literature	3.0
ENGL 370	Topics in Literature and Medicine	
ENSS 285	Introduction to Urban Planning	
ENSS 326	Cities and Sustainability	
ENTP 390	Energy Entrepreneurship	3.0
ENVS 169	Environmental Science	
ENVS 247	Native Plants and Sustainability	
ENVS 275	The Science of Climate Change	
ENVS 289	Global Warming, Biodiversity and Your Future	3.0
ENVS 328	Conservation Biology	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	3.0
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	3.0
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	3.0
GST T380	Special Topics in Global Studies	
HIST 287	History of Science: Ancient to Medieval	
HIST 288	History of Science: Medieval to Enlightenment	
HIST 289	History of Science: Enlightenment to Modernity	
HIST 321	Themes in Global Environmental History	

HIST 322	Empire and Environment	3.0
HSAD 312	Development of World Health Care	
HSAD 316	Health Care across Cultures	
NFS 345	Foods and Nutrition of World Cultures	
PBHL 301	Epidemiology in Public Health	3.0
PBHL 302	History of Public Health	
PBHL 303	Overview of Issues in Global Health	
PBHL 304	Introduction to Health & Human Rights	
PBHL 305	Women and Children: Health & Society	3.0
PBHL 306	Introduction to Community Health	
PBHL 317	The World's Water	
PBHL 321	Disease Outbreak Investigations	
PBHL 333	Health Inequality	3.0
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations	
PHIL 321	Biomedical Ethics	
PHIL 335	Global Ethical Issues	
PHIL 340	Environmental Ethics	3.0
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 361	Philosophy of Science	
PSCI 252	Global Governance	3.0
PSCI 284	Environmental Politics	
PSCI 305	Social Development: A Global Approach	
PSCI 334	Politics of Environment and Health	
PSCI 336	Political Economy of Climate Change	3.0
PSCI 338	Cities and Climate Change	
PSCI 351	The United Nations in World Politics	
PSCI 352	Ethics and International Relations	
PSCI 353	International Human Rights	3.0
PSY 352	Psychology of Sustainability	
SCTS 202	Innovation and Social Justice	
SOC 235	Sociology of Health and Illness	
SOC 244	Sociology of the Environment	3.0
SOC 313	Sociology of Global Health	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	3.0
WGST 240	Women and Society in a Global Context	
WGST 275	Women's Health and Human Rights	

Electives	38.0-42.0
Total Credits	62.0-66.0

Global Justice and Human Right Concentration

Global Justice and Human Rights Concentration Requirements		
ENGL 360 [WI]	Literature and Society	3.0
or ENGL 325	Topics in World Literature	3.0-4.0
PHIL 335	Global Ethical Issues	
or PSCI 352	Ethics and International Relations	
PSCI 150	International Politics	4.0
Select one of the following:		
PSCI 120	History of Political Thought	3.0
PSCI 229	Theories of Justice	
PSCI 351	The United Nations in World Politics	
PSCI 353	International Human Rights	
SOC 330	Development and Underdevelopment in the Global South	
Global Justice and Human Rights Distribution Options		15.0
Students must complete at least 15.0 distribution credits from the approved list		
AFAS T280	Special Topics in Africana Studies	3.0
CJS 210	Race, Crime, and Justice	

CJS 260	Justice in Our Community	
CJS 261	Prison, Society and You	
CJS 262	Places of Justice	
CJS 289	Terrorism	
CJS 320	Comparative Justice Systems	
COM 360	Strategic International Communication	
COM 362	International Negotiations	
COM 375 [W]	Grant Writing	
CULA 426	The Kitchen Garden: Summer	
	or CULA 427The Kitchen Garden: Fall	
ECON 301	Microeconomics	
ECON 321	Macroeconomics	
ECON 342	Economic Development	
ECON 351	Resource and Environmental Economics	
ENGL 325	Topics in World Literature	
GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
GST 321	Advanced Studies in Global Capital and Development	
GST 331	Advanced Studies in Identities and Communities	
GST 341	Advanced Studies in Power and Resistance	
GST 351	Advanced Studies in Global Media, Arts, and Cultures	
GST 361	Advanced Studies in Global Health and Sustainability	
GST T280	Special Topics in Global Studies	
GST T380	Special Topics in Global Studies	
LAW 304	Comparative Legal Institutions	
LAW 312	Immigration Law	
PBHL 303	Overview of Issues in Global Health	
PBHL 304	Introduction to Health & Human Rights	
PHIL 241	Social & Political Philosophy	
PHIL 335	Global Ethical Issues	
PHIL 341	Environmental Philosophy	
PHIL 385	Philosophy of Law	
PHIL 391	Philosophy of Religion	
PSCI 120	History of Political Thought	
PSCI 229	Theories of Justice	
PSCI 240	Comparative Politics II	
PSCI 250	American Foreign Policy	
PSCI 252	Global Governance	
PSCI 255	International Political Economy	
PSCI 260 [W]	Power in Protest: Social Movements in Comparative Perspective	
PSCI 305	Social Development: A Global Approach	
PSCI 310	Civilians in Armed Conflict	
PSCI 351	The United Nations in World Politics	
PSCI 353	International Human Rights	
SCTS 202	Innovation and Social Justice	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 220	Wealth and Power	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 346	Environmental Justice	
SOC 355 [W]	Classical Social Theory	
SOC 444	Social Movements	
WGST 240	Women and Society in a Global Context	
WGST T280	Special Topics in Women's and Gender Studies	
Electives		36.0-41.0
Total Credits		61.0-67.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	ENGL 102 or 112	3.0	CIVC 101	1.0	VACATION	
GST 101	4.0	GST 102	4.0	ENGL 103 or 113	3.0		
UNIV H101	1.0	Developing Quantitative Reasoning	3.0-4.0	GST 105	4.0		
Developing Quantitative Reasoning	3.0-4.0	(UG) Language course	4.0	(UG) Language course	4.0		
(UG) Language course	4.0		Understanding Society & Human Behavior	3.0-4.0			
15-16		14-15		15-16		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
GST 200+ course	4.0	(UG) Free Elective or Concentration courses	12.0	(UG) GST 200+ Level Course	4.0	COOP 101	1.0
(UG) Free Elective or Concentrati courses	6.0	(UG) Analyzing Cultures & Histories	3.0-4.0	(UG) Analyzing Cultures & Histories	3.0-4.0	(UG) Free Elective or Concentrati courses	13.0
(UG) Language course	4.0	(UG) Engaging the Natural World	3.0-4.0	(UG) Free Elective or Concentration courses	3.0	(UG) Engaging the Natural World	3.0-4.0

(UG) Understand Society & Human Behavior	3.0-4.0	(UG) Language course	4.0	
	17-18	18-20	14-15	17-18
Third Year				
Fall	Credits	Winter	Credits	Spring
(UG) Free Elective or Concentration course	4.0	(UG) Free Elective or Concentration courses	12.0	COOP EXPERIENCE
(UG) Cultivating Global Competency	3.0-4.0	(UG) Cultivating Global Competency	3.0-4.0	COM 574
(UG) Language course	4.0	COM 610	3.0	
(UG) Perspective in Diversity	3.0-4.0			
COM 500	3.0			
	17-19	18-19	0	3
Fourth Year				
Fall	Credits	Winter	Credits	Spring
UNIV H201	1.0	GST 400	4.0	(UG) Free Elective or Concentration courses
(UG) GST 200+ Level Course	4.0	(UG) Free Elective or Concentration courses	9.0	COM 615
(UG) Free Elective or Concentration courses	10.0	COM 651	3.0	(GR) SDC Program Elective
COM 613	3.0	(GR) SDC Program Elective	3.0	
	18	19	19	0
Fifth Year				
Fall	Credits	Winter	Credits	Spring
(GR) Graduate Electives	6.0	(GR) Graduate Elective	3.0	COM 698
(GR) SDC Program Elective	3.0	(GR) SDC Program Elective	3.0	(GR) Graduate Elective
	9	6	6	
Total Credits 225-236				

*

Language minor in French, Spanish or Japanese, or minor in Asian Studies, or Middle East and North Africa Studies.

**

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Mathematics BA / Biostatistics MS

Major: Mathematics (BA) / Biostatistics (MS)

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 228.0

Co-op Options: One Co-op (Five years); No Co-op (Five years);

About the Program

The College of Arts and Sciences and the Dornsife School of Public Health offer an accelerated Bachelor of Arts in Mathematics and Master of Science in Biostatistics. Participants can earn both a BA degree in Mathematics and a MS degree in Biostatistics in five years.

In this accelerated degree program, students participate in the undergraduate program for four full years (with or without one co-operative experience). After two years of undergraduate study, students begin their graduate studies in the Master of Science in Biostatistics program. The third and fourth year are a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BA. When students successfully complete the remainder of their graduate studies (typically two graduate quarters), they will receive the MS degree.

Students in the Master of Science in Biostatistics program complete 47.0 graduate quarter credits to meet the requirements of the master's program.

Additional Information

For additional information about this program, contact Academic Advisor Paige Chmielewski pr37@drexel.edu.

Admission Requirements

Application to the BAMS program begins after a student has completed at least 90.0 credits and no more than 120.0 credits. A freshman student can be designated as a BAMS Provisional Admit but is not officially accepted into the BAMS program until the student completes at least 90.0 credits and meets the admissions criteria.

Acceptance to the Drexel MS in Biostatistics is conditional upon a 3.0 overall undergraduate GPA, a 3.5 GPA in math, and a minimum grade of B in Linear Algebra and Calculus courses. Applicants who meet the GPA and grade criteria will be evaluated by the MS in Biostatistics admissions committee in order to be considered for admission.

Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year one. Students must submit a SOPHAS Express application to the graduate Master of Science in Biostatistics program during their third year.

All students will follow the same application procedures as other applicants. Any student who does not meet the entrance requirements of the graduate program will be able to complete the fourth year of the Mathematics undergraduate program and receive a BA degree.

Degree Requirements

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0

or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum		
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Any BIO, CHEM, PHYS, or PHEV course		3.0-4.0
Undergraduate Free Electives		66.0
Computer Science Sequence		
CS 150	Computer Science Principles	3.0
or CS 164	Introduction to Computer Science	
CS 171	Computer Programming I	3.0
CS 172	Computer Programming II	3.0
Core Mathematics Requirements		
MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
MATH 210	Differential Equations	4.0
MATH 220 [W]	Introduction to Mathematical Reasoning	3.0
MATH 331	Abstract Algebra I †	3.0-4.0
or MATH 401	Elements of Modern Analysis I	
Math Major Electives		
Select a minimum of 30.0 credits from the following:		30.0
MATH 205	Survey of Geometry	
MATH 221	Discrete Mathematics	
MATH 222	Combinatorics [W]	
MATH 235	Math Competition Problem Solving Seminar	
MATH 238	History of Mathematics	
MATH 250	Mathematics of Investment and Credit	
MATH 285	Differential Equations II	
MATH 300	Numerical Analysis I	
MATH 301	Numerical Analysis II	
MATH 305	Introduction to Optimization Theory	
MATH 311	Probability and Statistics I	
MATH 312	Probability and Statistics II	
MATH 313	Probability and Statistics III	
MATH 316	Mathematical Applications of Symbolic Software	
MATH 318	Mathematical Applications of Statistical Software [W]	
MATH 319	Techniques of Data Analysis	
MATH 320	Actuarial Mathematics	
MATH 321	Vector Calculus	
MATH 322	Complex Variables	
MATH 323	Partial Differential Equations	
MATH 332	Abstract Algebra II	
MATH 387	Linear Algebra II	
MATH 401	Elements of Modern Analysis I †	
or MATH 332	Abstract Algebra I	
MATH 402	Elements of Modern Analysis II	
MATH 422	Introduction to Topology	
MATH 449	Mathematical Finance	

MATH 450	Introduction to Graph Theory	
MATH 475	Cryptography	
MATH 483	Introduction to Monte Carlo Methods	
MATH 489	Tensor Calculus	
Required MS Biostatistics Courses		
BST 522	Introduction to Probability for Biostatistics	3.0
BST 551	Statistical Inference I	3.0
BST 553	Longitudinal Data Analysis	3.0
BST 555	Introduction to Statistical Computing	3.0
BST 557	Survival Data Analysis	3.0
BST 567	Statistical Collaboration	3.0
BST 569	Linear Statistical Models	4.0
BST 570	Generalized Linear Models	4.0
BST 675	Statistical Collaboration Lab	3.0
BST 701	Advanced Statistical Computing	3.0
EPI 570	Introduction to Epidemiology	3.0
PBHL 501	Introduction to Public Health	0.0
Master's Project		
Select one from the following:		3.0
BST 698	Statistical Collaboration in Practice	
or BST 699	Data Analysis Project	
Graduate Electives		
Select from the list below:		9.0
Any (BST) Biostatistics 500-999 level course		
Any (EPI) Epidemiology 500-999 level course		
Total Credits		228.0-239.0

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Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101.

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

★★★

Math majors must pass MATH 121 with a grade of B or higher.

†

If a student takes both of MATH 331 and MATH 401, then one of these can count as a Mathematics Elective. Up to three mathematics-related courses from other departments may be substituted for Mathematics Electives with departmental permission. MATH special topics courses may be substituted for Mathematics Electives with departmental permission

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 CS 172	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV S101	1.0 MATH 122	4.0 MATH 123	4.0	
(UG) Engaging the Natural World**	3.0-4.0 (UG) Engaging the Natural World**	3.0-4.0 MATH 200	4.0	
		(UG) Understandi Society & Human Behavior**	3.0-4.0	
14-15		14-15	18-19	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 (UG) Analyzing Cultures & Histories**	3.0-4.0 MATH 210	4.0 (UG) Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0
MATH 201	4.0 (UG) MATH Courses	6.0 (UG) Analyzing Cultures & Histories**	3.0-4.0 (UG) MATH Courses	3.0
MATH 220	3.0 (UG) Free Electives	10.0 (UG) MATH Course	3.0 (UG) Free Electives	12.0
(UG) Cultivating Global Competenci	3.0-4.0	(UG) Understandi Society & Human Behavior**	3.0-4.0	
(UG) Perspectives in Diversity**	3.0-4.0	(UG) Free Elective	3.0	
16-18		19-20	16-18	18-19

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401 or 331	3.0-4.0 UNIV S201	1.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) MATH Course	3.0 (UG) MATH Course	4.0		
(UG) Free Electives	6.0 (UG) Free Electives	8.0		
BST 569	4.0 BST 555	3.0		
EPI 570	3.0 BST 570	4.0		
19-20		20	0	0

Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Cultivating Global Competence**	3.0-4.0 (UG) MATH Course	7.0 (UG) Free Electives	12.0 BA Degree Awarded	
(UG) Free Electives	9.0 (UG) Free Electives	6.0 (UG) MATH Course	4.0 Student converts to Graduate status	
BST 522	3.0 BST 551	3.0 BST 701	3.0	
BST 557	3.0 BST 553	3.0		
18-19		19	19	0

Fifth Year		
Fall	Credits Winter	Credits
BST 567	3.0 BST 698 or 699	3.0
BST 675	3.0 (GR) Graduate Electives	6.0
PBHL 501	0.0	
(GR) Graduate Electives	3.0	
9		9

Total Credits 228-239

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

4+1, no co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	

MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	
(UG) Engaging the Natural World ^d	3.0-4.0 (UG) Engaging the Natural World ^d	3.0-4.0 (UG) Understanding Society & Human Behavior [*]	3.0-4.0	
14-15		14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 (UG) Analyzing Cultures & Histories [*]	3.0-4.0 MATH 210	4.0 VACATION	
MATH 201	4.0 (UG) MATH Courses	6.0 (UG) Analyzing Cultures & Histories [*]	3.0-4.0	
MATH 220	3.0 (UG) Free Electives	10.0 (UG) MATH Course	3.0	
(UG) Perspective in Diversity [*]	3.0-4.0	(UG) Understandi Society & Human Behavior [*]	3.0-4.0	
(UG) Cultivating Global Competence [*]	3.0-4.0	(UG) Free Electives	4.0	
16-18		19-20	17-19	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401 or 331	3.0-4.0 UNIV S201	1.0 (UG) Any BIO, CHEM, PHYS, or PHEV	3.0-4.0 VACATION	
(UG) Math Courses	3.0 (UG) MATH Courses	4.0 (UG) MATH Courses	4.0	
(UG) Free Electives	6.0 (UG) Free Elective	8.0 (UG) Free Electives	11.0	
BST 569	4.0 BST 555	3.0		
EPI 570	3.0 BST 570	4.0		
19-20		20	18-19	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Cultivating Global Competence [*]	3.0-4.0 (UG) MATH Course	7.0 (UG) MATH Course	3.0 BA Degree Awarded	
(UG) Free Electives	10.0 (UG) Free Electives	7.0 (UG) Free Electives	11.0 Student converts to Graduate status	
BST 522	3.0 BST 551	3.0 BST 701	3.0	
BST 557	3.0 BST 553	3.0		
19-20		20	17	0
Fifth Year				
Fall	Credits Winter	Credits		
BST 567	3.0 (GR) Graduate Electives	6.0		
BST 675	3.0 BST 698 or 699	3.0		
PBHL 501	0.0			

(GR)	3.0
Graduate Electives	
9	9

Total Credits 228-239

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

Mathematics BS / Biostatistics MS

Major: Mathematics (BS) / Biostatistics (MS)

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 227.0

Co-op Options: One Co-op (Five years); No Co-op (Five years);

About the Program

The College of Arts and Sciences and the Dornsife School of Public Health offer an accelerated Bachelor of Science in Mathematics and Master of Science in Biostatistics. Participants can earn both a BS degree in Mathematics and a MS degree in Biostatistics in five years.

In this accelerated degree program, students participate in the undergraduate program for four full years (with or without one co-operative experience). After two years of undergraduate study, students begin their graduate studies in the Master of Science in Biostatistics program. The third and fourth year are a mix of undergraduate and graduate courses. After the successful completion of their fourth year, students receive their BS. When students successfully complete the remainder of their graduate studies (typically two graduate quarters), they will receive the MS degree.

Students in the Master of Science in Biostatistics program complete 47.0 graduate quarter credits to meet the requirements of the master's program.

Additional Information

For more information about this program, please visit the Mathematics (<https://drexel.edu/coas/academics/undergraduate-programs/mathematics/>) web page.

Admission Requirements

Application to the BSMS program begins after a student has completed at least 90 credits and no more than 120 credits. A freshman student can be designated as a BSMS Provisional Admit but is not officially accepted into the BSMS program until the student completes at least 90 credits and meets the admissions criteria.

Acceptance to the Drexel MS in Biostatistics is conditional upon a 3.0 overall undergraduate GPA, a 3.5 GPA in math, and a minimum grade of B in Linear Algebra and Calculus courses. Applicants who meet the GPA and grade criteria will be evaluated by the MS in Biostatistics admissions committee in order to be considered for admission.

Students must verify their intent to continue or enroll in the accelerated program with their advisor by the end of the spring term of year one. Students must submit a SOPHAS Express application to the graduate Master of Science in Biostatistics program during their third year.

Degree Requirements

General Education Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
COM 230	Techniques of Speaking	3.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum		
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competence **		6.0-8.0
Perspectives in Diversity **		3.0-4.0
Any BIO, CHEM, PHYS, or PHEV course		3.0-4.0
Undergraduate Free electives		45.0
Computer Science Sequence		
CS 150	Computer Science Principles	3.0
or CS 164	Introduction to Computer Science	
CS 171	Computer Programming I	3.0
CS 172	Computer Programming II	3.0
Mathematics Requirements		
MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
MATH 210	Differential Equations	4.0
MATH 220 [W]	Introduction to Mathematical Reasoning	3.0
MATH 331	Abstract Algebra I	4.0
MATH 332	Abstract Algebra II	3.0
MATH 401	Elements of Modern Analysis I	3.0
MATH 402	Elements of Modern Analysis II	3.0
Math Major Electives †		
Select a minimum of 40.0 credits from the following:		40.0
MATH 222 [W]	Combinatorics	
MATH 235	Math Competition Problem Solving Seminar	
MATH 250	Mathematics of Investment and Credit	
MATH 285	Differential Equations II	
MATH 300	Numerical Analysis I	
MATH 301	Numerical Analysis II	
MATH 305	Introduction to Optimization Theory	
MATH 311	Probability and Statistics I	
MATH 312	Probability and Statistics II	
MATH 313	Probability and Statistics III	
MATH 316	Mathematical Applications of Symbolic Software	
MATH 318 [W]	Mathematical Applications of Statistical Software	
MATH 319	Techniques of Data Analysis	
MATH 320	Actuarial Mathematics	
MATH 321	Vector Calculus	
MATH 322	Complex Variables	
MATH 323	Partial Differential Equations	
MATH 387	Linear Algebra II	

MATH 422	Introduction to Topology	
MATH 449	Mathematical Finance	
MATH 450	Introduction to Graph Theory	
MATH 475	Cryptography	
MATH 483	Introduction to Monte Carlo Methods	
MATH 489	Tensor Calculus	
Required MS Biostatistics Courses		
BST 522	Introduction to Probability for Biostatistics	3.0
BST 551	Statistical Inference I	3.0
BST 553	Longitudinal Data Analysis	3.0
BST 555	Introduction to Statistical Computing	3.0
BST 557	Survival Data Analysis	3.0
BST 567	Statistical Collaboration	3.0
BST 569	Linear Statistical Models	4.0
BST 570	Generalized Linear Models	4.0
BST 675	Statistical Collaboration Lab	3.0
BST 701	Advanced Statistical Computing	3.0
EPI 570	Introduction to Epidemiology	3.0
PBHL 501	Introduction to Public Health	0.0
Master's Project		
Select one from the following:		3.0
BST 698	Statistical Collaboration in Practice	
or BST 699	Data Analysis Project	
Graduate Electives		
Select from the list below:		9.0
Any (BST) Biostatistics 500-999 level course		
Any (EPI) Epidemiology 500-999 level course		
Total Credits		227.0-237.0

* Students not participating in co-op will take one additional credit of Free Elective instead of COOP 101. Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major. COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

** See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

*** Math majors must pass MATH 121 with a grade of B or higher.

† MATH special topics courses may be substituted for Mathematics Electives with departmental permission. MATH 100, MATH 101, MATH 102, MATH 110, MATH 119, MATH 180, MATH 171, MATH 172, MATH 173, and MATH 239 do not count towards the degree unless approved by the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 COOP 101*	1.0 ENGL 103 or 113	3.0	
MATH 121	4.0 CS 171	3.0 MATH 123	4.0	
UNIV S101	1.0 ENGL 102 or 112	3.0 MATH 200	4.0	
(UG) Engaging the Natural World**	3.0-4.0 MATH 122	4.0 (UG) Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
	(UG) Engaging the Natural World**	3.0-4.0		
	14-15	15-16	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 210	4.0 (UG) Analyzing Cultures & Histories**	3.0-4.0 (UG) Analyzing Cultures & Histories**	3.0-4.0
MATH 201	4.0 (UG) Cultivating Global Competence	3.0-4.0 (UG) MATH Electives	6.0 (UG) Cultivating Global Competence	3.0-4.0
MATH 220	3.0 (UG) MATH Electives	6.0 (UG) Understanding Society & Human Behavior**	3.0-4.0 (UG) MATH Electives	3.0
(UG) Understanding Society & Human Behavior**	3.0-4.0 (UG) Perspective: in Diversity**	3.0-4.0 (UG) Free Electives	4.0 (UG) Free Electives	9.0
(UG) Free Electives	6.0			
	19-20	16-18	16-18	18-20

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 401	3.0 MATH 402	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Free Electives	9.0 UNIV S201	1.0		
BST 569	4.0 (UG) Free Electives	9.0		
EPI 570	3.0 BST 555	3.0		
	BST 570	4.0		
	19	20	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 331	4.0 MATH 332	3.0 (UG) Free Electives	8.0 BS Degree Awarded	
(UG) Math Electives	9.0 (UG) MATH Electives	9.0 (UG) MATH Electives	7.0 Student converts to Graduate status	
BST 522	3.0 BST 551	3.0 BST 701	3.0	
BST 557	3.0 BST 553	3.0		
	19	18	18	0
Fifth Year				
Fall	Credits Winter	Credits		
BST 567	3.0 BST 698 or 699	3.0		
BST 675	3.0 (GR) Graduate Electives	6.0		
PBHL 501	0.0			
(GR) Graduate Electives	3.0			
	9	9		
Total Credits 227-237				

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

4+1, no co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	
UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	

(UG) Engaging the Natural World*	3.0-4.0 (UG) Engaging the Natural World*	3.0-4.0 (UG) Any BIO, CHEM, PHYS, or PHEV	3.0-4.0	
	14-15	14-15	17-18	0
Second Year				
Fall	Credits	Winter	Credits	Spring
COM 230	3.0	MATH 210	4.0 (UG) Cultivating Global Competence*	3.0-4.0 VACATION
MATH 201	4.0 (UG) Cultivating Global Competence	3.0-4.0 (UG) MATH Electives	3.0	
MATH 220	3.0 (UG) MATH Electives	7.0 (UG) Understanding Society & Human Behavior*	3.0-4.0	
(UG) Analyzing Cultures & Histories*	3.0-4.0 (UG) Perspective: in Diversity*	3.0-4.0 (UG) Free Electives	8.0	
(UG) Understanding Society & Human Behavior*	3.0-4.0			
	16-18	17-19	17-19	0
Third Year				
Fall	Credits	Winter	Credits	Spring
MATH 331	4.0	MATH 332	3.0 (UG) Analyzing Cultures & Histories*	3.0-4.0 VACATION
(UG) Free Electives	9.0 UNIV S201	1.0 (UG) MATH Electives	6.0	
BST 569	4.0 (UG) Free Electives	9.0 (UG) Free Electives	10.0	
EPI 570	3.0 BST 555	3.0		
	BST 570	4.0		
	20	20	19-20	0
Fourth Year				
Fall	Credits	Winter	Credits	Spring
MATH 401	3.0	MATH 402	3.0 (UG) MATH Electives	6.0 BS Degree Awarded
(UG) Math Electives	9.0 (UG) MATH Electives	9.0 (UG) Free Electives	10.0 Student converts to Graduate status	
BST 522	3.0	BST 551	3.0	BST 701
BST 557	3.0	BST 553	3.0	
	18	18	19	0
Fifth Year				
Fall	Credits	Winter	Credits	Spring
BST 567	3.0	BST 698 or 699	3.0	
BST 675	3.0 (GR) Graduate Electives	6.0		
PBHL 501	0.0			

(GR) Graduate Electives	3.0	
	9	9
Total Credits 227-237		

*

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

Mathematics BS / Mathematics MS

Major: Mathematics

Degree Awarded: Bachelor of Science (BS) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 226.0

Co-op Options: One Co-op (Five years)

About the Program

The accelerated BSMS program in mathematics is an exciting opportunity for highly motivated math students to take full advantage of the academic resources that Drexel University, as a research university with a graduate program, has to offer. Graduates from this program have a more in-depth, richer understanding of the concepts introduced in the undergraduate courses, as well as, more complex topics introduced at an advanced level.

The combined degree offers our graduates a competitive advantage over students who have only obtained an undergraduate degree, allowing them to stand out when they start their professional careers. In addition, the program is highly recommended for students who intend to apply to doctoral programs in mathematics as well as related areas (such as statistics, biostatistics, public health, graduate actuarial studies, mathematical finance). Many of our BSMS students have been accepted in some of the country's most elite and competitive graduate mathematics programs.

Additional Information

For more information about this program, please visit the Mathematics (<https://drexel.edu/coas/academics/undergraduate-programs/mathematics/>) web page.

Admission Requirements

Students may apply to the combined BS/MS Mathematics program when they have attained 90.0 credits. To gain entry into the Mathematics BS/MS program, it is necessary, though not sufficient, to satisfy the following conditions:

Complete two of the following: MATH 331, MATH 332, MATH 401 and MATH 402, with an average GPA of at least 3.75 total in the two or more of these courses taken.

Have an overall GPA of at least 3.5

Have a GPA of at least 3.8 in the mathematics major

Applicant should meet with their adviser to determine eligibility and to create a plan of study to be reviewed by the graduate advisor. The graduate committee will make the final decision. If accepted, the student must fill out the Accelerated Degree Program Application Form to obtain permission from all necessary approving parties.

Students with multiple majors may apply to the Accelerated Math degree program as long as one of their undergraduate majors is Mathematics; however, they will need to obtain signatures of the Mathematics department advisers for their BS/MS Accelerated degree paperwork, not advisers from their other major(s).

Degree Requirements

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COM 230	Techniques of Speaking	3.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV S101	The Drexel Experience	1.0
UNIV S201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum

Engaging the Natural World **	6.0-8.0
Analyzing Cultures & Histories **	6.0-8.0
Understanding Society & Human Behavior **	6.0-8.0
Cultivating Global Competence **	6.0-8.0
Perspectives in Diversity **	3.0-4.0

Computer Science sequence: 9.0

CS 150	Computer Science Principles	
or CS 164	Introduction to Computer Science	
CS 171	Computer Programming I	
CS 172	Computer Programming II	
Any BIO, CHEM, PHYS, or PHEV course		3.0-4.0
Free electives		45.0

Mathematics Requirements

MATH 121	Calculus I ***	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra	4.0
MATH 210	Differential Equations	4.0
MATH 220 [W]	Introduction to Mathematical Reasoning	3.0
MATH 331	Abstract Algebra I	4.0
MATH 332	Abstract Algebra II	3.0
MATH 401	Elements of Modern Analysis I	3.0
MATH 402	Elements of Modern Analysis II	3.0

Math Major Electives 40.0

Select a minimum of 40 credits from the following:

MATH 222	Combinatorics	
[W]		
MATH 235	Math Competition Problem Solving Seminar	
MATH 250	Mathematics of Investment and Credit	
MATH 285	Differential Equations II	
MATH 300	Numerical Analysis I	
MATH 301	Numerical Analysis II	
MATH 305	Introduction to Optimization Theory	
MATH 311	Probability and Statistics I	
MATH 312	Probability and Statistics II	
MATH 313	Probability and Statistics III	
MATH 316	Mathematical Applications of Symbolic Software	
MATH 318	Mathematical Applications of Statistical Software	
[W]		
MATH 319	Techniques of Data Analysis	

MATH 320	Actuarial Mathematics	
MATH 321	Vector Calculus	
MATH 322	Complex Variables	
MATH 323	Partial Differential Equations	
MATH 387	Linear Algebra II	
MATH 422	Introduction to Topology	
MATH 449	Mathematical Finance	
MATH 450	Introduction to Graph Theory	
MATH 475	Cryptography	
MATH 483	Introduction to Monte Carlo Methods	
MATH 489	Tensor Calculus	

MS required courses

MATH 504	Linear Algebra & Matrix Analysis	3.0
MATH 505	Principles of Analysis I	3.0
MATH 506	Principles of Analysis II	3.0
MATH 533	Abstract Algebra I	3.0
MATH 630	Complex Variables I	3.0
MATH 633	Real Variables I	3.0

MS electives † 27.0

Select a minimum of 27 credits from the following:

MATH 510	Applied Probability and Statistics I	
MATH 511	Applied Probability and Statistics II	
MATH 512	Applied Probability and Statistics III	
MATH 520	Numerical Analysis I	
MATH 521	Numerical Analysis II	
MATH 522	Numerical Analysis III	
MATH 523	Computer Simulation I	
MATH 530	Combinatorial Mathematics I	
MATH 531	Combinatorial Mathematics II	
MATH 532	Topics in Combinatorial Math	
MATH 534	Abstract Algebra II	
MATH 535	Topics in Abstract Algebra	
MATH 536	Topology I	
MATH 538	Manifolds	
MATH 540	Numerical Computing	
MATH 572	Financial Mathematics: Fixed Income Securities	
MATH 610	Probability Theory I	
MATH 611	Probability Theory II	
MATH 612	Topics in Probability Theory	
MATH 613	Stochastic Processes I	
MATH 614	Stochastic Processes II	
MATH 615	Topics in Stochastic Processes	
MATH 620	Partial Differential Equations I	
MATH 621	Partial Differential Equations II	
MATH 622	Partial Differential Equations III	
MATH 623	Ordinary Differential Equations I	
MATH 624	Ordinary Differential Equations II	
MATH 625	Ordinary Differential Equations III	
MATH 631	Complex Variables II	
MATH 634	Real Variables II	
MATH 635	Real Variables III	
MATH 640	Functional Analysis	
MATH 641	Harmonic Analysis	
MATH 642	Operator Theory	
MATH 660	Lie Groups and Lie Algebras I	
MATH 670	Methods of Optimization I	
MATH 671	Methods of Optimization II	
MATH 672	Methods of Optimization III	
MATH 673	Calculus of Variations	
MATH 701	Algebraic Combinatorics	

MATH 723	Mathematical Neuroscience
Total Credits	225.0-235.0

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Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

★★★

Math majors must pass MATH 121 (<http://catalog.drexel.edu/search/?P=MATH%20121>) with a grade of B or higher.

†

In some cases, course substitutions may be made with courses from other departments. Elective courses taken outside the department must receive prior departmental approval in order to be counted toward the degree.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
CS 150 or 164	3.0 CIVC 101	1.0 CS 172	3.0 VACATION	
ENGL 101 or 111	3.0 CS 171	3.0 ENGL 103 or 113	3.0	
MATH 121	4.0 ENGL 102 or 112	3.0 MATH 123	4.0	

UNIV S101	1.0 MATH 122	4.0 MATH 200	4.0	
Engaging the Natural World*	3.0-4.0 Engaging the Natural World*	3.0-4.0 Any BIO, CHEM, PHYS, or PHEV course	3.0-4.0	
14-15		14-15	17-18	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
COM 230	3.0 MATH 210	4.0 Cultivating Global Competence*	3.0-4.0 COOP 101	1.0
MATH 201	4.0 Analyzing Cultures & Histories*	3.0-4.0 (UG) Mathematic: (MATH) Electives**	7.0 Cultivating Global Competence	3.0-4.0
MATH 220	3.0 (UG) Mathematics (MATH) Electives**	7.0 Understanding Society & Human Behavior*	3.0-4.0 (UG) Free Electives	12.0
Analyzing Cultures & Histories*	3.0-4.0 Understanding Society & Human Behavior*	3.0-4.0 (UG) Free Elective	3.0	
Perspectives in Diversity*	3.0-4.0			
16-18		17-19	16-18	16-17
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
MATH 331	4.0 MATH 332	3.0 COOP EXPERIENCE	COOP EXPERIENCE	
MATH 401	3.0 MATH 402	3.0		
(UG) Mathematics (MATH) Elective**	4.0 UNIV S201	1.0		
(UG) Free Electives	6.0 (UG) Mathematic: (MATH) Electives**	3.0		
	(UG) Free Electives	6.0		
17		16	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Mathematics (MATH) Electives**	7.0 (UG) Mathematics (MATH) Electives**	6.0 (UG) Mathematics (MATH) Electives**	6.0 STUDENT CONVERTS TO GRAD STATUS	
(UG) Free Electives	6.0 (UG) Free Electives	6.0 (UG) Free Electives	6.0	
MATH 504	3.0 MATH 506	3.0 (GR) Graduate Mathematics (MATH) Electives	6.0	
MATH 505	3.0 MATH 533	3.0		
19		18	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
(GR) Graduate Mathematics (MATH) Electives	9.0 (GR) Graduate Mathematics (MATH) Electives	9.0 MATH 630	3.0	
		MATH 633	3.0	

	(GR) Graduate Mathematics (MATH) Elective	3.0
9	9	9
Total Credits 225-235		

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See Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

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Select from MATH 222 [WI] , MATH 235, MATH 250, MATH 285, MATH 300, MATH 301, MATH 305, MATH 311, MATH 312, MATH 316, MATH 318 [WI] , MATH 319, MATH 320, MATH 321, MATH 322, MATH 323, MATH 387, MATH 422, MATH 449, MATH 450, MATH 475, MATH 483, MATH 489. MATH special topics courses may be substituted for Mathematics Electives with departmental permission.

Political Science BA / Public Policy MS

Major: Political Science and Public Policy

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0 credits

Co-op Options: One Co-op (Five years)

About the Program

The Political Science program in the Department of Politics helps students cultivate perspective; develop critical thinking, communication, and data analysis skills; and understand the economic, social, and political systems within which we live and work. Our curriculum builds on the department's research focuses and strengths. These include public policy, environmental politics, international organizations, human rights, and law and society. This flexible program allows students to shape a curriculum that meets their needs, whether they are preparing for public service, the business world, graduate school in political science, an MBA or other business program, or law school.

Drexel's MS in Public Policy is designed for people who work, or who would like to work, for government or a nonprofit organization. It is innovative and distinct in at least two key respects: Its focus on case study research and its distinct tracks of specialization.

For more information about this program, please contact your academic advisor.

Admission Requirements

To be eligible for the BAMS program, students must apply with between 90.0-120.0 credits and have a minimum 3.0 cumulative GPA. Applicants should meet with their advisor to create a plan of study and email that plan of study and a one-page application essay to the Director of the MPP Program, along with a short email of introduction including their current major and areas of interest for Case Study research. After a review of the initial plan of study, the director and/or faculty will conduct an admission interview. If accepted, the student will work with their undergraduate advisor to complete the Accelerated Degree Program Application.

Degree Requirements

General Education Requirements

ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0

College of Arts and Sciences Core Curriculum**

Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
PHIL 121	Symbolic Logic II	
Engaging the Natural World**		6.0-8.0
Analyzing Cultures & Histories**		6.0-8.0
Understanding Society and Human Behavior**		6.0-8.0
Cultivating Global Competence**		6.0-8.0
Perspectives in Diversity**		3.0-4.0

Political Science Major Requirements

Required Introductory Courses

PSCI 110	American Government	4.0
PSCI 120	History of Political Thought	4.0
PSCI 140	Comparative Politics I	4.0
PSCI 150	International Politics	4.0

Required Research Methods Courses

PSCI 131 [WI]	Research Design for Political Science	4.0
PSCI 231	Qualitative and Mixed-Methods Research in Political Science	4.0
PSCI 232	Quantitative Research Methods in Political Science	4.0

Required Intermediate Courses

Any three 200-level PSCI courses EXCEPT for research methods courses (PSCI 231 and PSCI 232)***		12.0
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Political Science Upper-level Elective Courses

Any five PSCI courses at 300-level or above***		20.0
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Free Electives

		74.0
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MS Public Policy

Required Courses

PLCY 503	Theory and Practice of Policy Analysis	3.0
PLCY 504	Methods of Policy Analysis	3.0
PLCY 506	Institutional Dynamics of the Policy Process	3.0
PLCY 507	Nonprofit Organizations	3.0
Economics		
ECON 601	Managerial Economics	3.0
ECON 616	Public Finance and Cost Benefit Analysis	3.0
or ECON 650	Business & Economic Strategy: Game Theory & Applications	

Statistics

URBS 530 or COM 500	Quantitative Methods & Reasoning for Urban Strategists Reading & Research in Communication	3.0
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Choose from the following Statistics Electives

BSAN 601 or CCM 705 or ECON 540 or ECON 550 or STAT 601 or STAT 610	Business Analytics for Managers Data Analysis in Communication Intro to Econometrics and Data Analysis Econometrics Business Statistics Statistics for Business Analytics	3.0
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Case Study Courses

PLCY 510	Introduction to Case Study Research	3.0
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PLCY 516	Case Study Research II	3.0
PLCY 517	Case Study Final Project	3.0
Graduate Electives *		12.0
Public policy students can select up to 12.0 credits of graduate-level electives (500-799) in the following subject areas: AADM, AAML, ACCT, BUSN, CCM, CHP, COM, CRTV, CW, DIGM, ECON, EADM, EDHE, EDLT, EDUC, ENTP, ENVP, ENVS, EOH, HMP, HRM, INFO, LING, MGMT, MKTG, MUSL, NPM, ORGB, PBHL, PLCY, PROJ, PRST, RMER, SCRP, SCTS, SMT, TVMN. Other graduate courses outside these areas might be taken pending approval from the graduate advisor or program director. These 12.0 credits of graduate-level electives can be used towards a graduate minor or a graduate certificate program.		
Total Credits		225.0-236.0

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Students not participating in co-op will take one additional credit of free elective instead of COOP 101.

All PSCI students are on the spring/summer co-op cycle.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

★★

See Core Curriculum List (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for complete list of course options.

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See political science course list (<https://catalog.drexel.edu/coursedescriptions/quarter/undergrad/psci/>).

†

Approve Public Policy Electives must be approved by the PLCY program director and by the department offering the course.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

First Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	

PSCI 110	4.0 ENGL 102 or 112	3.0 PSCI 120, 140, or 150	4.0
PSCI 120, 140, or 150	4.0 PSCI 120, 140, or 150	4.0 (UG) Analyzing Cultures & Histories	3.0
UNIV H101	1.0 PSCI 131	4.0 (UG) Perspective: in Diversity	3.0
(UG) Developing Quantitative Reasoning	3.0 (UG) Developing Quantitative Reasoning	3.0	
15		15	13

Second Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSCI 232	4.0 PSCI 231	4.0 (UG) PSCI Intermediate course	4.0 COOP 101*	1.0
(UG) PSCI Intermediate course	4.0 (UG) PSCI Intermediate course	4.0 (UG) Upper-level PSCI elective	4.0 (UG) Free Electives	15.0
(UG) Cultivating Global Competence	3.0 (UG) Cultivating Global Competence	3.0 (UG) Understanding Society & Human Behavior	3.0	
(UG) Analyzing Cultures & Histories	3.0 (UG) Understanding Society & Human Behavior	3.0 (UG) Engaging the Natural World	3.0	
(UG) Free Elective	3.0 (UG) Free Elective	3.0 (UG) Free Elective	3.0	
17		17	17	16

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Upper-level PSCI electives	8.0 (UG) Upper-level PSCI electives	8.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Engaging the Natural World	3.0 (UG) Free electives	7.0		
(UG) Free Electives	8.0			
19		15	0	0

Fourth Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
UNIV H201	1.0 (UG) Free electives	12.0 (UG) Free Electives	12.0 STUDENT CONVERTS TO GR STATUS	
(UG) Free Electives	11.0 PLCY 503	3.0 PLCY 504	3.0	
PLCY 506	3.0 (GR) Approved PLCY Elective	3.0 PLCY 510	3.0	
(GR) Approved PLCY Elective	3.0			
18		18	18	0

Fifth Year

Fall	Credits Winter	Credits Spring	Credits
ECON 601	3.0 BSAN 601, CCM 705, ECON 540, ECON 550, STAT 601, or STAT 610	3.0 ECON 616 or 650	3.0
PLCY 516	3.0 PLCY 507	3.0 (GR) Approved PLCY Electives	6.0
URBS 530 or COM 500	3.0 PLCY 517	3.0	
	9	9	9
Total Credits 225			

*

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

Psychology BS / Psychology MS

Major: Psychology

Degree Awarded: Bachelor of Science (BS) & Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 225.0

Co-op Options: One Co-op (Five Years) or No Co-op

About the Program

The Accelerated Master of Science in Psychology (BS/MS) program provides an opportunity for select undergraduate students to complete their undergraduate education and psychology MS curriculum classes in an accelerated fashion. Through this program, potential BS/MS students may be identified when first admitted as entering freshmen psychology majors. Students may also enter as transfers or up until the spring of their junior year.

During the course of their undergraduate study, students will need to seek out and establish a faculty member to serve as their mentor and program advisor, and with whom they wish to continue working during their graduate training and completion of their graduate thesis.

The Accelerated Master of Science in Psychology program allows accelerated entry into graduate level courses during the student's fourth undergraduate year with planned entry into graduate school upon completion of their BS degree at the end of year four. Because students have received a "head start" by completing a structured curriculum in their senior year, their graduate coursework for the MS degree can be completed in one year post-BS. The BS/MS curriculum is designed to include a four-year undergraduate or four-year undergraduate co-op program. Students in the program cannot be enrolled in a five-year co-op.

For more information, visit the Drexel University Department of Psychological and Brain Sciences (<https://drexel.edu/coas/academics/departments-centers/psychology/degrees/>) degree offering web page.

Admission Requirements

Prospective freshman criteria:

- Combined SAT score of 1300 (Quantitative and Verbal scores only)

- High school GPA of at least 3.5
- Top 10% of graduating class
- If these admission requirements are met, an additional application essay is requested via email and evaluated by the program director for final admission decisions.

Third year Psychology student criteria:

- Cumulative GPA of 3.5 or higher with no grade lower than a "C" in any class
- Enrollment in a 4-year, 1 co-op or 4-year, no co-op (some exceptions may apply)
- Completion of Graduate Record Examination (GRE) with a minimum score of 302 (Quantitative and Verbal scores)
- Identification of and commitment from Psychology faculty mentor to advise student's MS research

Degree Requirements

University Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development *	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0

College of Arts and Sciences Core Curriculum **

Developing Quantitative Reasoning **		6.0-8.0
MATH 101	Introduction to Analysis I	
or MATH 121	Calculus I	
Any additional MATH course OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	

Engaging the Natural World **	6.0-8.0
Analyzing Cultures and Histories **	6.0-8.0
Understanding Society and Human Behavior **	6.0-8.0
Cultivating Global Competencies **	6.0-8.0
Perspectives in Diversity **	3.0-4.0

Departmental Requirements

Business Elective	***	4.0
COM 230	Techniques of Speaking	3.0
Fine Arts Elective	****	3.0

General Psychology Course Requirements

PSY 111	Foundations of Psychological Science for Majors I †	3.0
PSY 112	Foundations of Psychological Science for Majors II †	3.0
Select two of the following:		6.0
PSY 120	Developmental Psychology	
PSY 140	Approaches to Personality	
PSY 150	Introduction to Social Psychology	

Required Psychology Courses

PSY 212	Physiological Psychology	3.0
PSY 240 [WI]	Abnormal Psychology	3.0
PSY 264	Statistical Methods in Psychology I	3.0
PSY 265	Statistical Methods in Psychology II	3.0
PSY 280	Psychological Research	3.0
PSY 290	History and Systems of Psychology	3.0
PSY 325	Psychology of Learning	3.0
PSY 330	Cognitive Psychology	3.0
PSY 360 [WI]	Experimental Psychology	3.0

PSY 380	Psychological Testing and Assessment	3.0
Advanced Psychology Electives		12.0
Any non-required PSY course at the 200-level or above.		
Senior Thesis Sequence ††		
PSY 490 [WI]	Psychology Senior Thesis I	4.0
PSY 491 [WI]	Psychology Senior Thesis II	4.0
PSY 492 [WI]	Psychology Senior Thesis III	4.0
Free Electives		58.0
Psychology Master's Requirements		
PSY 510	Research Methods I	3.0
PSY 511	Research Methods II	3.0
PSY 512	Cognitive Psychology	3.0
PSY 624	Behavior Analysis	3.0
PSY 680	Data Analysis in Psychology I	3.0
PSY 681	Data Analysis in Psychology II	3.0
PSY 682	Data Analysis in Psychology III	3.0
PSY 898	Master's Thesis in Psychology	9.0
Additional Electives †††		15.0
Total Credits		225.0-236.0

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

See Core Curriculum (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) List for a complete list of course options.

Any course from the following programs will count towards meeting this requirement: ACCT, BLAW, BUSN, ECON, FIN, INTB, MGMT, MIS, MKTG, ORGB, SMT, and STAT

Any course from the following programs will count towards meeting this requirement ARTH, DANC, MUSC, PHTO, THTR, and VSST.

†

Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

††

Students who do not wish to complete the senior thesis sequence are required to complete an additional 12.0 credits of advanced Psychology electives at the 200 level or above

Students are required to complete all undergraduate credit requirements by end of the fourth year.

†††

Electives can be any graduate Psychology (PSY) course. Other graduate courses outside of Psychology might be taken pending approval from the graduate advisor or program director.

be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4 + 1 (5 years), 1 coop

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	CIVC 101	1.0	COOP 101*	1.0	VACATION	
MATH 101 or 121	4.0	ENGL 102 or 112	3.0	ENGL 103 or 113	3.0		
PSY 111	3.0	PSY 112	3.0	PSY 120, 140, or 150	3.0		
UNIV H101	1.0	PSY 120, 140, or 150	3.0	PSY 240	3.0		
(UG) Engaging the Natural World	3.0-4.0	(UG) Developing Quantitative Reasoning	3.0-4.0	UNIV H201	1.0		
		(UG) Engaging the Natural World	3.0-4.0	(UG) Cultivating Global Competenci	3.0-4.0		
				(UG) Fine Arts Elective	3.0		
14-15		16-18		17-18		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
PSY 264	3.0	COM 230	3.0	PSY 212	3.0	PSY 325	3.0
PSY 290	3.0	PSY 265	3.0	PSY 280	3.0	PSY 380	3.0
(UG) Analyzing Cultures and Histories	3.0-4.0	PSY 330	3.0	PSY 360	3.0	(UG) Psychology Elective	3.0
(UG) Cultivating Global Competenci	3.0-4.0	(UG) Free Elective	3.0-4.0	(UG) Business Elective	4.0	(UG) Understandi Society and Human Behavior	3.0-4.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must

(UG) Understanding Society and Human Behavior	3.0-4.0 (UG) Perspectives in Diversity	3.0-4.0 (UG) Psychology Elective	3.0 (UG) Free Elective	3.0
	15-18	15-17	16	15-16
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Analyzing Cultures and Histories	3.0-4.0 (UG) Free electives	18.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Psychology Electives	6.0			
(UG) Free Electives	6.0			
	15-16	18	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 490 **	4.0 PSY 491 **	4.0 PSY 492 **	4.0 Student Classified as Graduate Status	
(UG) Free Electives	9.0 (UG) Free Electives	9.0 (UG) Free Electives	9.0	
PSY 512 ***	3.0 PSY 510 ***	3.0 PSY 511 ***	3.0	
PSY 680 ***	3.0 PSY 681 ***	3.0 PSY 682 ***	3.0	
	19	19	19	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
PSY 898	3.0 PSY 624	3.0 PSY 898	3.0	
(GR) Psychology Master's-Level Electives	6.0 PSY 898	3.0 (GR) Psychology Master's-Level Electives	6.0	
	(GR) Psychology Master's-Level Elective	3.0		
	9	9	9	
Total Credits 225-236				

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Students who do not wish to complete the senior thesis sequence are required to complete an additional 12.0 credits of advanced Psychology electives at the 200 level or above

BS/MS students are advised against taking senior thesis credits. Because students complete a master's thesis while enrolled in the BS/MS program, it is not feasible to also complete a senior thesis/research project. Consult with your advisor if you have any questions.

Graduate-level credits for master's program may not count toward any part of the bachelor's degree requirements.

Sociology BA / Urban Strategy MS

Major: Sociology and Urban Strategy

Degree Awarded: Bachelor of Arts (BA) and Master of Science (MS)

Calendar Type: Quarter

Minimum Required Credits: 228.0

Co-op Options: One Co-op (Five years)

About the Program

The BA in Sociology with a concentration in urban sociology (180.0 credits) and MS in Urban Strategy (45.0 credits) is a combined BA/MS cross-disciplinary degree that focuses on the sociological analysis of cities, the communities that comprise them, and the social processes that organize and transform them. Students in the urban sociology concentration learn to apply sociological concepts and methods to analyze urban issues and problems including gentrification, revitalization, suburbanization, and urban decline; concepts of space, place, community and neighborhood; and urban challenges such as poverty, affordable housing, global warming, policing and incarceration.

The BA portion of the degree prepares students to be leaders in urban issues, populations and challenges, whether through careers in urban policy, planning, social work, community nonprofits, government, or industry. This leads directly into the MS in Urban Strategy, a program designed to prepare students to become 21st century urbanists equipped to collaboratively and creatively solve complex multifaceted urban challenges on all levels: locally, nationally, and globally. The program boasts a cross-disciplinary curriculum focused on strategy, problem solving, and collaboration in the domains of urban planning, design, health, engineering, policy, community and economic development, and sociology. Master's in Urban Strategy students will benefit from the strong grounding in theory and methods of urban sociology, while urban sociology undergraduate students will gain from extending their training into a highly marketable master's degree.

Additional Information

For more information about the Sociology major, visit the Department of Sociology (<http://www.drexel.edu/coas/academics/departments-centers/sociology/>) webpage.

Admission Requirements

Students who meet the standard eligibility requirement for accelerated programs should consult with their advisor and work on an individual plan of study to submit with the Change of Curriculum form.

Degree Requirements

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
COOP 101	Career Management and Professional Development	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0

or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
Two Consecutive Foreign Language Courses **		8.0
College of Arts and Sciences Core Curriculum ***		
Developing Quantitative Reasoning ***		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121 Symbolic Logic II		
Engaging the Natural World ***		6.0-8.0
Analyzing Cultures & Histories ***		6.0-8.0
Understanding Society & Human Behavior ***		6.0-8.0
Cultivating Global Competence ***		6.0-8.0
Perspectives in Diversity ***		3.0-4.0
Sociology Requirements		
SOC 101	Introduction to Sociology	3.0
SOC 240	Urban Sociology	4.0
SOC 241	Research Design: Qualitative Methods	4.0
SOC 242	Research Design: Quantitative Methods	4.0
SOC 355 [WI]	Classical Social Theory	4.0
SOC 356 [WI]	Contemporary Social Theory	4.0
SOC 450	Capstone in Sociology	4.0
Required Sociology Electives		
Select at least nine of the following: (At least two must be at the 300 or 400 level).		36.0
SOC 115	Social Problems	
SOC 207	Medicine and Society	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 215	Sociology of Work	
SOC 220	Wealth and Power	
SOC 221	Sociology of the Family	
SOC 222	Sex and Society	
SOC 230	Gender and Society	
SOC 235	Sociology of Health and Illness	
SOC 238	Sociology of Health Professions	
SOC 244	Sociology of the Environment	
SOC 261	Sex and The City	
SOC 268	Sociology of Sport	
SOC 271	Sociology of Aging	
SOC 278	Global Climate Change and Society	
SOC 281	Gentrification and Neighborhood Change	
SOC 313	Sociology of Global Health	
SOC 318	Social Networks and Health	
SOC 320	Sociology of Deviance	
SOC 330	Development and Underdevelopment in the Global South	
SOC 335	Sociology of Education	
SOC 340	Globalization	
SOC 346	Environmental Justice	
SOC 349	Sociology of Disasters	
SOC 370	Practicum in Applied and Community Sociology	
SOC 405	Medicine, Technology and Science	
SOC 406	Housing and Homelessness	
SOC 410	Imagining Multiple Democracies	
SOC 420	Love, Rage & Debt: The Debt Society	
SOC 430	Politics of Life	
SOC 444	Social Movements	
SOC 490	Sociology Research Seminar I: Research Design	
SOC 491	Sociology Research Seminar II: Data Acquisition and Analysis	
SOC 492	Sociology Research Seminar III: Practicum in Sociological Research	
SOC T380	Special Topics in Sociology	
Urban Sociology Electives		
Select two of the following:		8.0

SOC 261	Sex and The City	
SOC 406	Housing and Homelessness	
SOC T280	Special Topics in Sociology ((Gentrification and Neighborhood Change))	
Free Electives		55.0
MS Urban Strategy Requirements		
ECON 616	Public Finance and Cost Benefit Analysis	3.0
EOH 550	Introduction to Urban Health	3.0
URBS 510	History of Urban Space (Shared Course)	3.0
URBS 520	What is a City	3.0
URBS 530	Quantitative Methods & Reasoning for Urban Strategists	3.0
URBS 610	Civic Engagement & Participatory Methods	3.0
URBS 620	City of Systems	3.0
URBS 630	Spatial Reasoning for Urbanists, Architects & Designers	3.0
URBS 670	Thesis I: Research Inquiry & Design	3.0
URBS 675	Thesis Seminar I	1.5
URBS 680	Thesis II: Fieldwork	3.0
URBS 685	Thesis Seminar II	1.5
URBS 690	Thesis III: Documentation	3.0
Four Graduate Free Electives †		12.0
Total Credits		228.0-239.0

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

**

Select from one of the following:

Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.

See Core Curriculum List (p. 5) for complete list of course options

†

Select 12.0 credits from 500-600 level courses, including special topics (T580 and T680) in AADM, AAML, BUSN, CHP, COM, DSRE, EDPO, ENTP, ENVP, HMP, INTR, PBHL, PLCY, SCTS, URBS.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments->

centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

4+1, 1 co-op (Accelerated program completed in 5 years)

Students complete undergraduate requirements in four years, then convert to graduate status in the fifth and final year.

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 COOP 101*	1.0 VACATION	
SOC 101	3.0 ENGL 102 or 112	3.0 ENGL 103 or 113	3.0	
UNIV H101	1.0 SOC 240	4.0 (UG) Free Electives	7.0	
Developing Quantitative Reasoning	3.0-4.0 Engaging the Natural World	3.0-4.0 Perspective: in Diversity	3.0-4.0	
Foreign Language Course	4.0 Foreign Language Course	4.0 Sociology Elective	4.0	
Understanding Society & Human Behavior	3.0-4.0			
	17-19	15-16	18-19	0

Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
SOC 241	4.0 SOC 355	4.0 SOC 242	4.0 UNIV H201	1.0
Developing Quantitative Reasoning	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 Analyzing Cultures & Histories	3.0-4.0 (UG) Free Elective	3.0
Sociology Electives	8.0 Engaging the Natural World	3.0-4.0 (UG) Free Electives	6.0 Sociology Elective 300-400	4.0
	(UG) Free Electives	4.0 Sociology Elective	4.0 Sociology Elective 300-400	4.0
	Sociology Elective	4.0	Sociology Urban Elective	4.0
	15-16	18-20	17-18	16

Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
Cultivating Global Competence	3.0-4.0 SOC 356	4.0 COOP EXPERIENCE	COOP EXPERIENCE	
(UG) Free Elective	3.0 Cultivating Global Competence	3.0-4.0		
Sociology Urban Elective	4.0 (UG) Free Electives	6.0		
Understanding Society & Human Behavior	3.0-4.0 URBS 610	3.0		

URBS 510	3.0			
	16-18	16-17	0	0
Fourth Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
(UG) Free Electives	4.0 SOC 450	4.0 (UG) Free Electives	12.0 Student converts to Graduate status	
Sociology Electives	8.0 (UG) Free Electives	10.0 ECON 616	3.0	
URBS 520	3.0 URBS 620	3.0 (GR) URBS Elective	3.0	
URBS 530	3.0 URBS 630	3.0		
	18	20	18	0
Fifth Year				
Fall	Credits Winter	Credits Spring	Credits	
EOH 550	3.0 URBS 675	1.5 URBS 685	1.5	
URBS 670	3.0 URBS 680	3.0 URBS 690	3.0	
(GR) URBS Elective	3.0 (GR) URBS Elective	3.0 (GR) URBS Elective	3.0	
	9	7.5	7.5	

Total Credits 228-239

*

Co-op cycles may vary. Students are assigned a co-op cycle (fall/winter, spring/summer, summer-only) based on their co-op program (4-year, 5-year) and major.

COOP 101 registration is determined by the co-op cycle assigned and may be scheduled in a different term. Select students may be eligible to take COOP 001 in place of COOP 101.

English BA / Law JD

Major: English and Law
Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)
Calendar Type: Quarter and semester
Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits
Co-op Options: No Co-op (Six years)

About the Program

This accelerated degree program combines the BA in English in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in English and their JD in six years. The study of English provides a strong foundation for success in law school.

For more information about this program, please visit the Department of English & Philosophy (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/>) web page.

Admission Requirements

For the BA: Standard for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year three of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year three of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Students who do not meet these qualifications may still be granted admission if space is available.

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum *		
Developing Quantitative Reasoning *		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	

or PHIL 121 Symbolic Logic II		
Engaging the Natural World *		6.0-8.0
Analyzing Cultures & Histories *		6.0-8.0
Understanding Society & Human Behavior *		6.0-8.0
Cultivating Global Competence *		6.0-8.0
Perspectives in Diversity *		3.0-4.0
Language Requirement		8.0
Select 2 consecutive courses in a foreign language, reaching at least 103 **		
English Major Requirements		
English Core Courses, Required for All Concentrations		
Seminars		12.0
ENGL 195	English Freshman Seminar	3.0
ENGL 301	English Major Colloquium (1.0 credit course, repeated three times for 3.0 credits total)	3.0
ENGL 490	Seminar in English and American Literature	3.0
ENGL 492	Seminar in World Literature	3.0
Language at Work		3.0
WRIT 212	Intro to Rhetorical Theory	
or ENGL 250	Intro to Digital Humanities	
Writing		9.0
WRIT 195	Threshold Concepts in Writing Studies	3.0
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	3.0
WRIT 225 [WI]	Creative Writing	3.0
Literature		12.0
ENGL 207 [WI]	African American Literature	3.0
ENGL 315 [WI]	Shakespeare	3.0
ENGL 325	Topics in World Literature	3.0
ENGL 355 [WI]	Women and Literature	3.0
Senior Project		
ENGL 495	Senior Project in Literature	3.0
Concentration in A) Literary Studies or B) Writing - Choose one:		27.0
A) Literary Studies Concentration		
Surveys (choose 3 for 9.0 credits)		
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 202 [WI]	Romanticism to Modernism	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 205 [WI]	American Literature I	
ENGL 206 [WI]	American Literature II	
ENGL 211 [WI]	British Literature I	
ENGL 212	British Literature II	
Authors and Periods (choose 1 for 3.0 credits)		
ENGL 310 [WI]	Period Studies	
or ENGL 32	Major Authors	
Literary Impacts (choose 1 for 3.0 credits)		
ENGL 300 [WI]	Literature & Science	
or ENGL 32	Literature and Other Arts	
or ENGL 36	Literature and Society	
Literary Traditions (choose 1 for 3.0 credits)		
ENGL 330	The Bible as Literature	
or ENGL 33	Mythology	
Literary Theory (3.0 credits)		
ENGL 380	Literary Theory	
English Electives (choose 2 for minimum of 6.0 credits)		
Choose any additional 2 courses (300+) in ENGL or WRIT		
B) Writing Concentration		
Foundations		
WRIT 210 [WI]	The Peer Reader in Context	3.0
WRIT 211	Advanced Composition	3.0
Audience Awareness (choose 1 for 3.0 credits)		
		3.0

WRIT 312 [WI] Writing for Target Audiences or WRIT 31 Writing for Social Change	
Writing Practices (choose 6 additional courses for a minimum of 18.0 credits; at least 4 must be WRIT or ENGL courses)	
COM 160 [WI] Introduction to Journalism	
COM 270 [WI] Business Communication	
COM 310 [WI] Technical Communication	
COM 375 [WI] Grant Writing	
ENGL 312 Research Project Development	
SCRIP 220 Playwriting I	
SCRIP 270 Screenwriting I [WI]	
WRIT 210 [WI] The Peer Reader in Context	
WRIT 215 [WI] Story Medicine	
WRIT 220 [WI] Creative Nonfiction Writing	
WRIT 226 Writing in Public Spaces	
WRIT 290 Writers Room Experience	
WRIT 295 Forms Seminar	
WRIT 301 [WI] Writing Poetry	
WRIT 302 [WI] Writing Fiction	
WRIT 303 Writing Humor and Comedy	
WRIT 305 Life is Beautiful	
WRIT 306 Writing About the Media	
WRIT 310 Literary Editing & Publication	
WRIT 311 Writing and Reading the Memoir	
WRIT 312 [WI] Writing for Target Audiences	
WRIT 315 Writing for Social Change	
WRIT 320 Publishing Veterans' Memoirs for the Library of Congress	
WRIT 330 Writing and Contexts	
WRIT 400 [WI] Writing in Cyberspace: Writing for/about the Web	
WRIT 401 Advanced Poetry Workshop	
WRIT 402 Advanced Fiction Workshop	
WRIT 405 Internship in Publishing	
WRIT T380 Special Topics in Writing	
Free Electives (Undergraduate)	28.0
Choose 28.0 credits from any discipline (consider a minor).	
Free Electives (Law School Requirements)	33.0
Take 22.0 semester credits of required first-year law courses (that count as 33.0 undergraduate quarter credits)	
Law School Requirements ***	
LAW 550S Torts	
LAW 552S Contracts	
LAW 554S Civil Procedure	
LAW 555S Legislation and Regulation	
LAW 556S Property	
LAW 558S Criminal Law	
LAW 560S Constitutional Law (Law Reqts/Electives)	
LAW 565S Legal Methods I	
LAW 566S Legal Methods II	
LAW 830S Professional Responsibility	
Electives and Menu Requirements including:	
One Upper Level Writing Course (WUL). See list below.	
One Statutory Course	
One Professional Practice Course	
Total Credits	222.0-233.0

*

See Core Curriculum List (p. 5) for complete list of course options.

**

Select two consecutive courses at the 102-499 level within the same subject code: ARBC, CHIN, FREN, GER, JAPN, KOR, SPAN. Language courses may count toward the College Core Curriculum requirements, in which case students may take a corresponding number of free electives.

A minimum of 61.0 credits must be "in-class" credits. See Student Handbook for definitions.

Students must also complete a minimum of 50 hours of eligible pro bono work, documented with the Law School's Experiential Learning Office.

Law School Courses

Upper-Level Writing (WUL) Courses (may also be used as electives once requirement is fulfilled):

LAW 610S	Reproductive Rights & Justice	2.0-3.0
LAW 611S	Sex, Gender, & the Law	2.0-3.0
LAW 614S	Supreme Court Seminar	3.0
LAW 640S	Education Law	2.0-3.0
LAW 647S	The Rights of Children	2.0
LAW 656S	Justice Lawyering Sem	1.0-3.0
LAW 673S	Crime and Community	2.0
LAW 741S	Estate Planning	2.0
LAW 790S	Toxic Torts	2.0-3.0
LAW 791S	Regulating Patient Safety	2.0-3.0
LAW 793S	Mental Health Law	2.0-3.0
LAW 827S	Immigration Litigation	2.0
LAW 832S	Contract Theory Seminar	2.0-3.0
LAW 836S	Legal History	2.0-3.0
LAW 838S	Foundations of Legal Analysis	2.0
LAW 840S	Literature and The Law Seminar	2.0-3.0
LAW 842S	Law and Mind Sciences	2.0-3.0
LAW 844S	Law and Social Movements	2.0-3.0
LAW 848S	Courts and Public Policy	2.0-3.0
LAW 882S	Litigation Drafting	2.0
LAW 884S	Contract Drafting	2.0
LAW 910S	Appellate Advocacy	2.0
LAW 920S	Drexel Law Review ((if WUL option))	1.0-6.0
LAW T880S	Special Topics in LAW	1.0-5.0

Statutory Courses (may also be used as electives once requirement is fulfilled):

LAW 620S	Administrative Law	3.0-4.0
LAW 622S	Employment Discrimination	3.0
LAW 623S	Election Law	3.0-4.0
LAW 624S	Environmental Law	3.0
LAW 642S	Special Education Law	2.0-3.0
LAW 674S	Health Care Fraud and Abuse	2.0-3.0
LAW 675S	Federal Criminal Law	2.0-3.0
LAW 676S	White Collar Crime	2.0-3.0
LAW 700S	Business Organizations	3.0-4.0
LAW 701S	Federal Income Tax	3.0-4.0
LAW 702S	Enterprise Tax	3.0-4.0
LAW 706S	Secured Transactions	3.0
LAW 708S	Payment Systems	3.0
LAW 710S	Bankruptcy	3.0-4.0
LAW 711S	Sales	3.0
LAW 714S	Securities Regulation	3.0
LAW 740S	Trusts and Estates	3.0-4.0
LAW 760S	Copyright	3.0
LAW 764S	Trademarks & Unfair Competition	3.0
LAW 792S	Food and Drug Law	2.0-3.0

LAW 796S	Insurance Law and Emerging Technologies	2.0-3.0
LAW 820S	Immigration Law	3.0-4.0
LAW 821S	European Union Law	2.0-3.0
LAW 826S	Refugee and Asylum Law	2.0-3.0
Professional Practice Courses (may also be used as electives once requirement is fulfilled):		
LAW 924S & LAW 653S	Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar	6.0-7.0
LAW 931S & LAW 654S	Law Co-op and Lawyering Practice Seminar	5.0-11.0
LAW 933S & LAW 654S	Co-op Intensive and Lawyering Practice Seminar	11.0-12.0
LAW 941S & LAW 942S	Criminal Litigation Clinic I and Criminal Litigation Clinic II	10.0-12.0
LAW 943S & LAW 944S	Civil Litigation Clinic I and Civil Litigation Clinic II	10.0-12.0
LAW 947S & LAW 948S	Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II	10.0-12.0
LAW 950S & LAW 951S	Community Lawyering Clinic I and Community Lawyering Clinic II	10.0-12.0
Free Electives (may require permission to enroll)		
Any other unspecified LAW course numbered 550S and above may count as a JD elective		

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Literary Studies Concentration

Undergraduate course credits are quarter credits

First Year				
Fall	Credits	Winter	Credits	Spring
ENGL 101	3.0	CIVC 101	1.0	ENGL 103
ENGL 195	3.0	ENGL 102	3.0	WRIT 225
UNIV H101	1.0	WRIT 200	3.0	Concentration course
WRIT 195	3.0	Concentration course	3.0	Engaging the Natural World

Developing Quantitative Reasoning	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0	Understanding Society and Human Behavior	3.0-4.0
Foreign Language Course (1st consecutive course)	4.0	Foreign Language Course (2nd consecutive course, at least 103-level)	4.0		
17-18		17-18		15-17	
Second Year					
Fall	Credits Winter		Credits Spring		Credits Summer
ENGL 207	3.0	ENGL 325	3.0	ENGL 301	1.0 VACATION
ENGL 301	1.0	WRIT 212 or ENGL 250	3.0	ENGL 355	3.0
Concentration course	3.0	Analyzing Culture and Histories	3.0-4.0	Concentration course	3.0
Analyzing Culture and Histories	3.0-4.0	Cultivating Global Competence	3.0-4.0	Perspective: in Diversity	3.0-4.0
Cultivating Global Competence	3.0-4.0	Understanding Society and Human Behavior	3.0-4.0	Undergraduate Electives	6.0
Engaging the Natural World	3.0-4.0				
16-19		15-18		16-17	
Third Year					
Fall	Credits Winter		Credits Spring		Credits Summer
ENGL 301	1.0	ENGL 315	3.0	ENGL 495	3.0 Student transitions to First Year of Law School
ENGL 490	3.0	ENGL 492	3.0	Concentration course	3.0
UNIV H201	1.0	Concentration courses	6.0	Undergraduate Electives	10.0
Concentration courses	6.0	Undergraduate Electives	6.0		
Undergraduate Electives	6.0				
17		18		16	
Total Credits 147-158					

Law School course credits are semester credits

First Year Law course credits (22.0 semester credits) are counted toward the English BA.

Fourth Year		
Fall	Credits	Spring
LAW 550S (Counts toward UG free elective)	4.0	LAW 555S (Counts toward UG free elective)

LAW 552S (Counts toward UG free elective)	4.0 LAW 556S (Counts toward UG free elective)	4.0
LAW 554S (Counts toward UG free elective)	4.0 LAW 558S	4.0
LAW 565S (Counts toward UG free elective)	3.0 LAW 566S	3.0
15		14

Fifth Year

Fall	Credits Spring	Credits
LAW 560S	4.0 LAW 830S	2.0
LAW Requirements/Electives	10.0 Law Requirements/ Electives	12.0
14		14

Sixth Year

Fall	Credits Spring	Credits
Law Requirements/Electives	14.0 Law Requirements/ Electives	14.0
14		14

Total Credits 85

History BA / Law JD

*Major: History and Law**Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)**Calendar Type: Quarter and semester**Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits**Co-op Options: No Co-op (Six years)*

About the Program

This accelerated degree program combines the BA in History in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in History and their JD in six years. The study of history at Drexel emphasizes the development of skills in independent research, analysis, and communication that provide a strong foundation for success in law school.

Additional Information

For more information about the History major, visit the Department of History (<https://drexel.edu/coas/academics/departments-centers/history/>) webpage.

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years

- File complete, binding application to the Kline School of Law by December 31 of year 3 of the undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Students who do not meet these qualifications may still be granted admission if space is available.

Degree Requirements

University Requirements

ENGL 101 or ENGL 111	Composition and Rhetoric I: Inquiry and Exploratory Research English Composition I	3.0
ENGL 102 or ENGL 112	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing English Composition II	3.0
ENGL 103 or ENGL 113	Composition and Rhetoric III: Themes and Genres English Composition III	3.0
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
CIVC 101	Introduction to Civic Engagement	1.0

College of Arts & Sciences Requirements*

Developing Quantitative Reasoning *	6.0-8.0
Engaging the Natural World *	6.0-8.0
Analyzing Cultures & Histories *	6.0-8.0
Understanding Society & Human Behavior *	6.0-8.0
Cultivating Global Competence *	6.0-8.0
Perspectives in Diversity *	3.0-4.0

Department of History Requirements**Core History Sequence **** **24.0**

HIST 101	Introductory Seminar in History **
HIST 296	Research Methods in History **
HIST 301 [WI]	The Study of History **
HIST 380 [WI]	Advanced History Seminar **
HIST 490 [WI]	Senior Seminar I **
HIST 491 [WI]	Senior Seminar II **

History Distribution Courses *** **16.0**

Any 1 Global History course ***
Any 1 Africana History Course ***
Any 1 History of Science, Technology, and Environment course ***
Any 1 History course covering pre-1700 history (May not be HIST 201) ***

History Elective Courses **** **20.0**

Any 5 History courses ****

Department Language Requirement † **0.0-12.0**

Foreign Language †

Free electives (Undergraduate) †† **18.0-41.0**

Choose 18-41 credits. ††

Free electives (Law School Requirements) **33.0**

Take 22 semester credits of required first-year law courses (which count as 33 undergraduate quarter credits)

Law School Requirements

LAW 550S	Torts
LAW 552S	Contracts
LAW 554S	Civil Procedure
LAW 555S	Legislation and Regulation
LAW 556S	Property
LAW 558S	Criminal Law
LAW 560S	Constitutional Law
LAW 565S	Legal Methods I
LAW 566S	Legal Methods II

LAW 830S	Professional Responsibility
Electives and Menu Requirements including:	
49.0-50.0	
One Upper-Level Writing Course (WUL)	
One Statutory Course	
One Professional Practice Course	

*

See the CoAS Core Curriculum List (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) for a complete list of course options.

**

These courses ought to be taken in sequence as much as possible in the compressed schedule. See the plan of study.

The History Distribution courses must be at least 200-level, and a course may not fulfill more than one Distribution category. Between the History Distribution courses and History elective/Concentration electives, students must complete at least two 300-level courses.

†

Students must complete a department language requirement. They may *either* successfully complete 103 in one language (including the option to test out of it, if the university offers the language of the student's competence), *or* they may take 12 credits of language distributed across more than one language.

- Students may count one Study Abroad or international co-op experience (minimum one quarter) in a non-English speaking country toward their language requirement. Students should consult with their advisor to ensure this credit is properly recorded.
- Students may count one language course toward the CoAS "cultivating global competence" distribution requirement.

††

The number of Free electives will vary depending on the number of credits in other course selections. Students need 180 credits for the History BA; the Law School credits contribute 33 (undergraduate quarter) credits. Consequently, students will need enough Free elective credits to reach 147 undergraduate credits.

Upper-Level Writing (WUL) Courses (may also be used as electives once requirement is fulfilled):

LAW 610S	Reproductive Rights & Justice	2.0-3.0
LAW 611S	Sex, Gender, & the Law	3.0
LAW 614S	Supreme Court Seminar	3.0
LAW 647S	The Rights of Children	2.0
LAW 673S	Crime and Community	2.0
LAW 790S	Toxic Torts	2.0
LAW 791S	Regulating Patient Safety	2.0
LAW 793S	Mental Health Law (if paper option)	3.0
LAW 805S	Public Interest Law and Policy	2.0
LAW 827S	Immigration Litigation	2.0
LAW 828S	International Business Transactions	2.0-3.0
LAW 832S	Contract Theory Seminar	2.0-3.0
LAW 836S	Legal History	2.0-3.0
LAW 838S	Foundations of Legal Analysis	2.0
LAW 840S	Literature and The Law Seminar	2.0
LAW 842S	Law and Mind Sciences	2.0
LAW 844S	Law and Social Movements	3.0
LAW 848S	Courts and Public Policy	2.0-3.0
LAW 882S	Litigation Drafting	2.0
LAW 884S	Contract Drafting	2.0
LAW 910S	Appellate Advocacy	2.0

LAW 920S	Drexel Law Review (if WUL option)	1.0-6.0
LAW T880S	Special Topics in LAW	1.0-5.0

Statutory Courses (may also be used as electives once requirement is fulfilled):

LAW 620S	Administrative Law	4.0
LAW 622S	Employment Discrimination	3.0
LAW 623S	Election Law	3.0
LAW 624S	Environmental Law	3.0
LAW 642S	Special Education Law	2.0-3.0
LAW 674S	Health Care Fraud and Abuse	2.0
LAW 675S	Federal Criminal Law	2.0-3.0
LAW 676S	White Collar Crime	2.0-3.0
LAW 700S	Business Organizations	3.0-4.0
LAW 701S	Federal Income Tax	4.0
LAW 702S	Enterprise Tax	4.0
LAW 706S	Secured Transactions	3.0
LAW 708S	Payment Systems	3.0
LAW 710S	Bankruptcy	3.0-4.0
LAW 711S	Sales	3.0
LAW 714S	Securities Regulation	3.0
LAW 740S	Trusts and Estates	3.0
LAW 760S	Copyright	3.0
LAW 761S	Patents	3.0
LAW 764S	Trademarks & Unfair Competition	3.0
LAW 792S	Food and Drug Law	3.0
LAW 796S	Insurance Law and Emerging Technologies	2.0
LAW 820S	Immigration Law	3.0-4.0
LAW 821S	European Union Law	2.0-3.0
LAW 826S	Refugee and Asylum Law	2.0

Professional Practice Courses (may also be used as electives once requirement is fulfilled):

LAW 924S & LAW 653S	Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar	7.0
LAW 931S & LAW 654S	Law Co-op and Lawyering Practice Seminar	8.0-9.0
LAW 941S & LAW 942S & LAW 656S	Criminal Litigation Clinic I and Criminal Litigation Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 943S & LAW 944S & LAW 656S	Civil Litigation Clinic I and Civil Litigation Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 947S & LAW 948S & LAW 656S	Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 950S & LAW 951S & LAW 656S	Community Lawyering Clinic I and Community Lawyering Clinic II and Justice Lawyering Sem	14.0-15.0

Free Electives (may require permission to enroll)

Any other unspecified LAW course numbered 550S and above may count as JD elective

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments->

centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
ENGL 101 or 111	3.0 CIVC 101	1.0 ENGL 103 or 113	3.0 VACATION	
HIST 101	4.0 ENGL 102 or 112	3.0 Developing Quantitative Reasoning [†]	3.0-4.0	
UNIV H101	1.0 Developing Quantitative Reasoning [†]	3.0-4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0	
Foreign Language course/ Cultivating Global Competency	4.0 Foreign Language course/ Free elective ^{††}	3.0-4.0 Global History course [*]	4.0	
History elective [*]	4.0 Free elective	3.0-4.0		
	16	13-16	13-15	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 296	4.0 Analyzing Cultures & Histories [†]	3.0-4.0 Analyzing Culture & Societies [†]	3.0-4.0 VACATION	
HIST 301	4.0 Engaging the Natural World [†]	3.0-4.0 History elective [*]	4.0	
Engaging the Natural World [†]	3.0-4.0 History of Science, Technology, and Environment course [*]	4.0 Understanding Society & Human Behavior [†]	3.0-4.0	
History course covering pre-1700 history ^{**}	4.0 Understanding Society & Human Behavior [†]	3.0-4.0 Free electives	6.0-8.0	
	15-16	13-16	16-20	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
HIST 490	4.0 HIST 380	4.0 History electives [*]	8.0 VACATION	
Cultivating Global Competency	3.0-4.0 HIST 491	4.0 Free elective	6.0-8.0 Student transitions to First Year of Law School	
History elective [*]	4.0 UNIV H201	1.0		

Perspective: in Diversity [†]	3.0-4.0 Africana History course [*]	4.0	
	Free elective	3.0-4.0	
	14-16	16-17	14-16
Total Credits 130-148			

Law School course credits are semester credits

First Year Law course credits (22 semester credits) are counted toward the History BA.

Fourth Year		
Fall	Credits Spring	Credits
LAW 550S (Counts toward UG free elective)	4.0 LAW 555S (Counts toward UG free elective)	3.0
LAW 552S (Counts toward UG free elective)	4.0 LAW 556S (Counts toward UG free elective)	4.0
LAW 554S (Counts toward UG free elective)	4.0 LAW 558S	4.0
LAW 565S (Counts toward UG free elective)	3.0 LAW 566S	3.0
	15	14
Fifth Year		
Fall	Credits Spring	Credits
LAW 560S	4.0 LAW 830S	2.0
LAW Reqts/Electives	10.0 LAW Reqts/ Electives	12.0
	14	14
Sixth Year		
Fall	Credits Spring	Credits
LAW Reqts/Electives	14.0 LAW Reqts/ Electives	14.0
	14	14
Total Credits 85		

Political Science BA / Law JD

Major: Political Science and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

About the Program

This accelerated degree program combines the BA in Political Science in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in Political Science and their JD in six years. The study of government and politics provides a strong foundation for success in law school.

For more information about this program, contact Kate Hughes at kfh28@drexel.edu (<https://catalog.drexel.edu/undergraduate/collegeofartsandsciences/politicalscienceba-lawjd/kfh28@drexel.edu>).

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that meets or exceeds the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year three of undergraduate program
- Actively participate in pre-law and BAJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year three of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum *		
Developing Quantitative Reasoning *		6.0-8.0
Two courses in MATH based on placement exams OR *		
PHIL 111	Symbolic Logic I	
PHIL 121	Symbolic Logic II	
Engaging the Natural World *		6.0-8.0
Analyzing Cultures & Histories *		6.0-8.0
Understanding Society & Human Behavior *		6.0-8.0
Cultivating Global Competence *		6.0-8.0
Perspectives in Diversity *		3.0-4.0
Political Science Major Requirements		
Required Introductory Courses		
PSCI 110	American Government	4.0
PSCI 120	History of Political Thought	4.0
PSCI 140	Comparative Politics I	4.0
PSCI 150	International Politics	4.0
Required Research Methods Courses		
PSCI 131 [WI]	Research Design for Political Science	4.0
PSCI 231	Qualitative and Mixed-Methods Research in Political Science	4.0
PSCI 232	Quantitative Research Methods in Political Science	4.0
Required Intermediate Courses		12.0
Any three 200-level PSCI courses EXCEPT for research methods courses (PSCI 231 and PSCI 232) **		
Political Science Upper-level Elective Courses		20.0
Any five PSCI courses at 300-level or above **		

Free Undergraduate Electives		28.0
Free electives fulfilled by 22.0 semester credits from first-year law courses (Law School Requirements)		33.0
Law School required courses		
LAW 550S	Torts	3.0-5.0
LAW 552S	Contracts	3.0-5.0
LAW 554S	Civil Procedure	3.0-5.0
LAW 555S	Legislation and Regulation	3.0
LAW 556S	Property	3.0-5.0
LAW 558S	Criminal Law	3.0-5.0
LAW 560S	Constitutional Law	3.0-5.0
LAW 565S	Legal Methods I	2.0-4.0
LAW 566S	Legal Methods II	2.0-4.0
LAW 830S	Professional Responsibility	2.0-3.0
Electives and Menu Requirements including:		49.0-50.0
One Upper-Level Writing Course (WUL). See list below.		
One Statutory Course. See list below.		
One Professional Practice Course. See list below.		

* See Core Curriculum List (p. 5) for complete list of core options.

** See political science course list (<https://catalog.drexel.edu/coursedescriptions/quarter/undergrad/psci/>)

Law School Electives and Menu Requirements:

Upper-level writing (WUL) courses may also be used as electives once requirement is fulfilled		
LAW 610S	Reproductive Rights & Justice	
LAW 611S	Sex, Gender, & the Law	
LAW 614S	Supreme Court Seminar	
LAW 647S	The Rights of Children	
LAW 656S	Justice Lawyering Sem	
LAW 673S	Crime and Community	
LAW 790S	Toxic Torts	
LAW 791S	Regulating Patient Safety	
LAW 793S	Mental Health Law	
LAW 827S	Immigration Litigation	
LAW 828S	International Business Transactions	
LAW 832S	Contract Theory Seminar	
LAW 836S	Legal History	
LAW 838S	Foundations of Legal Analysis	
LAW 840S	Literature and The Law Seminar	
LAW 842S	Law and Mind Sciences	
LAW 844S	Law and Social Movements	
LAW 910S	Appellate Advocacy	
LAW 920S	Drexel Law Review	
LAW T880S	Special Topics in LAW	
Statutory Courses (may also be used as electives once requirement is fulfilled):		
LAW 620S	Administrative Law	
LAW 622S	Employment Discrimination	
LAW 623S	Election Law	
LAW 624S	Environmental Law	
LAW 674S	Health Care Fraud and Abuse	
LAW 675S	Federal Criminal Law	
LAW 676S	White Collar Crime	
LAW 700S	Business Organizations	
LAW 701S	Federal Income Tax	
LAW 702S	Enterprise Tax	
LAW 706S	Secured Transactions	

LAW 708S	Payment Systems
LAW 710S	Bankruptcy
LAW 711S	Sales
LAW 714S	Securities Regulation
LAW 740S	Trusts and Estates
LAW 760S	Copyright
LAW 764S	Trademarks & Unfair Competition
LAW 792S	Food and Drug Law
LAW 796S	Insurance Law and Emerging Technologies
LAW 820S	Immigration Law
LAW 821S	European Union Law
LAW 826S	Refugee and Asylum Law
Professional Practice Courses (may also be used as electives once requirement is fulfilled):	
LAW 931S	Law Co-op or LAW 654 Lawyering Practice Seminar
LAW 933S	Co-op Intensive or LAW 654 Lawyering Practice Seminar
LAW 941S	Criminal Litigation Clinic I or LAW 944S Civil Litigation Clinic II or LAW 656 Justice Lawyering Sem
LAW 943S	Civil Litigation Clinic I or LAW 944 Civil Litigation Clinic II or LAW 656 Justice Lawyering Sem
LAW 947S	Federal Litigation and Appeals Clinic or LAW 948S Federal Litigation and Appeals Clinic II or LAW 656 Justice Lawyering Sem
LAW 950S	Community Lawyering Clinic I or LAW 951 Community Lawyering Clinic II or LAW 656 Justice Lawyering Sem
LAW 924S	Entrepreneurial Law Clinic or LAW 653S Entrepreneurial Law Clinic Seminar
Free Electives (may require permission to enroll)	
Any other unspecified LAW course numbered 550S and above may count as JD elective	

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0	VACATION	
PSCI 110	4.0	ENGL 102 or 112	3.0	PSCI 120, 140, or 150	4.0		
PSCI 140, 120, or 150	4.0	PSCI 120, 140, or 150	4.0	Analyzing Cultures & Histories	3.0-4.0		
UNIV H101	1.0	PSCI 131	4.0	Perspective in Diversity	3.0-4.0		
Developing Quantitative Reasoning	3.0-4.0	Developing Quantitative Reasoning	3.0-4.0				
15-16		15-16		13-15		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
PSCI 232	4.0	PSCI 231	4.0	PSCI Intermediate Course	4.0	VACATION	
PSCI Intermediate course	4.0	PSCI Intermediate Course	4.0	Understandi Society & Human Behavior	3.0-4.0		
Cultivating Global Competence	3.0-4.0	Cultivating Global Competence	3.0-4.0	Engaging the Natural World	3.0-4.0		
Analyzing Cultures & Histories	3.0-4.0	Understandi Society & Human Behavior	3.0-4.0	Upper-level PSCI elective	4.0		
14-16		14-16		14-16		0	
Third Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
UNIV H201	1.0	Upper-level PSCI electives	8.0	Free Electives	16.0	VACATION	
Upper-level PSCI electives	8.0	Free Electives	9.0			Student transitions to First Year of Law School	
Engaging the Natural World	3.0-4.0						
Free elective	3.0-4.0						
15-17		17		16		0	
Total Credits 133-145							

Law School course credits are semester credits

First Year Law course credits (22 semester credits) are counted toward the Political Science BA.

Fourth Year			
Fall	Credits	Spring	Credits
LAW 550S (Counts toward UG free elective)	4.0	LAW 555S (Counts toward UG free elective)	3.0

LAW 552S (Counts toward UG free elective)	4.0 LAW 556S (Counts toward UG free elective)	4.0
LAW 554S (Counts toward UG free elective)	4.0 LAW 558S	4.0
LAW 565S (Counts toward UG free elective)	3.0 LAW 566S	3.0
15		14
Fifth Year		
Fall	Credits Spring	Credits
LAW 560S	4.0 LAW 830S	2.0
Law Requirements/Electives	10.0 Law Requirements/ Electives	12.0
14		14
Sixth Year		
Fall	Credits Spring	Credits
Law Requirements/Electives	14.0 Law Requirements/ Electives	14.0
14		14
Total Credits 85		

Psychology BS / Law JD

Major: Psychology and Law
Degree Awarded: Bachelor of Science (BS) and Juris Doctor (JD)
Calendar Type: Quarter and semester
Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits
Co-op Options: No Co-op (Six years)

About the Program

This accelerated degree program combines the BS in Psychology within the College of Arts and Sciences with the JD in Law within Thomas Kline School of Law. Through this program, potential BS/JD students may be identified when first admitted as entering freshman psychology majors. Finally, this is a "3+3" program allowing qualified students to earn their BS and JD in six years.

Additional Information

For more information about the Psychology major, visit the Department of Psychological and Brain Sciences (<https://drexel.edu/coas/academics/departments-centers/psychology/>) webpage.

Admission Requirements

For the BS: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs.

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that at least meets the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program
- Actively participate in pre-law and BSJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program

- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

University Requirements		
CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
College of Arts and Sciences Core Curriculum *		
Developing Quantitative Reasoning *		6.0-8.0
MATH 101	Introduction to Analysis I	
or MATH 12	Calculus I	
Any additional MATH course OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World *		6.0-8.0
Analyzing Cultures and Histories *		6.0-8.0
Understanding Society and Human Behavior *		6.0-8.0
Cultivating Global Competencies *		6.0-8.0
Perspectives in Diversity *		3.0-4.0
Departmental Requirements		
Business Elective **		4.0
COM 230	Techniques of Speaking	3.0
Fine Arts Elective ***		3.0
Free Electives		16.0
General Psychology Course Requirements		
PSY 111	Foundations of Psychological Science for Majors I †	3.0
PSY 112	Foundations of Psychological Science for Majors II †	3.0
Select two of the following:		6.0
PSY 120	Developmental Psychology	
PSY 140	Approaches to Personality	
PSY 150	Introduction to Social Psychology	
Required Psychology Courses		
PSY 212	Physiological Psychology	3.0
PSY 240 [WI]	Abnormal Psychology	3.0
PSY 264	Statistical Methods in Psychology I	3.0
PSY 265	Statistical Methods in Psychology II	3.0
PSY 280	Psychological Research	3.0
PSY 290	History and Systems of Psychology	3.0
PSY 325	Psychology of Learning	3.0
PSY 330	Cognitive Psychology	3.0
PSY 360 [WI]	Experimental Psychology	3.0
PSY 370	Forensic Psychology	3.0
PSY 371	Law and Psychology	3.0
PSY 380	Psychological Testing and Assessment	3.0
Advanced Psychology Electives		
Any non-required PSY course at the 200-level or above.		18.0
Free electives fulfilled by 29 semester credits from first-year law courses		43.5
Law School Requirements		
LAW 550S	Torts	
LAW 552S	Contracts	
LAW 554S	Civil Procedure	

LAW 555S	Legislation and Regulation	
LAW 556S	Property	
LAW 558S	Criminal Law	
LAW 560S	Constitutional Law	
LAW 565S	Legal Methods I	
LAW 566S	Legal Methods II	
LAW 830S	Professional Responsibility	
Electives and Menu Requirements including:		49.0-50.0
One Upper-Level Writing Course (WUL)		
One Statutory Course		
One Professional Practice Course		

See Core Curriculum (<http://catalog.drexel.edu/undergraduate/collegeofartsandsciences/#corecurriculumtext>) List for a complete list of course options.

Any course from the following programs will count towards meeting this requirement: ACCT, BLAW, BUSN, ECON, FIN, INTB, MGMT, MIS, MKTG, ORGB, SMT, and STAT

Any course from the following programs will count towards meeting this requirement ARTH, DANC, MUSC, PHTO, THTR, and VSST.

†

Students with AP psychology, or transfer students with PSY 101 credit, should check the AP Student Placement Exam Crosswalk (http://www.drexel.edu/provost/policies/pdf/supporting/ap_crosswalk.pdf) or check with their advisor.

Upper-Level Writing (WUL) Courses (may also be used as elective once requirement is filled)

LAW 610S	Reproductive Rights & Justice	2.0-3.0
LAW 611S	Sex, Gender, & the Law	2.0-3.0
LAW 614S	Supreme Court Seminar	3.0
LAW 647S	The Rights of Children	2.0
LAW 656S	Justice Lawyering Sem	1.0-3.0
LAW 673S	Crime and Community	2.0
LAW 790S	Toxic Torts	2.0-3.0
LAW 791S	Regulating Patient Safety	2.0-3.0
LAW 793S	Mental Health Law	2.0-3.0
LAW 827S	Immigration Litigation	2.0
LAW 828S	International Business Transactions	2.0-3.0
LAW 832S	Contract Theory Seminar	2.0-3.0
LAW 836S	Legal History	2.0-3.0
LAW 838S	Foundations of Legal Analysis	2.0
LAW 840S	Literature and The Law Seminar	2.0-3.0
LAW 842S	Law and Mind Sciences	2.0-3.0
LAW 844S	Law and Social Movements	2.0-3.0
LAW 848S	Courts and Public Policy	2.0-3.0
LAW 882S	Litigation Drafting	2.0
LAW 884S	Contract Drafting	2.0
LAW 910S	Appellate Advocacy	2.0
LAW 920S	Drexel Law Review	1.0-6.0
LAW T880S	Special Topics in LAW	1.0-5.0

Statutory Courses (may also be used as electives once requirement is filled)

LAW 620S	Administrative Law	3.0-4.0
LAW 622S	Employment Discrimination	3.0
LAW 623S	Election Law	3.0-4.0
LAW 624S	Environmental Law	3.0
LAW 642S	Special Education Law	2.0-3.0
LAW 674S	Health Care Fraud and Abuse	2.0-3.0

LAW 675S	Federal Criminal Law	2.0-3.0
LAW 676S	White Collar Crime	2.0-3.0
LAW 678S	Juvenile Justice Law	2.0-3.0
LAW 700S	Business Organizations	3.0-4.0
LAW 701S	Federal Income Tax	3.0-4.0
LAW 702S	Enterprise Tax	3.0-4.0
LAW 706S	Secured Transactions	3.0
LAW 708S	Payment Systems	3.0
LAW 710S	Bankruptcy	3.0-4.0
LAW 711S	Sales	3.0
LAW 714S	Securities Regulation	3.0
LAW 740S	Trusts and Estates	3.0-4.0
LAW 760S	Copyright	3.0
LAW 764S	Trademarks & Unfair Competition	3.0
LAW 792S	Food and Drug Law	2.0-3.0
LAW 796S	Insurance Law and Emerging Technologies	2.0-3.0
LAW 820S	Immigration Law	3.0-4.0
LAW 821S	European Union Law	2.0-3.0
LAW 826S	Refugee and Asylum Law	2.0-3.0

Professional Practice Courses (may also be used as electives once requirement is fulfilled)

LAW 924S & LAW 653S	Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar	7.0
LAW 931S & LAW 654S	Law Co-op and Lawyering Practice Seminar	8.0-9.0
LAW 941S & LAW 942S & LAW 656S	Criminal Litigation Clinic I and Criminal Litigation Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 943S & LAW 944S & LAW 656S	Civil Litigation Clinic I and Civil Litigation Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 947S & LAW 948S & LAW 656S	Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II and Justice Lawyering Sem	14.0-15.0
LAW 950S & LAW 951S & LAW 656S	Community Lawyering Clinic I and Community Lawyering Clinic II and Justice Lawyering Sem	14.0-15.0

Free Electives (may require permission to enroll)

Any other unspecified LAW course numbered 550S and above may count as JD elective

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 111	3.0 PSY 112	3.0 UNIV H201	1.0 VACATION	
UNIV H101	1.0 PSY 120, 140, or 150	3.0 ENGL 103 or 113	3.0	
ENGL 101 or 111	3.0 CIVC 101	1.0 PSY 240	3.0	
MATH 101 or 121	4.0 ENGL 102 or 112	3.0 PSY 120, 140, or 150	3.0	
Engaging the Natural World	3.0-4.0 Engaging the Natural World	3.0-4.0 Cultivating Global Competencies	3.0-4.0	
	Developing Quantitative Reasoning	3.0-4.0 Fine Arts Elective	3.0	
14-15		16-18	16-17	0
Second Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 264	3.0 COM 230	3.0 PSY 280	3.0 VACATION	
PSY 290	3.0 PSY 265	3.0 PSY 360	3.0	
Psychology Elective	3.0 PSY 212	3.0 Psychology Electives	6.0	
Cultivating Global Competency	3.0-4.0 PSY 371	3.0 Understanding Society and Human Behavior	3.0-4.0	
Free Electives	3.0 Analyzing Cultures and Histories	3.0-4.0		
15-16		15-16	15-16	0
Third Year				
Fall	Credits Winter	Credits Spring	Credits Summer	Credits
PSY 325	3.0 PSY 330	3.0 Psychology Elective	3.0 VACATION	
PSY 380	3.0 PSY 370	3.0 Business Elective	4.0 Student transitions to First Year of Law School	
Free Elective	3.0-4.0 Perspectives in Diversity	3.0-4.0 Understanding Society and Human Behavior	3.0-4.0	
Analyzing Cultures and Histories	3.0-4.0 Psychology Electives	6.0 Free Electives	6.0	
Free Elective	3.0			
15-17		15-16	16-17	0
Total Credits 137-148				

Law School course credits are semester credits

First Year Law course credits (29 semester credits) are counted toward the Psychology BS.

Fourth Year		
Fall	Credits Spring	Credits
LAW 550S (Counts toward UG Free Elective)	4.0 LAW 555S (Counts toward UG Free Elective)	3.0
LAW 552S (Counts toward UG Free Elective)	4.0 LAW 556S (Counts toward UG Free Elective)	4.0
LAW 554S (Counts toward UG Free Elective)	4.0 LAW 558S (Counts toward UG Free Elective)	4.0
LAW 565S (Counts toward UG Free Elective)	3.0 LAW 566S (Counts toward UG Free Elective)	3.0
15		14
Fifth Year		
Fall	Credits Spring	Credits
LAW 560S	4.0 LAW 830S	2.0
LAW Reqts/Electives	10.0 LAW Reqts/Electives	12.0
14		14
Sixth Year		
Fall	Credits Spring	Credits
LAW Reqts/Electives	14.0 LAW Reqts/Electives	14.0
14		14
Total Credits 85		

Sociology BA / Law JD

Major: Sociology and Law

Degree Awarded: Bachelor of Arts (BA) and Juris Doctor (JD)

Calendar Type: Quarter and semester

Minimum Required Credits: 180.0 quarter credits & 85.0 semester credits

Co-op Options: No Co-op (Six years)

About the Program

This accelerated degree program combines the BA in Sociology in the College of Arts and Sciences and the JD offered by the Kline School of Law. It is a "3+3" program, allowing qualified students to earn both their BA in Sociology and their JD in six years. The study of sociology provides a strong foundation for success in law school.

Additional Information

For more information about the Sociology major, visit the Department of Sociology (<http://www.drexel.edu/coas/academics/departments-centers/sociology/>) webpage.

Admission Requirements

For the BA: Standard admission requirements (<https://drexel.edu/admissions/overview/>) for all Drexel undergraduate programs.

To be admitted to Drexel's Kline School of Law, students must:

- Maintain a minimum cumulative undergraduate GPA of 3.45
- Earn a LSAT score that at least meets the Kline School of Law's current LSAT median (as determined by point of entry into the undergraduate program) no later than December of year 3 of undergraduate program

- Actively participate in pre-law and BSJD activities
- Meet regularly with academic advisor and the pre-law advisor
- Maintain satisfactory progress towards completing required undergraduate coursework as set out in the plan of study in three years
- File complete, binding application to the Kline School of Law by December 31 of year 3 of undergraduate program
- Comply with all admission and seat deposit requirements of the Kline School of Law
- Comply with all character and fitness requirements of the Kline School of Law

Degree Requirements

General Education Requirements

CIVC 101	Introduction to Civic Engagement	1.0
ENGL 101	Composition and Rhetoric I: Inquiry and Exploratory Research	3.0
or ENGL 111	English Composition I	
ENGL 102	Composition and Rhetoric II: Advanced Research and Evidence-Based Writing	3.0
or ENGL 112	English Composition II	
ENGL 103	Composition and Rhetoric III: Themes and Genres	3.0
or ENGL 113	English Composition III	
UNIV H101	The Drexel Experience	1.0
UNIV H201	Looking Forward: Academics and Careers	1.0
Two Consecutive Foreign Language Courses *		8.0

College of Arts and Sciences Core Curriculum **

Developing Quantitative Reasoning **		6.0-8.0
Two courses in MATH based on placement exams OR		
PHIL 111	Symbolic Logic I	
or PHIL 121	Symbolic Logic II	
Engaging the Natural World **		6.0-8.0
Analyzing Cultures & Histories **		6.0-8.0
Understanding Society & Human Behavior **		6.0-8.0
Cultivating Global Competences **		6.0-8.0
Perspectives in Diversity **		3.0-4.0

Sociology Core Requirements 3.0

SOC 101	Introduction to Sociology	
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Required Major Capstone 4.0

SOC 450	Capstone in Sociology	
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Theory Sequence 8.0

SOC 355 [W]	Classical Social Theory ([W])	
SOC 356 [W]	Contemporary Social Theory ([W])	

Methods Sequence 8.0

SOC 241	Research Design: Qualitative Methods	
SOC 242	Research Design: Quantitative Methods	

Required Sociology Electives 40.0

Select at least 10 of the following: (At least four must be at the 300 or 400 level; and at least one must be at the 400-level.)

SOC 115	Social Problems	
SOC 207	Medicine and Society	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 215	Sociology of Work	
SOC 220	Wealth and Power	
SOC 221	Sociology of the Family	
SOC 222	Sex and Society	
SOC 230	Gender and Society	
SOC 235	Sociology of Health and Illness	
SOC 238	Sociology of Health Professions	
SOC 240	Urban Sociology	
SOC 244	Sociology of the Environment	
SOC 261	Sex and The City	

SOC 268	Sociology of Sport	
SOC 271	Sociology of Aging	
SOC 278	Global Climate Change and Society	
SOC 281	Gentrification and Neighborhood Change	
SOC 313	Sociology of Global Health	
SOC 318	Social Networks and Health	
SOC 320	Sociology of Deviance	
SOC 330	Development and Underdevelopment in the Global South	
SOC 335	Sociology of Education	
SOC 340	Globalization	
SOC 346	Environmental Justice	
SOC 349	Sociology of Disasters	
SOC 370	Practicum in Applied and Community Sociology	
SOC 405	Medicine, Technology and Science	
SOC 406	Housing and Homelessness	
SOC 410	Imagining Multiple Democracies	
SOC 420	Love, Rage & Debt: The Debt Society	
SOC 430	Politics of Life	
SOC 444	Social Movements	
SOC 490	Sociology Research Seminar I: Research Design	
SOC 491	Sociology Research Seminar II: Data Acquisition and Analysis	
SOC 492	Sociology Research Seminar III: Practicum in Sociological Research	
SOC T380	Special Topics in Sociology	

UG Free Electives	31.0
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Additional Free Electives fulfilled by 22 semester credits from first-year law courses	33.0
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Law School Requirements

LAW 550S	Torts	
LAW 552S	Contracts	
LAW 554S	Civil Procedure	
LAW 555S	Legislation and Regulation	
LAW 556S	Property	
LAW 558S	Criminal Law	
LAW 560S	Constitutional Law	
LAW 565S	Legal Methods I	
LAW 566S	Legal Methods II	
LAW 830S	Professional Responsibility	

Electives and Menu Requirements including: 49.0-50.0

One upper level writing course (WUL)	
One Statutory course	
One professional practice course	

Upper level writing (WUL) courses (may also be used as electives once requirement is fulfilled):

LAW 610S	Reproductive Rights & Justice	2.0-3.0
LAW 611S	Sex, Gender, & the Law	3.0
LAW 614S	Supreme Court Seminar	3.0
LAW 640S	Education Law	2.0-3.0
LAW 647S	The Rights of Children	2.0
LAW 656S	Justice Lawyering Sem ((if full year paper))	1.0-3.0
LAW 673S	Crime and Community	2.0
LAW 741S	Estate Planning	2.0
LAW 790S	Toxic Torts	2.0
LAW 791S	Regulating Patient Safety	2.0
LAW 793S	Mental Health Law	3.0
LAW 827S	Immigration Litigation	2.0
LAW 832S	Contract Theory Seminar	2.0-3.0
LAW 836S	Legal History	2.0-3.0
LAW 838S	Foundations of Legal Analysis	2.0
LAW 840S	Literature and The Law Seminar	2.0
LAW 842S	Law and Mind Sciences	2.0
LAW 844S	Law and Social Movements	3.0
LAW 848S	Courts and Public Policy	2.0-3.0

LAW 882S	Litigation Drafting	2.0
LAW 884S	Contract Drafting	2.0
LAW 910S	Appellate Advocacy	2.0
LAW 920S	Drexel Law Review ((if WUL option))	1.0-6.0
LAW T880S	Special Topics in LAW	1.0-5.0
Statutory Courses (may also be used as electives once requirement is fulfilled):		
LAW 620S	Administrative Law	4.0
LAW 622S	Employment Discrimination	3.0
LAW 623S	Election Law	3.0
LAW 624S	Environmental Law	3.0
LAW 642S	Special Education Law	2.0-3.0
LAW 674S	Health Care Fraud and Abuse	2.0
LAW 675S	Federal Criminal Law	2.0-3.0
LAW 676S	White Collar Crime	2.0-3.0
LAW 700S	Business Organizations	3.0-4.0
LAW 701S	Federal Income Tax	4.0
LAW 702S	Enterprise Tax	4.0
LAW 706S	Secured Transactions	3.0
LAW 708S	Payment Systems	3.0
LAW 710S	Bankruptcy	3.0-4.0
LAW 711S	Sales	3.0
LAW 714S	Securities Regulation	3.0
LAW 740S	Trusts and Estates	3.0
LAW 760S	Copyright	3.0
LAW 764S	Trademarks & Unfair Competition	3.0
LAW 792S	Food and Drug Law	3.0
LAW 796S	Insurance Law and Emerging Technologies	2.0
LAW 820S	Immigration Law	3.0-4.0
LAW 821S	European Union Law	2.0-3.0
LAW 826S	Refugee and Asylum Law	2.0
Professional Practice Courses (may also be used as electives once requirement is fulfilled):		
LAW 924S & LAW 653S	Entrepreneurial Law Clinic and Entrepreneurial Law Clinic Seminar	7.0
LAW 931S & LAW 654S	Law Co-op and Lawyering Practice Seminar	8.0-9.0
LAW 933S & LAW 654S	Co-op Intensive and Lawyering Practice Seminar	11.0-12.0
LAW 941S & LAW 942S	Criminal Litigation Clinic I and Criminal Litigation Clinic II	12.0
LAW 943S & LAW 944S	Civil Litigation Clinic I and Civil Litigation Clinic II	12.0
LAW 947S & LAW 948S	Federal Litigation and Appeals Clinic and Federal Litigation and Appeals Clinic II	12.0
LAW 950S & LAW 951S	Community Lawyering Clinic I and Community Lawyering Clinic II	12.0
Free Electives (may require permission to enroll)		
Any other unspecified LAW courses numbered 550S and above may count as JD elective		

*

Select from one of the following:

Two courses in: ARBC 103 or ARBC 201-499, CHIN 103 or CHIN 201-499, FREN 103 or FREN 201-499, GER 103 or GER 201-499, JAPN 103 or JAPN 201-499, KOR 103 or KOR 201-499, SPAN 103 or SPAN 201-499.

At least one foreign language course must be at the 200-level. In addition, the department recommends students take two additional foreign language courses as free electives.

**

See Core Curriculum List (p. 5) for complete list of course options.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Sample Plan of Study

Undergraduate course credits are quarter credits

First Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
ENGL 101 or 111	3.0	CIVC 101	1.0	ENGL 103 or 113	3.0	VACATION	
SOC 101	3.0	ENGL 102 or 112	3.0	Analyzing Cultures & Histories	3.0-4.0		
UNIV H101	1.0	SOC 241	4.0	Engaging the Natural World	3.0-4.0		
Developing Quantitative Reasoning	3.0-4.0	Foreign Language Course	4.0	Perspective: in Diversity	3.0-4.0		
Foreign Language Course	4.0	Understanding Society & Human Behavior	3.0-4.0	Sociology Required Elective	4.0		
Free Elective	3.0						
17-18		15-16		16-19		0	
Second Year							
Fall	Credits	Winter	Credits	Spring	Credits	Summer	Credits
SOC 242	4.0	Analyzing Cultures & Histories	3.0-4.0	SOC 355	4.0	VACATION	
Developing Quantitative Reasoning	3.0-4.0	Engaging the Natural World	3.0-4.0	Cultivating Global Competence	6.0-8.0		
Free Electives	3.0	Free Elective	4.0	Free Elective	3.0		
Sociology Required Electives	8.0	Sociology Required Elective	4.0	Sociology Required Elective	4.0		
		Understanding Society & Human Behavior	3.0-4.0				
18-19		17-20		17-19		0	

Third Year

Fall	Credits Winter	Credits Spring	Credits Summer	Credits
SOC 356	4.0 SOC 450	4.0 UNIV H201	1.0 VACATION	
Free Elective	6.0 Free Elective	6.0 Free Electives	6.0 Student transitions to first year of Law School	
Sociology Required 300/400 Elective	4.0 Sociology Required 300/400 Elective	4.0 Sociology Required Elective	4.0	
		Sociology Required 300/400 Elective	4.0	
		Sociology Required 300/400 Elective	4.0	
	14	14	19	0

Total Credits 147-158

Law School course credits are semester credits

First Year Law course credits (22.0 semester credits) are counted toward the Sociology BA.

Fourth Year

Fall	Credits Spring	Credits
LAW 550S (Counts toward UG free elective)	4.0 LAW 555S (Counts toward UG free elective)	3.0
LAW 552S (Counts toward UG free elective)	4.0 LAW 556S (Counts toward UG free elective)	4.0
LAW 554S (Counts toward UG free elective)	4.0 LAW 558S	4.0
LAW 565S (Counts toward UG free elective)	3.0 LAW 566S	3.0
	15	14

Fifth Year

Fall	Credits Spring	Credits
LAW 560S	4.0 LAW 830S	2.0
Law Requirements/Electives	10.0 Law Requirements/ Electives	12.0
	14	14

Sixth Year

Fall	Credits Spring	Credits
Law Requirements/Electives	14.0 Law Requirements/ Electives	14.0
	14	14

Total Credits 85

Minor in Actuarial Science

About the Minor

The minor in actuarial science is designed to provide students with the quantitative and analytical skills required to obtain an entry level position in the actuarial sciences profession. The coursework will help prepare students for the first two actuarial exams (probability and financial mathematics) and can be applied towards VEE (Validation by Education Experience) credit requirements from professional actuarial societies in the areas of Mathematical Statistics, Accounting and Finance, and Economics. Additional elective coursework will introduce students to appropriate statistical software or more advanced topics relevant to the actuarial sciences profession.

No more than 9.0 credits required by a student's major may be counted towards this minor.

A grade of "C" (2.0) or better must be earned for each course in this minor for it to be counted.

Students should check the prerequisites of all classes when selecting electives. It is the responsibility of the student to know pre-requisites.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) webpage.

Program Requirements

Required Courses		14.0
MATH 250	Mathematics of Investment and Credit	
MATH 311	Probability and Statistics I	
MATH 312	Probability and Statistics II	
MATH 313	Probability and Statistics III	
Choose one track		8.0
Accounting and Finance Track		
ACCT 110	Accounting for Professionals	
FIN 301	Introduction to Finance **	
OR		
Economics Track		
ECON 201	Principles of Microeconomics	
ECON 202	Principles of Macroeconomics	
Actuarial Science Electives		
Select 2 of the following *		6.0
FIN 321	Investment Securities & Markets **	
MATH 318	Mathematical Applications of Statistical Software [W]	
MATH 320	Actuarial Mathematics	
MATH 449	Mathematical Finance	
Total Credits		28.0

* Students may apply any course(s) from the unused track towards the electives requirement.

** Students may substitute MATH 311 and MATH 312 for the STAT 201 and STAT 202 pre-requisite requirements for these courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the

sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Africana Studies

About the Minor

The minor in Africana studies was created to provide the opportunity for undergraduate students throughout the University to gain an understanding of and background in the history and cultures of peoples of African descent in North and South America, the Caribbean, and Africa.

This interdisciplinary minor includes courses in anthropology, history, literature, music, political science, and sociology, and provides an opportunity for directed study in areas of particular interest to the students. The Africana studies minor has intrinsic intellectual value and helps prepare individuals to become contributors to an increasingly pluralistic society. At the same time, this minor allows students interested in business, the sciences, engineering, government, and social services to present to prospective employers a unique academic background.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Required Courses		
AFAS 101	Introduction to Africana Studies	3.0
AFAS 201	Cross Currents in Africana Studies	3.0
Students must complete a minimum of 18 credits from the list provided: *		18.0
AFAS 210	Topics in Africana Arts	
AFAS 220	Topics in Africana Society	
AFAS 230	Topics in African History	
AFAS 240	Topics in Africana Current Events	
AFAS 255	Gender and Black Popular Culture	
AFAS 260	Race, Politics and Religion	
AFAS 301	Politics of Hip Hop	
AFAS 385	Rum, Rice and Revolution: Caribbean History	
AFAS 401	Urban Social Justice Practicum I	
AFAS 402	Urban Social Justice Practicum II	
AFAS I299	Independent Study in Africana Studies	
AFAS T280	Special Topics in Africana Studies	
AFAS T380	Special Topics in Africana Studies	
ANTH 101	Introduction to Cultural Diversity	
ARTH 315	History of African-American Art	
ARTH 316	African Art	
DANC 109	African Dance Technique I	

ENGL 203 [WI]	Survey of World Literature (WI)	
ENGL 204	Post-Colonial Literature	
ENGL 207 [WI]	African American Literature	
ENGL 325	Topics in World Literature **	
ENGL 492	Seminar in World Literature	
HIST 215	American Slavery	
HIST 216	Freedom in America	
MUSC 107	Jazz Ensembles	
MUSC 331	World Musics	
MUSC 333	Afro-American Music USA	
MUSC 336	History of Jazz	
PSCI 372	City in United States Political Development	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 240	Urban Sociology	
WGST 240	Women and Society in a Global Context	
WGST T280	Special Topics in Women's and Gender Studies ***	
Total Credits		24.0

Students must check with the Program Director for approval prior to making substitutions.

With a focus on the Caribbean, Latin America or the Diaspora.

With a focus on race or the Diaspora.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Asian Studies

About the Minor

This minor offers an interdisciplinary look at the East, Southeast, and South Asia regions, which hold a critically important geopolitical position in terms of not only business and security, but also in terms of political, religious, cultural, and gender studies. Together with content courses in English offered through a variety of departments, this minor also includes 12.0 credits of instruction in one of our three Asian languages (Chinese, Korean, or Japanese).

All prospective students should meet with an advisor from the College as soon as possible.

Program Requirements

Students must complete 12 credits of language study in Chinese, Japanese, or Korean **12.0**

Students must complete a minimum of 12 credits of elective courses **12.0-14.0**

ARTH 301	Asian Art and Culture
ARTH 302	Art of India
ARTH 303	Art of China
ARTH 304	Art of Japan
DANC 102	Yoga
ENGL 325	Topics in World Literature *
FMST 293	Japanese Cinema: Kurosawa
HIST 239	The Pacific War
HIST 264	East Asia in Modern Times
HIST 322	Empire and Environment
PHIL 201	Non-Western Philosophies **

South Asian Literature

Must be focused on Asian philosophy.

Study abroad, Global Studies (GST) courses at the 200 and 300 levels, and special topics courses focused on Asia will be considered for elective credit. Students must receive permission from the department.

Students who complete a minimum of 8 language credits in one language, including CHIN 202, KOR 202, or JAPN 202, are eligible to receive an intermediate language certificate.

Minor in Astrophysics

About the Minor

Astrophysics brings together many disparate areas of physics—gravitational physics govern the evolution of galaxies and clusters, nuclear physics dominates the cores of stars, electromagnetism governs the radiation that we use to observe these objects. Students majoring in mathematics and computer science, as well as other disciplines, are often fascinated by the questions raised by astrophysics.

Because of the overlap in requirements between the astrophysics minor and the physics minor, (p. 248) students cannot minor in both. Additionally, a physics major cannot minor in astrophysics.

Admission Requirements

Consultation with the Physics Department.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Prerequisite Courses

PHYS 113	Contemporary Physics I
& PHYS 114	and Contemporary Physics II
& PHYS 115	and Contemporary Physics III
OR	

PHYS 101 & PHYS 102 & PHYS 201	Fundamentals of Physics I and Fundamentals of Physics II and Fundamentals of Physics III	
Required Courses		
PHYS 217	Thermodynamics	4.0
PHYS 231	Introductory Astrophysics	3.0
PHYS 232	Observational Astrophysics	3.0
PHYS 311	Classical Mechanics I	4.0
PHYS 321	Electromagnetic Fields I	4.0
PHYS 431	Galactic Astrophysics	3.0
PHYS 432	Cosmology	3.0
Total Credits		24.0

Minor in Biochemistry

About the Minor

This program provides a solid grounding in the principles and applications of biochemistry for students interested in exploring in more depth the chemistry of living organisms. Offered jointly by the Departments of Chemistry and Biology, the minor in Biochemistry consists of a set of regularly offered courses in the two departments. The program efficiently complements degree requirements for students majoring in the natural sciences, engineering and the health sciences. It is highly recommended to students interested in pursuing a career in biology, chemistry, biomedical engineering, nanotechnology, material sciences, medicine, pharmaceuticals or chemical biology. The minor must accompany another major program.

Admission Requirements

Students must be enrolled in another major program to be eligible for this minor.

Program Requirements

Required Courses:		
BIO 211 or BIO 214	Cell, Molecular & Developmental Biology II Principles of Cell Biology	4.0
BIO 306	Biochemistry Laboratory	2.0
BIO 311	Biochemistry	4.0
CHEM 242	Organic Chemistry II	4.0
CHEM 243	Organic Chemistry III	3.0
Elective Courses: *		9.0
BIO 209 or BIO 218	Cell, Molecular & Developmental Biology I Principles of Molecular Biology	
BIO 314	Pharmacology	
BIO 331	Bioinformatics I	
BIO 332	Bioinformatics II	
BIO 404	Structure and Function of Biomolecules	
BIO 416	Biochemistry of Major Diseases	
BIO 453	Protein Dysfunction in Disease	
CHEM 244	Organic Chemistry Laboratory I	
CHEM 245	Organic Chemistry Laboratory II	
CHEM 371	Chemistry of Biomolecules	
CHEM 375	The Chemistry Behind Drugs: Fundamentals of Medicinal Chemistry	
Total Credits		26.0

*

Students must take at least one BIO and one CHEM elective to complete the minor.

Additional Information:

For more information about the minor, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu (dk682drexel.edu)

Minor in Bioinformatics

About the Minor

The Bioinformatics minor examines the application of computer technology and programming to biological fields such as genomics or proteomics. This multidisciplinary program is designed for science, engineering, math, and computer and information science majors who have a deep interest in biological data science. The minor is divided among courses in biology, programming and computation, information science and computer technology, and statistics.

Program Requirements

- A grade of C or better must be earned for each course in this minor for it to be counted.
- Students should check all pre-requisites of all classes when selecting courses. It is the responsibility of the student to know the pre-requisites.
- Students must complete a minimum of 25-26 credits of coursework as follows:

Biology		
BIO 218 or BIO 211	Principles of Molecular Biology Cell, Molecular & Developmental Biology II	4.0
BIO 331	Bioinformatics I	3.0
BIO 413	Genomics	3.0
Programming and Computation		
CS 171	Computer Programming I	3.0
CS 172	Computer Programming II	3.0
Information Science and Computer Technology		
INFO 101	Introduction to Computing and Security Technology	3.0
INFO 210	Database Management Systems	3.0
Statistics (select 1 course)		3.0-4.0
MATH 310	Probability and Statistics	
MATH 311	Probability and Statistics I	
MATH 410	Scientific Data Analysis I	
Total Credits		25.0-26.0

Additional Information

Please contact Leanne Sweppenheiser (lmt38@drexel.edu) for more information.

Minor in Biological Sciences

About the Minor

The minor in Biological Sciences is designed for students who wish to become acquainted with the life sciences while pursuing a major in another area. This option should be particularly useful for students majoring in areas such as chemistry, engineering, physics, or psychology who are interested in admission to medical schools or graduate programs.

Students interested in the minor should consult with an academic advisor in the department for help with course selections.

For additional information about this program, please visit the Department of Biology (https://drexel.edu/coas/academics/departments-centers/biology/?_gl=1*9dio2g*_ga*OTEwNTAxODM1LjE2NjQ0NjE3MzI.*_ga_6KJ1PNLE19*MY4N1U1UOLMUMS4ZMZMU4XNjg1N1YzMZGULjwLJAUMA..) web page.

Program Requirements

Required Courses *

BIO 131	Cells and Biomolecules **	4.0
BIO 134	Cells and Biomolecules Lab **	1.0
BIO 132	Genetics and Evolution	4.0
BIO 135	Genetics and Evolution Lab	1.0
BIO 133	Physiology and Ecology	4.0
BIO 136	Anatomy and Ecology Lab	1.0
BIO 218	Principles of Molecular Biology	4.0
or BIO 209	Cell, Molecular & Developmental Biology I	
BIO 224	Form, Function & Evolution of Vertebrates	4.0
or BIO 201	Human Physiology I	
BIO ELECTIVE OR ENVS 212 ***		3.0
Total Credits		26.0

*

A grade of "C" or better must be earned for each course in this minor for the course to meet the requirement.

**

BIO 131 and BIO 134 can be substituted with BIO 122.

The Biology Elective can be selected from any of the regularly offered Biology department lecture courses 200-level and above according to your specific interests. BIO 200, BIO 204, BIO 207, BIO 208, BIO 212 and BIO 226 will not count towards the Biology elective. Note that existing course prerequisites may affect which courses may be selected.

Minor in Biophysics

About the Minor

Biophysics is the study of the complexity of life using tools provided by physics. It attempts to construct mathematical frameworks that explain, among many other topics, how organisms obtain energy from the environment, how complex structures appear in the cell, and how these relate to function. In essence, biophysics looks for principles that describe observed patterns and propose predictions based on these principles.

Admission Requirements

Consultation and approval of the program director and completion of one of the prerequisite sequences. Students who have completed the PHYS 152 , PHYS 153 , and PHYS 154 sequence will also be accepted into the minor provided they have an A- average in those courses and have completed MATH 121 and MATH 122 .

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Pre-requisites

PHYS 113	Contemporary Physics I
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PHYS 114	Contemporary Physics II	
PHYS 115	Contemporary Physics III	
OR		
PHYS 101	Fundamentals of Physics I	
PHYS 102	Fundamentals of Physics II	
PHYS 201	Fundamentals of Physics III	
Core Requirements		
PHYS 217	Thermodynamics	3.0-4.0
or CHEM 253	Thermodynamics and Kinetics	
or ENGR 210	Introduction to Thermodynamics	
PHYS 262	Introduction to Biophysics	3.0
PHYS 317	Statistical Mechanics	3.0
PHYS 321	Electromagnetic Fields I	4.0
PHYS 461	Biophysics	3.0
PHYS 462	Computational Biophysics	3.0
One course from the following:		4.5
BIO 122	Cells and Genetics	
BIO 141	Essential Biology	
One course from the following:		3.0-4.0
BIO 209	Cell, Molecular & Developmental Biology I	
BIO 214	Principles of Cell Biology	
BIO 218	Principles of Molecular Biology	
CHEM 371	Chemistry of Biomolecules	
Total Credits		26.5-28.5

Minor in Bioscience and Society

About the Minor

Designed for non-majors, the minor in Bioscience and Society is accessible to all students with an interest in biology. The minor includes a list of topical courses from which students can choose freely depending upon interest.

Please contact Leanne Sweppenheiser at lm38@drexel.edu for additional information.

A grade of "C" or better must be earned for each course in this minor for the course to meet the requirement.

Required Courses

Select one of the following options:		3.0-4.0
BIO 100	Applied Cells, Genetics & Physiology	
or		
BIO 107 & BIO 108	Cells, Genetics & Physiology and Cells, Genetics and Physiology Laboratory	
Select one of the following options:		3.0-4.0
BIO 101	Applied Biological Diversity, Ecology & Evolution	
or		
BIO 109 & BIO 110	Biological Diversity, Ecology & Evolution and Biological Diversity, Ecology and Evolution Laboratory	
ENVS 212	Evolution	4.0
Select four of the following: *		14.0
BIO 114	Climate Change and Human Health	
BIO 116	How Your Body Works-Or Not	
BIO 118	Basics of Cancer	
BIO 264	Ethnobotany	
BIO 284	Biology of Stress	
ENVS 260	Environmental Science and Society	
Total Credits		24.0-26.0

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Other courses may be substituted depending on yearly course offerings after consultation with an academic advisor in the Department of Biology.

Minor in Cell & Gene Therapy

About the Minor

Cell & gene therapy is a growing field focused on the use of cells or genes as treatments for diseases. Work in this field often involves knowledge of both biological and biomedical engineering concepts. This interdisciplinary undergraduate minor is designed for students who want to gain knowledge of cell & gene therapy concepts from a biological and biomedical engineering perspective.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Courses for the Minor

BIO 211	Cell, Molecular & Developmental Biology II	4.0
or BIO 214	Principles of Cell Biology	
BIO 244	Genetics I	3.0
BIO 413	Genomics	3.0
BIO 420	Virology	3.0
BIO 426	Immunology	3.0
Choose Three of the Following		9.0
BIO 331	Bioinformatics I	
BMES 212	The Body Synthetic	
BMES 456	Medical Technology Innovation: Biologics	
BMES 467	Cell and Gene Therapy (CGT) Manufacturing and Regulatory Requirements	
BMES 480	Introduction to Immune Engineering	
BMES 481	Advanced Topics in Immune Engineering	
Total Credits		25.0

Minor in Chemistry

About the Minor

The academic minor program in Chemistry is designed to expose students to each of the major sub-disciplines of chemistry (analytical, inorganic, organic, and physical). In order to accomplish this, students take a total of at least 27.5 credits of chemistry past the freshman year (100-level courses).

As chemistry is an experimental science, at least two laboratory courses must be included in the group of courses taken for the minor. Students should note that their academic major may require certain chemistry courses that can also be used to fulfill the requirements for a minor in Chemistry.

Program Requirements

Required Courses

CHEM 241	Organic Chemistry I	4.0
CHEM 230	Quantitative Analysis	4.0
CHEM 253	Thermodynamics and Kinetics *	4.0
CHEM 421	Inorganic Chemistry I	3.0
CHEM 244	Organic Chemistry Laboratory I	3.0

Chemistry Electives **

9.5

Total Credits**27.5**

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May substitute CHEC 352 Physical Chemistry and Applications II (4 credits) or CHEC 353 Physical Chemistry and Applications III (4 credits) for the CHEM 253 Thermodynamics and Kinetics requirement.

★★

The 9.5 credits of chemistry electives must include at least one additional laboratory course. These electives are selected from any of the regularly offered chemistry department lecture or laboratory courses 200-level and above according to your specific interests. Note that existing course pre-requisites may affect which courses may be selected. The variable credit courses CHEM 493 Senior Research Project or CHEM 497 Research (Undergraduate) may also be used to fulfill either the lecture or laboratory requirements for the minor.

Additional Information

For more information about the minor, contact:

Daniel King, PhD
Undergraduate Affairs Committee Chair
Department of Chemistry
Drexel University
dk68@drexel.edu

Minor in Climate Change

About the Minor

Climate change is one of the most serious challenges of our lifetime, and in the coming decades will impact every aspect of our lives and careers. Even though actions are being taken to reduce global emissions, today's students will live through a period of rapid climate change that is without precedent in human history.

This minor in climate change will provide an overview of the Earth's climate system and the science of climate change, as well as how to understand, mitigate, and adapt to its potential impacts from varied disciplinary perspectives. In addition to coursework, there is a praxis requirement for the minor, which could be fulfilled through an independent research, design, or engagement project, participation as an observer at the UN Framework Convention on Climate Change Conference of Parties meeting, developing a climate action plan for a local municipality, or partaking in a community-based learning course related to the impacts of climate change. There is no unit requirement associated with this praxis requirement.

Program Requirements

Students must complete a minimum of 24.0 credits of coursework. Coursework must include one of three core courses that introduce students to the physical science basis of the earth's climate system and climate change, three courses from the natural sciences and engineering tracking, and three courses from the social sciences, humanities, and entrepreneurial track. Coursework that is undertaken to fulfill the praxis requirement (such as a CBL or research credits) count towards unit requirements under the appropriate track. Please note, some of these courses have prerequisites or are not offered every year. Students should coordinate their plan of study in coordination with the minor advisor. Additional courses may be used to fulfill the unit requirement

with approval, such as coursework with a significant environmental and/or climate change component, courses taken abroad, special topics courses, and synonymous cross-listed or graduate sections.

Core Course

Select one of the following courses: 3.0

GEO 201 [WI]	Earth Systems Processes
ENVS 275	The Science of Climate Change
PHEV 145	Weather I: Climate and Global Change

Social Science and Humanities Courses

Select 12.0 credits from the list below: 12.0

ECON 351	Resource and Environmental Economics
ENSS 326	Cities and Sustainability
ENSS 346	Environmental Justice
GST 231	Introduction to Identities and Communities
HIST 323	The History of Climate Change
OPM 342	Sustainable Supply Chain Management and Logistics
PHIL 340	Environmental Ethics
PHIL 341	Environmental Philosophy
PSCI 284	Environmental Politics
PSCI 336	Political Economy of Climate Change
PSCI 338	Cities and Climate Change
PSCI 371	Science, Technology, & Public Policy
SOC 244	Sociology of the Environment
SOC 278	Global Climate Change and Society
SOC 346	Environmental Justice
SOC 349	Sociology of Disasters
SPAN 340	Introduction to Power and Resistance

Natural Science, Engineering and Design Courses

Select 9.0 credits from the list below: 9.0

CHE 381	Solutions to Climate Change
CHE 431	Fundamentals of Solar Cells
ECEP 380	Introduction to Renewable Energy
ECEP 480	Solar Energy Engineering
EET 320	Renewable Energy Systems
ENTP 270	Social Entrepreneurship
ENTP 290	An Entrepreneur's Introduction to Land: Its Essence, Ethics, and Opportunity
ENTP 375	3BL - Triple Bottom Line
ENTP 390	Energy Entrepreneurship
ENVS 289	Global Warming, Biodiversity and Your Future
ENVS 304	Energy and the Environment: Iceland
GEO 111	Natural Disasters
GEO 207	Introduction to Oceanography
MEM 445	Solar Energy Fundamentals
PBHL 457	Adapting to a Hotter Climate: Protecting Health of Vulnerable Populations

Total Credits 24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing

Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

Please contact Dr. Andrew Frederick Smith at afs52@drexel.edu.

Minor in Communication

About the Minor

The minor in communication is a 24.0 credit curriculum designed to familiarize students with communication theory while providing training in print and digital communication. The minor can provide a strong complement for majors that emphasize presentations, interpersonal skills, publicity and marketing. Students minoring in communication can focus on public relations, journalism, technical and science communication, environmental communication, or nonprofit communication.

All prospective students should meet with an advisor from the College as soon as possible.

Please note: No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Core Courses

COM 101	Human Communication	3.0
or COM 111	Principles of Communication	
COM 150	Mass Media and Society	3.0
COM 210	Theory and Models of Communication	3.0

Focus Areas

Select one of the following areas of focus (2 courses): 6.0

Journalism

COM 160 [WI]	Introduction to Journalism
COM 261 [WI]	Advanced Journalism

Public Relations

COM 181	Public Relations Principles and Theory
COM 270 [WI]	Business Communication
or COM 282	Public Relations Writing in the Digital Age
or COM 284	Public Relations Research, Measurement and Evaluation

Communication & Media Studies

COM 215 [WI]	Communication Resources for Media Studies
COM 341	Communication Past and Present

COM Electives

Select any three COM courses 100-499 9.0

Total Credits 24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end

of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Crime Analysis and Digital Investigations

About the Minor

The minor in Crime Analysis and Digital Investigations is a course of study that focuses on the analytics of crime and data-driven investigations. It recognizes the importance of “big” data when it comes to the commission, detection, and prevention of crime and the identification of those responsible for criminal acts. Students completing the minor will be ideally suited to meet the demands of the growing job market for crime, fraud, and security analysts among criminal justice, defense, and intelligence agencies and in the private-sector security community. Students seeking careers in public policy and regulatory affairs will also benefit from the minor in Crime Analytics and Computer Crime, as they will become proficient with tools that allow for evidence-based solutions to issues surrounding crime, security, and community safety.

All prospective students should meet with an advisor from the College (<https://drexel.edu/coas/academics/undergraduate-advising/>) as soon as possible.

Program Requirements

Core Requirements		
CJS 270	Crime Analysis Using Open Data	3.0
CJS 276	Introduction to Computer Crime	3.0
CJS 310	Crime Prediction Using Open Data	3.0
CJS 330	Crime Mapping I Using Geographic Information Systems	4.0
CJS 365	Computer Investigations and the Law	3.0
CJS 405	Data-Driven Investigations and Crime	3.0
Elective Requirements		
Students must take any two of the following courses:		6.0-7.0
CJS 240	Seminar in Justice Informatics	
CJS 268	Electronic Fraud Investigations	
CJS 273	Surveillance, Technology, and the Law	
CJS 274	Sex, Violence, & Crime on the Internet	
CJS 331	Crime Mapping II Using Geographic Information Systems	
Total Credits		25.0-26.0

Minor in Criminal Justice

About the Minor

Students from any major who are interested in the law, the justice process, and how crime and crime policy relate to education, health, housing, and climate change might consider a minor in criminal justice. Such students could enhance their educational experience and their career possibilities by complementing their major with a criminal justice minor, particularly if they take one or more of our community-based learning and analytical courses, such as Crime Mapping or Justice in Our Community.

The minor consists of four required courses and four criminal justice electives chosen from two categories, for a total of 24.0 credits.

All prospective students should meet with an advisor from the College (<https://drexel.edu/coas/academics/undergraduate-advising/>) as soon as possible.

Required Prerequisites:		
CJS 101	Introduction to Criminal Justice	3.0
CJS 200	Criminology	3.0
Required CJS Courses		
Select 18 credits of any CJS (Criminology and Justice Studies) courses not listed above		18.0
Total Credits		24.0

Minor in Ecology

About the Minor

The Minor in Ecology meets the needs of engineering, science, arts, applied arts, information, and business students interested in environmental science. Prior to taking *General Ecology* (ENVS 230), students are minimally expected to have had one term to a year of both general biology and general chemistry.

Program Requirements

Required Courses		
ENVS 212	Evolution	4.0
ENVS 230	General Ecology	3.0
ENVS 260	Environmental Science and Society	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 328	Conservation Biology	3.0
Environmental Science elective		3.0
Field Course		4.0
Choose one of:		
ENVS 382	Field Botany of the New Jersey Pine Barrens	
ENVS 383	Ecology of the New Jersey Pine Barrens	
ENVS 388	Marine Field Methods	
Total Credits		26.0

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Minor in English

About the Minor

The English minor provides students from other majors with a more intensive background in literature. Coursework in the minor exposes students to literature from a variety of periods, cultures and genres and also provides practice in critical thinking, literary analysis and writing. These courses enrich students' intellectual lives and provide them with skills that are valuable in a variety of professional situations.

Where a course required for the minor is already required for a student's major, the student is directed to choose another English elective. Other substitutions are permissible at the discretion of the Program Director.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Requirements

Select a minimum of 9 credits of the following:	9.0
ENGL 200 [WI] Classical to Medieval Literature	
ENGL 201 Renaissance to the Enlightenment	
ENGL 202 [WI] Romanticism to Modernism	
ENGL 203 [WI] Survey of World Literature	
ENGL 204 Post-Colonial Literature	
ENGL 205 [WI] American Literature I	
ENGL 206 [WI] American Literature II	
ENGL 207 [WI] African American Literature	
ENGL 211 [WI] British Literature I	
ENGL 212 British Literature II	
ENGL 214 Readings in Fiction	
ENGL 215 [WI] Readings in Poetry	
ENGL 216 [WI] Readings in Drama	
Select a minimum of 6 credits of the following:	6.0
WRIT 220 [WI] Creative Nonfiction Writing	
WRIT 225 [WI] Creative Writing	
WRIT 301 [WI] Writing Poetry	
WRIT 302 [WI] Writing Fiction	
WRIT 303 Writing Humor and Comedy	
WRIT 306 Writing About the Media	
WRIT 310 Literary Editing & Publication	
WRIT 312 [WI] Writing for Target Audiences	
WRIT T380 Special Topics in Writing	
WRIT 400 [WI] Writing in Cyberspace: Writing for/about the Web	
WRIT 405 Internship in Publishing	
Select a minimum of 9 credits of the following:	9.0
ENGL 300 [WI] Literature & Science	
ENGL 302 Environmental Literature	
ENGL 303 Science Fiction	
ENGL 305 [WI] The Mystery Story	
ENGL 306 Literature of Baseball	
ENGL 307 Literature of Genocide	
ENGL 310 [WI] Period Studies	
ENGL 315 [WI] Shakespeare	
ENGL 320 [WI] Major Authors	
ENGL 325 Topics in World Literature	
ENGL 330 The Bible as Literature	
ENGL 335 Mythology	
ENGL 345 American Ethnic Literature	
ENGL 350 Jewish Literature and Civilization	
ENGL 355 [WI] Women and Literature	

ENGL 360 [WI] Literature and Society	
ENGL 365 Topics in African American Literature	
ENGL 370 Topics in Literature and Medicine	
ENGL 380 Literary Theory	
ENGL 490 Seminar in English and American Literature	
ENGL 492 Seminar in World Literature	
Total Credits	24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Environmental Sociology

About the Minor

The minor in Environmental Sociology is designed to give students a broader understanding of the social factors that cause environmental problems, and how social change can be mobilized to solve these problems. This minor helps students understand the interconnectedness of society and environment, how social inequalities give rise to environmental inequalities, and how environmental problems such as climate change and the proliferation of plastic waste are created and contextualized by human practices. For students majoring in such fields as environmental science, finance, economics, global studies, biology, Sustainability & Innovation (Entrepreneurship), or engineering, the minor in environmental sociology complements their training with a social science focus on environmental issues.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Required Courses in Environmental Sociology *

Select three of the following courses:	12.0
SOC 244 Sociology of the Environment	
SOC 278 Global Climate Change and Society	
SOC 339 Sociology of the Countryside	
SOC 342 Global Environmental Movements	
SOC 346 Environmental Justice	
SOC 348 Plastics in Society	

SOC 349	Sociology of Disasters	
Select three of the following courses:		12.0
SOC 210	Race, Ethnicity and Social Inequality	
SOC 220	Wealth and Power	
SOC 240	Urban Sociology	
SOC 241	Research Design: Qualitative Methods	
SOC 242	Research Design: Quantitative Methods	
SOC 330	Development and Underdevelopment in the Global South	
SOC 340	Globalization	
SOC 355 [WI]	Classical Social Theory	
SOC 356 [WI]	Contemporary Social Theory	
Total Credits		24.0

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No more than three courses that are required for a student's major may count towards fulfilling requirements for the minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Environmental Studies

About the Minor

The Environmental Studies minor is for students who would like to complement their major field of study with a perspective on environmental issues that foregrounds the social sciences and humanities. ENSS minors learn from nationally and internationally acclaimed scholars in environmental politics, environmental sociology, environmental philosophy, global studies, and science and technology studies. The interdisciplinary perspective offered by the minor equips graduates to communicate persuasively about environmental issues, promote evidence-based environmental policies, and lead coalitions that reach across scientific, humanistic, and policy realms.

All prospective students should meet with an advisor (<https://drexel.edu/coas/faculty-research/faculty-directory/advisors/Florette-Press/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Courses		
ENSS 275	Global Climate Change	3.0
ENSS 346	Environmental Justice	4.0
PSCI 284	Environmental Politics	4.0
Select from the following courses: *		13.0
ENGL 302	Environmental Literature	
ENSS 120	Introduction to Environmental Studies	
ENSS 244	Sociology of the Environment	
ENSS 283	Introduction to Environmental Policy	
ENSS 285	Introduction to Urban Planning	
ENSS 348	Delaware River Issues and Policy	
ENSS 356	Aspects of Environmental Justice	
ENTP 260	Curiosity, Ecology, Empathy & Ethic	
ENVS 260	Environmental Science and Society	
GST 261	Introduction to Global Health and Sustainability	
PHIL 340	Environmental Ethics	
PHIL 341	Environmental Philosophy	
PSCI 334	Politics of Environment and Health	
PSCI 338	Cities and Climate Change	
PSCI 369	The Politics of Food	
PSCI 371	Science, Technology, & Public Policy	
PSCI 373	Animal Politics	
PSY 352	Psychology of Sustainability	
SOC 339	Sociology of the Countryside	
SOC 348	Plastics in Society	
Total Credits		24.0

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Other courses may be taken as electives with departmental approval.

Minor in European Studies

About the Minor

This minor offers an interdisciplinary look at Europe and the European Union, which holds a critically important geopolitical position in the US and the world for political, economic, cultural, and historical reasons. Together with content courses in English offered through a variety of departments, this minor also includes 12.0 credits of language instruction in one of the European languages offered through the Department of Global Studies and Modern Languages. Current relevant language offerings include Spanish, French, German, and Italian (as available). (Note that not all languages will be offered every term.)

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Students must complete 12 credits of language study in French, German, or Spanish		12.0
Students must complete a minimum of 12 elective credits.		12.0
ARCH 140	Appreciation of Architecture	
ARCH 141	Architecture and Society I	
ARCH 142	Architecture and Society II	
ARCH 143	Architecture and Society III	
ARTH 101	History of Art I	
ARTH 102	History of Art II	
ARTH 103	History of Art III	
ARTH 325	Ancient Greek and Roman Art	

ARTH 326	Medieval Art	
ARTH 327	Italian Renaissance Art	
ARTH 328	Northern Renaissance	
CULA 303	Global Cuisine Studio	
CULA 405 [WI]	Culture and Gastronomy I	
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 202 [WI]	Romanticism to Modernism	
ENGL 211 [WI]	British Literature I	
ENGL 212	British Literature II	
ENGL 307	Literature of Genocide	
ENGL 315 [WI]	Shakespeare	
ENGL 325	Topics in World Literature *	
ENGL 335	Mythology	
ENVS 304	Energy and the Environment: Iceland	
ENVS 305	Iceland Intensive: Green Energy	
HIST 235	The Great War, 1914-1918	
HIST 236	World War II	
HIST 248	History of the Holocaust	
HIST 251	Fascism	
HIST 254	Russian History Before 1900	
HIST 255	Twentieth Century Russia & the USSR	
HIST 257	The Reformation Age	
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
HIST 287	History of Science: Ancient to Medieval	
HIST 288	History of Science: Medieval to Enlightenment	
HIST 315	History of Capitalism	
HIST 355 [WI]	Venice and the Mediterranean from the Middle Ages to Napoleon	
HIST 358	Witches, Demons, and Witch-hunters in European History	
INTB 338	Regional Studies in Economic Policies and International Business **	
Total Credits		24.0

*

This ENGL course must focus on Europe.

**

This INTB course must focus on Europe.

Study abroad courses focusing on Europe can be considered for the minor with approval.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/>)

[english-philosophy/university-writing-program/drexel-writing-center/](https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/))

Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in French

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

Additional Information

For more information, contact:

Kate Hughes

Associate Director and Advisor

Department of Global Studies and Modern Languages

kfh28@drexel.edu

Program Requirements

The French minor requires a minimum of 24 credits above French 103, including at least 12 credits above French 310. Students can choose from the following courses. **24.0**

FREN 201	Intermediate French I	
FREN 202	Intermediate French II	
FREN 310 [WI]	Advanced Writing and Speaking	
FREN 320	Introduction to Language for the Professions	
FREN 330	Introduction to Identities and Communities	
FREN 340	Introduction to Power and Resistance	
FREN 350	Introduction to Language, Media, and Society	
FREN 410 [WI]	Advanced Grammar and Translation	
FREN 420	Advanced Studies in Language for the Professions	
FREN 430	Advanced Studies in Identities and Communities	
FREN 440	Advanced Studies in Power and Resistance	
FREN 450	Advanced Studies in Language, Media, and Society	
Total Credits		24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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#writing-intensive-list) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Gender and Sexuality Studies

About the Minor

Gender and Sexuality Studies is an interdisciplinary program that provides exciting opportunities to study how gender and sexuality shape human affairs. The program encourages students to explore a broad array of interests in understanding how gender and sexuality have changed and developed over time in their meaning, constructions, contexts and practices. Courses are taught by interdisciplinary faculty from different departments in the College of Arts and Sciences and from different colleges around the university. The program is in the stages of developing more courses exploring the methodologies and conceptual frameworks that have come out of the field—such as trans studies, feminist philosophies and reproductive justice. Graduates with this minor will be prepared with the skills necessary for engaging in the challenges of contemporary life and to apply those skills to a wide range of fields such as public health, law and digital media.

Additional information

For more information about this minor, contact Jennifer Yusin, PhD jyusin@drexel.edu.

Program Requirements

Required Courses		
WGST 101	Introduction to Women's and Gender Studies	3.0
WGST 201	Introduction to Feminisms	3.0
Theory		
Choose one of the following three theory courses		3.0
WGST 301	Sex, Gender, Feminism: A Seminar in Feminist Theories	
WGST 308	Queer Theory	
WGST 320	Masculinities	
Electives		
Students must complete at least 15 credits from the list below:		15.0
AFAS 255	Gender and Black Popular Culture	
ARTH 340	Women in Art	
COM 246	Media and Identity	
CJS 274	Sex, Violence, & Crime on the Internet	
CJS 362	Gender, Crime, and Justice	
ENGL 355 [WI]	Women and Literature	
HIST 208	Women in American History	
HIST 283	Technology and Identity	
PBHL 305	Women and Children: Health & Society	
PHIL 255	Philosophy of Sex & Love	
PSY 356	Women's Health Psychology	
SMT 255	Legal Foundations of Title IX	
SOC 222	Sex and Society	
SOC 230	Gender and Society	
WGST 220	Writing on the Body	
WGST 225	Women & Human Rights Worldwide	
WGST 240	Women and Society in a Global Context	

WGST 255	Gender and Black Popular Culture	
WGST 260	Gender and Judaism	
WGST 275	Women's Health and Human Rights	
WGST 301	Sex, Gender, Feminism: A Seminar in Feminist Theories	
WGST 308	Queer Theory	
WGST 320	Masculinities	
WGST 324	Retail Intersections: Social & Cultural Issues	
WGST I299	Independent Study in Women's and Gender Studies	
WGST T280	Special Topics in Women's and Gender Studies	
WGST T380	Special Topics in Women's and Gender Studies	
WGST T480	Special Topics in Women's and Gender Studies	
Total Credits		24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Geoscience

About the Minor

Geosciences are at the core of numerous problems facing the world today and impact the lives of communities across the planet. Climate change, natural disasters, access to mineral resources and clean water, and availability of energy all shape government policies and corporate strategies and are a cause of concern for society at large.

The Geoscience minor is designed to give students specializing in other fields the skills to understand and analyze these issues. It is a natural fit for environmental science majors who wish to understand how the physical world can impact biodiversity, ecological processes, and environmental impacts. For students majoring in fields such as business and engineering, the minor in Geoscience will provide them with the tools to make better decisions about products or projects related to natural hazards and their impact, cost and availability of natural resources, energy policy, space exploration, land use, and environmental justice. For students who are liberal arts majors, the minor in Geoscience offers the opportunity to explore earth science issues that shape the social, cultural, political and scientific debate, and to be prepared for issues they may encounter in their careers.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

GEO 101	Physical Geology	4.0
GEO 102	History of the Earth	4.0
GEO 201 [WI]	Earth Systems Processes	3.0
GEO Electives		13.0
GEO 215	Mineralogy	
GEO 301	Advanced Field Methods in Earth Science	
GEO 306	Environmental Geology	
GEO 309	Geochemistry	
GEO 312	Sedimentology and Stratigraphy	
GEO 320	Invertebrate Paleobiology and Paleocology	
GEO 322	Vertebrate Paleontology	
GEO 350	Volcanology	
GEO 375	Field Camp	
GEO 401	Igneous and Metamorphic Petrology	
GEO 412	Geology of Groundwater	
GEO 444	Plate Tectonics	
Total Credits		24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Global Studies

About the Minor

Global Studies practices socially-responsible global citizenship through a unique combination of research-oriented and multilingual instruction, professional experience, and meaningful engagement with communities both here in Philadelphia and abroad.

Students experience Global Studies by:

- Examining the movement of peoples, goods, and cultures across countries and regions

- Studying global issues in concrete socio-economic, cultural, and geographical contexts
- Tackling structural inequalities from a variety of perspectives and disciplines
- Developing intercultural and language skills through unique pedagogical models
- Working with employers and communities in Philadelphia and around the world through Drexel's Co-op opportunities

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Core requirements	
Students must complete 12 credits of language study in Arabic (ARBC), Chinese (CHIN), French (FREN), German (GER), Japanese (JAPN), Korean (KOR), or Spanish (SPAN).	12.0
Students are required to complete 12 credits of GST coursework	12.0-14.0
Total Credits	24.0-26.0

Minor in History

About the Minor

The history minor allows students in other majors to explore the historical background of their disciplines, to better understand the origins of the contemporary world, to build the knowledge and skills needed to understand the development of human societies over time, and to understand historical episodes in their proper contexts. The minor in history is highly flexible and allows students to choose those history courses which appeal to them and which will best contribute to their broader education. To complete the minor, students must take a total of six history courses (24.0 credits), five of which must be at the 200-level or above.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

History Electives*	
*Take any 6 HIST courses; 5 of 6 must be 200-level or higher	24.0
Total Credits	24.0

Minor in History of Capitalism

About the Minor

The Minor in History of Capitalism is dedicated to the study of capitalism and the emergence of the modern world economy from a historical perspective.

Admission Requirements

Open to all undergraduate students.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Required Course		
HIST 315	History of Capitalism	4.0
Select 3 of the following courses:		12.0
HIST 215	American Slavery	
HIST 222	History of Work & Workers in America	
HIST 264	East Asia in Modern Times	
HIST 303	The Study of Global History	
HIST 316	History of American Business	
HIST 322	Empire and Environment	
HIST 334	American Empire in the Nineteenth Century	
HIST 355 [WI]	Venice and the Mediterranean from the Middle Ages to Napoleon	
Select any 2 additional HIST (History) courses at the 200 level or above		8.0
Total Credits		24.0

Minor in Japanese

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

Additional Information

For more information, contact:

Kate Hughes
Associate Director and Advisor
Department of Global Studies and Modern Languages
kfh28@drexel.edu

Program Requirements

The Japanese minor requires a minimum of 24.0 credits with a minimum of 12.0 credits above JAPN 310		24.0
JAPN 201	Intermediate Japanese I	
JAPN 202	Intermediate Japanese II	
JAPN 310 [WI]	Advanced Writing and Speaking	
JAPN 320	Introduction to Language for the Professions	
JAPN 340	Introduction to Power and Resistance	
JAPN 350	Introduction to Language, Media, and Society	
JAPN 410 [WI]	Advanced Grammar and Translation	
JAPN 420	Advanced Studies in Language for the Professions	
JAPN 440	Advanced Studies in Power and Resistance	
JAPN 450	Advanced Studies in Language, Media, and Society	

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic

advisor to review the number of writing-intensive courses required to graduate.

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Minor in Jewish Studies

About the Minor

The Louis Stein Minor in Jewish Studies, housed within the College of Arts and Sciences, is designed to give students the opportunity to explore and understand the history, culture, politics, and religion of the Jewish people. Through interdisciplinary coursework, students investigate the Jewish experience from both a contemporary and a historical perspective.

The Louis Stein Minor in Jewish Studies requires 24.0 credits, of which at least 3.0 credits must be taken at the 300 level. Students can apply a maximum of 6.0 credits toward the minor from field study under the supervision of a faculty member.

Additional Information

If you have any questions, please contact the Director of Jewish Studies, Henry Israeli: hpi22@drexel.edu

Program Requirements

Required Courses		
Select from the list below:		24.0
Any JWST 101 - JWST 499, including Special Topics T180-T480 and Independent Study I199-I499 *		
Any HBRW 101 - HBRW 499, including Special Topics T180-T480 and Independent Study I199-I499 **		
CULA 303	Global Cuisine Studio (Jewish American Cooking only)	
MUSC 114	Mediterranean Ensemble (must be taken for credit and may be taken up to three times)	
PHIL 201	Non-Western Philosophies ("Arab and Jewish Philosophy" only)	
Total Credits		24.0

Please see the Program Director for approval of courses not listed above.

*

At least 3 credits must be taken at the 300 level.

**

Only 2 HBRW courses may be taken to fulfill minor requirements.

For a complete list of all Jewish Study courses, please visit the JWST course descriptions (<https://catalog.drexel.edu/coursedescriptions/quarter/undergrad/jwst/>).

For a complete list of Hebrew courses, please visit the HBRW course descriptions (<https://catalog.drexel.edu/coursedescriptions/quarter/undergrad/hbrw/>).

Minor in Justice Studies

About the Minor

The Justice Studies minor is designed for students who wish to connect their major fields of study with a justice-focused curriculum. The minor explores mostly place-based social, economic, health, and environmental risk factors in ways that extend beyond the traditional criminal justice system. With emphases on engaged learning, co-curricular opportunities and data-driven problem-solving, the Justice Studies minor both educates and gives students the tools needed to practice “justice” across a wide spectrum of broader fields of study.

While many students taking the Justice Studies minor come from outside the Department of Criminology and Justice Studies, we also allow students within the Criminology and Justice Studies program to complete the minor.

All prospective students should meet with an advisor from the College (<https://drexel.edu/coas/academics/undergraduate-advising/>) as soon as possible.

Program Requirements

CJS Requirements

CJS 260	Justice in Our Community	4.0
CJS 262	Places of Justice	3.0
CJS 263	Crime, Violence, and Climate Change	3.0
CJS 303	Applications of Justice	3.0
CJS 330	Crime Mapping I Using Geographic Information Systems	4.0

Justice Studies Minor Program Electives

Students must take 9 credits of Justice Studies Minor program electives, selecting any combination of courses from the following list: *

ANTH 112	Language, Culture & Cognition	
ANTH 117	Introduction to World Religions	
ANTH 212 [WI]	Topics in World Ethnography	
ARTH 314	Contemporary Art	
ARTH 315	History of African-American Art	
COM 181	Public Relations Principles and Theory	
COM 210	Theory and Models of Communication	
COM 377	Communication for Civic Engagement	
ECON 201	Principles of Microeconomics	
ECON 365	Behavioral Economics	
ENSS 120	Introduction to Environmental Studies	
ENSS 244	Sociology of the Environment	
ENSS 283	Introduction to Environmental Policy	
ENSS 285	Introduction to Urban Planning	
ENSS 326	Cities and Sustainability	
ENSS 346	Environmental Justice	
ENVS 275	The Science of Climate Change	
ENTP 210 [WI]	Leading Start-Ups	
ENTP 215	Building Entrepreneurial Teams	
ENTP 225 [WI]	Mindfulness & Wellbeing	
ENTP 250	Ideation	
ENTP 270	Social Entrepreneurship	
ENTP 285	Organizational Development and Change for Corporate Entrepreneurs	
ENTP 290	An Entrepreneur's Introduction to Land: Its Essence, Ethics, and Opportunity	

GST 221	Introduction to Global Capital and Development	
GST 231	Introduction to Identities and Communities	
GST 241	Introduction to Power and Resistance	
GST 251	Introduction to Global Media, Arts, and Cultures	
GST 261	Introduction to Global Health and Sustainability	
PSY 150	Introduction to Social Psychology	
PSY 252	Death and Dying	
PSY 254	Psychology of Sexual Behavior	
PSY 270	Psychology of Hate	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 220	Wealth and Power	
SOC 221	Sociology of the Family	
SOC 235	Sociology of Health and Illness	
SOC 240	Urban Sociology	
SOC 244	Sociology of the Environment	
SOC 318	Social Networks and Health	
SOC 406	Housing and Homelessness	
WGST 101	Introduction to Women's and Gender Studies	
WGST 201	Introduction to Feminisms	
WGST 225	Women & Human Rights Worldwide	
WGST 240	Women and Society in a Global Context	
WGST 275	Women's Health and Human Rights	
Total Credits		26.0

*

Other courses are feasible upon approval from the Program Director.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid “clustering” these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Linguistics

About the Minor

Linguistics, the study of language, is central to human communication. Linguists study language form, meaning and context, especially by observing and analyzing human communication in its many spoken and written varieties. A knowledge of linguistics is the basis for studies in language diversity and communicative competence, the psychology of language, educational aspects of language that affect learners and classrooms, the formal logic and languages of philosophy and computer science, and the biological science of speech pathology. As a minor

at Drexel, linguistics helps you develop both a desirable set of skills in communicating with diverse speakers on co-op and an academic profile that will set you apart from other applicants for work, study, scholarship opportunities, and graduate study.

Program Requirements

Required Courses		
LING 101	Introduction to Linguistics	3.0
LING 102	Language and Society	3.0
Elective Courses		
Select a minimum of 18.0 credits from the list below:		18.0
Students can use up to 8 credits of Modern Language Courses (ARBC, CHIN, FREN, GER, HBRW, ITAL, JAP, KOR, SPAN) to fulfill electives.		
AFAS 301	Politics of Hip Hop	
ANTH 112	Language, Culture & Cognition	
BACS 255	Multicultural Counseling	
COM 251	Language and Cultural Diversity in the USA	
COM 342	English Worldwide	
COM 345	Intercultural Communication	
COM 355	Ethnography of Communication	
COM 491	Senior Project in Communication I *	
COM 492	Senior Project in Communication II *	
COM I399	Independent Study in Communication	
CS 171	Computer Programming I	
CS 172	Computer Programming II	
EDUC 216	Diversity and Today's Teacher	
EDUC 236	Early Literacy I	
EDUC 326	Language Arts Processes [W]	
EDUC 365	Foundations in Instructing English Language Learners	
GST 100	Introduction to Cultural Diversity	
GST 101	Becoming Global: Language and Cultural Context	
LANG T180	Special Topics in Languages *	
PHIL 111	Symbolic Logic I	
PHIL 121	Symbolic Logic II	
PHIL 215	Contemporary Philosophy	
PSY 330	Cognitive Psychology	
PSY 336	Psychology of Language	
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	
WRIT 212	Intro to Rhetorical Theory	
Total Credits		24.0

*
Advisor permission needed, depending on topic.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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[coas/academics/departments-centers/english-philosophy/university-writing-program/](http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/)). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

All prospective students should meet with an advisor as soon as possible:

Florette Press
Academic Advisor
florette.l.press@drexel.edu
215-895-1716

Rachel Reynolds
Program Director
rrr28@drexel.edu
215-895-0498

Minor in Mathematics

About the Minor

The minor in Mathematics requires core courses in calculus and linear algebra, as well as a selection of electives from a range of other areas. The minor complements programs in physics, computer science, finance, or engineering, demonstrating further expertise and preparing students to excel after graduation.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

The minor in Mathematics consists of five required courses and elective courses from the specified group of courses listed below resulting in a minimum of 37.0 credits.

Required Courses		
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
MATH 200	Multivariate Calculus	4.0
MATH 201	Linear Algebra *	3.0-4.0
or MATH 261	Linear Algebra	
Mathematics Minor Electives **		
Select from the following:		18.0-19.0
MATH 210	Differential Equations *	
or MATH 260	Differential Equations	
MATH 220	Introduction to Mathematical Reasoning [W]	
MATH 221	Discrete Mathematics	
MATH 222	Combinatorics [W]	
MATH 235	Math Competition Problem Solving Seminar	
MATH 250	Mathematics of Investment and Credit	
MATH 285	Differential Equations II	
MATH 291	Complex and Vector Analysis for Engineers ***	
MATH 300	Numerical Analysis I	

MATH 301	Numerical Analysis II
MATH 305	Introduction to Optimization Theory
MATH 311	Probability and Statistics I
MATH 312	Probability and Statistics II
MATH 313	Probability and Statistics III
MATH 316	Mathematical Applications of Symbolic Software
MATH 318	Mathematical Applications of Statistical Software [W]
MATH 319	Techniques of Data Analysis
MATH 320	Actuarial Mathematics
MATH 321	Vector Calculus
MATH 322	Complex Variables
MATH 323	Partial Differential Equations
MATH 331	Abstract Algebra I
MATH 332	Abstract Algebra II
MATH 387	Linear Algebra II
MATH 401	Elements of Modern Analysis I
MATH 402	Elements of Modern Analysis II
MATH 410	Scientific Data Analysis I
MATH 411	Scientific Data Analysis II
MATH 422	Introduction to Topology
MATH 449	Mathematical Finance
MATH 450	Introduction to Graph Theory
MATH 475	Cryptography
MATH 483	Introduction to Monte Carlo Methods
MATH 489	Tensor Calculus

Total Credits 37.0-39.0

*

Students count only one of these two courses for their minor.

**

A request form is available for any other mathematics courses upon the written approval prior to the beginning of the quarter in which the course is to be offered. Students should contact the Mathematics undergraduate academic advisor.

Students who take MATH 291 cannot also count MATH 321 or MATH 322 toward their minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses

with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Medical Sociology

About the Minor

The minor in Medical Sociology is designed to give students a broader understanding of the social dimensions of contemporary medical practice. Investigating health and illness from a national and global perspective, the minor helps students understand the relations between inequalities, health care and social justice; trends in health professions; and the importance of organizations to health care. For students majoring in such fields as health sciences, nursing or biology, the minor in medical sociology complements their scientific training with a social science focus on humans, policy and power in healthcare.

Admission Requirements

Open to all undergraduate Drexel students. All prospective students should meet with an advisor from the College as soon as possible.

Additional Information

For more information about the Sociology minor, visit the Department of Sociology (<https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.drexel.edu%2Fcoas%2Facademics%2Fdepartments-centers%2Fsociology%2F&data=05%7C01%7Cdag56%40drexel.edu%7Cb1d923130c3247c6e08108db5c7f350e%7C3664e6fa47bd45a696708c4f080f8ca6%7C0%7C0%7C638205473639834134%7CTWfPbGZsb3d8eyJWljoiMC4wLjAwMDAiLCJQljoIV2luMzIiLCJBtIl6k1haWwILC%7C3000%7C%7C%7C&sdata=zJTpWoYlqqeW9v8zIOubPFiBhqplLHrNgBfBcP3VAXc%3D&reserved=0>) webpage.

Program Requirements

Required Courses *

SOC 235	Sociology of Health and Illness	4.0
Select three courses from the following:		12.0

SOC 207	Medicine and Society	
SOC 238	Sociology of Health Professions	
SOC 271	Sociology of Aging	
SOC 313	Sociology of Global Health	
SOC 318	Social Networks and Health	
SOC 370	Practicum in Applied and Community Sociology	
SOC 405	Medicine, Technology and Science	
SOC 430	Politics of Life	
Select two of the following:		8.0
SOC 210	Race, Ethnicity and Social Inequality	
SOC 220	Wealth and Power	
SOC 240	Urban Sociology	
SOC 241	Research Design: Qualitative Methods	
SOC 242	Research Design: Quantitative Methods	
SOC 355 [WI]	Classical Social Theory	
SOC 356 [WI]	Contemporary Social Theory	

Total Credits 24.0

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No more than three courses that are required for a student's major may count towards fulfilling requirements for the minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Middle East and North Africa Studies

About the Minor

This minor offers an interdisciplinary look at the Middle East and North Africa region, which holds a critically important geopolitical position in terms of not only security and energy, but also in terms of political, religious, cultural, and gender studies. Together with content courses in English offered through a variety of departments, this minor also includes 12.0 credits of Arabic language instruction.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Core Requirements		
Students must complete 12 credits of Arabic language coursework		12.0
MENA 101	The Middle East and North Africa Today: Culture and Democracy	3.0
Students must complete a minimum of 9 credits of elective courses		9.0-10.0
GST 241	Introduction to Power and Resistance (Gender Politics in the Middle East)	
GST 341	Advanced Studies in Power and Resistance (Revolution and Counter Revolution in the Arab World)	
HIST 155	The Historical Jesus	
JWST 202/ HIST 253	Jewish Life and Culture in the Middle Ages	
JWST 203 [WI] Modern Jewish History		
JWST 223/ HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
PHIL 201	Non-Western Philosophies *	
Total Credits		24.0-25.0

Study abroad, special topics, and GST courses focused on the Middle East or North Africa will be considered for elective credit. Students must receive permission from the department.

Students who complete a minimum of 8.0 Arabic credits, including ARBC 202, are eligible to receive an intermediate language certificate.

* Course must be Introduction to Arabic Philosophy, Introduction to Jewish Philosophy, or Introduction to Asian Philosophies to count for the minor

Minor in Neuroscience

About the Minor

The Neuroscience minor allows students from a vast array of disciplines the opportunity for formalized study in neuroscience. This interdisciplinary minor integrates content from cellular, molecular, and systems neurobiology with neuropsychology, providing students with a strong foundation in basic principles of neurobiology and neuropsychology. This minor is a collaborative effort between Biology and Psychology, but is open to students in any major with an interest in gaining a deeper understanding of the biological and cognitive principles underlying brain function.

Please contact Leanne Sweppenheiser at lm38@drexel.edu for additional information.

Required Courses		
BIO 348	Neuroscience: From Cells to Circuits	3.0
BIO 349	Behavioral Neuroscience	3.0
PSY 312	Cognitive Neuroscience	3.0
PSY 410	Neuropsychology	3.0
Biology and Psychology Electives *		
Select 2 BIO courses		6.0
BIO 414	Behavioral Genetics	
BIO 461	Neurobiology of Autism Disorders	
BIO 462	Biology of Neuron Function	
BIO 463	Molecular Mechanisms of Neurodegeneration	
BIO 465	Neurobiology of Disease	
Select 2 PSY courses		6.0
PSY 212	Physiological Psychology	
PSY 213	Sensation and Perception	
PSY 310	Drugs & Human Behavior	
PSY 325	Psychology of Learning	
PSY 330	Cognitive Psychology	
PSY 336	Psychology of Language	
Total Credits		24.0

A grade of "C" or better must be earned for each course in this minor to meet the requirements.

* 3 credits of research in neuroscience as BIO 497 or PSY I499 can be substituted for 1 elective in either of the categories

Minor in Nonprofit Communication

About the Minor

The minor in Nonprofit Communication is a 24.0 credit curriculum designed to familiarize students with general communication theory and practice while providing training in print and electronic communication skills peculiar to the nonprofit sector. In addition to conventional coursework, this minor will include a practicum in the form of a 3.0 credit independent study (COM I399) for one term in which students will provide

service and consultation for an area nonprofit organization as selected and coordinated by the student and approved by the undergraduate program director.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Core Courses

COM 181	Public Relations Principles and Theory	3.0
COM 375 [WI]	Grant Writing	3.0
COM 376	Nonprofit Communication	3.0
COM 377	Communication for Civic Engagement	3.0
COM 378	Public Service Campaigns	3.0
COM 1399	Independent Study in Communication	3.0

Choose at least 2 courses: 6.0

COM 160 [WI]	Introduction to Journalism	
COM 222	Interpersonal Communication	
COM 247	Strategic Social Media Communication	
COM 265	Audio Journalism	
COM 270 [WI]	Business Communication	
COM 282 [WI]	Public Relations Writing in the Digital Age	
COM 330	Professional Presentations	
COM 363	Event Planning	

Total Credits 24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Philosophy

About the Minor

A philosophy minor adds great depth and breadth to your studies and value to any degree. Philosophy classes train you to be a more effective thinker and a more critical, reflective person. They assist you in developing better reading, writing, and speaking skills by engaging you in the work of constructing and criticizing arguments. More than almost any

other, a philosophy minor will broaden and enhance your education and help you develop skills you will use in your career and in everyday life.

The minor has been carefully designed to provide a comprehensive structure within which each student has a range of choices. It includes one introductory course, one logic course, three "foundations" courses, one "area elective," an applied ethics course, and one 400-level philosophy seminar. We also can customize the minor further to reflect students' particular interests and goals.

Students who have completed 30.0 credits may apply for the minor through their academic advisors.

Program Requirements

Required Courses:

PHIL 105	Critical Reasoning	3.0
or PHIL 111	Symbolic Logic I	
PHIL 110	Introduction to Philosophy	3.0

Select three Philosophy Foundations Electives: 9.0

PHIL 121	Symbolic Logic II	
PHIL 151	Ethical Reasoning	
PHIL 201	Non-Western Philosophies	
PHIL 211	Metaphysics: Philosophy of Reality	
PHIL 221	Epistemology: Philosophy of Knowledge	
PHIL 231	Aesthetics: Philosophy of Art	
PHIL 241	Social & Political Philosophy	
PHIL 251	Ethics	

Select one Philosophy Area Elective: 3.0

PHIL 210	Philosophy of Sport	
PHIL 216	Philosophy of Time	
PHIL 218	Philosophy of Mathematics	
PHIL 255	Philosophy of Sex & Love	
PHIL 291	Judaism and Christianity: Two Religions or One?	
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 355	Philosophy of Medicine	
PHIL 361	Philosophy of Science	
PHIL 381 [WI]	Philosophy in Literature	
PHIL 385	Philosophy of Law	
PHIL 391	Philosophy of Religion	

Select one Applied Ethics Elective: 3.0

PHIL 301	Business Ethics	
PHIL 305	Ethics and the Media	
PHIL 311	Ethics and Information Technology	
PHIL 315	Engineering Ethics	
PHIL 317	Ethics and Design Professions	
PHIL 321	Biomedical Ethics	
PHIL 323	Organizational Ethics	
PHIL 325	Ethics in Sports Management	
PHIL 330	Criminal Justice Ethics	
PHIL 335	Global Ethical Issues	
PHIL 340	Environmental Ethics	

Select one Philosophy Seminar Elective: 3.0

PHIL 481 [WI]	Seminar in a Philosophical School	
PHIL 485 [WI]	Seminar in a Major Philosopher	

Total Credits 24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are

advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or drop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
Director of Programs in Philosophy
Department of English & Philosophy
MacAlister 5029
peterama@drexel.edu

Minor in Physics

About the Minor

Physics is a science that studies the natural phenomena at all scales from that of the universe to elementary particles. This minor exposes the students to some of the basic principles of physics and would easily complement any other discipline from engineering to other sciences.

The minor in Physics requires a total of 10.0 credits from the elective list in addition to the prerequisite and core courses.

Because of the overlap in requirements between the Astrophysics minor (p. 231) and the Physics minor, students cannot minor in both.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Prerequisite Courses *

PHYS 113	Contemporary Physics I
PHYS 114	Contemporary Physics II
PHYS 115	Contemporary Physics III

Required Courses

PHYS 311	Classical Mechanics I	4.0
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PHYS 321	Electromagnetic Fields I	4.0
PHYS 217	Thermodynamics	4.0
PHYS 326	Quantum Mechanics I	4.0
Electives		
Select at least 10.0 credits from PHYS courses at the 300 level or above		10.0
Total Credits		26.0

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PHYS 101, PHYS 102 and PHYS 201 will also satisfy the prerequisite requirements.

Minor in Politics

About the Minor

A minor in Politics enriches almost every major. With a minor in Politics, you can hone your analytical and critical thinking skills and take your understanding of political science and research methodology to your field of study.

Political science pairs well with economics, criminal justice, psychology, public health, history, anthropology, communications, or education.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

For more information about this minor, please visit the CoAS minors (<https://drexel.edu/coas/academics/minors/>) web page.

Program Requirements

Required Courses

Select three of the following:		12.0
PSCI 100	Introduction to Political Science	
PSCI 110	American Government	
PSCI 120	History of Political Thought	
PSCI 130	Research Design for Political Science	
PSCI 140	Comparative Politics I	
PSCI 150	International Politics	

Political Science Electives

12.0 credits of any additional 200-level or higher PSCI courses.		12.0
Total Credits		24.0

Minor in Psychology

About the Minor

The minor in Psychology is intended to meet the needs of students who recognize the importance of an understanding and analysis of individual psychological processes as a key component of their education. Students in the minor learn how to ask and answer important questions regarding human behavior, cognition, and emotion to complement their major. The minor may also be of interest to students who wish to be a double major but are unable to satisfy all of the requirements in two major fields.

Entry into the minor requires that PSY 101 *General Psychology* (or an equivalent introductory course) be taken as a prerequisite. Students interested in this minor are expected to meet with the department's Academic Advisor to discuss the selection of courses appropriate to their major and their own personal interests. No more than three courses that are required for a student's major can count towards fulfilling requirements for this minor.

Required Prerequisite

PSY 101	General Psychology I (or equivalent)
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Required PSY Courses

Select any EIGHT additional PSY electives *	24.0
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Total Credits	24.0
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Suggestion options include PSY 120, PSY 240 [WI] , PSY 280, PSY 360 [WI] and PSY 342. Students are not permitted to take PSY 111 or PSY 112. All other courses are available as electives.

A grade of "C" or better must be earned in each course to meet the requirements for this minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Religious Studies

About the Minor

This minor provides an interdisciplinary approach to the study of religion with much flexibility to accommodate individual student interest. Students will gain a global comparative perspective on world religions.

Admission Requirements

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Students must complete three courses from this list	9.0-10.0
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ANTH 117	Introduction to World Religions
ENGL 330	The Bible as Literature
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean
PHIL 391	Philosophy of Religion

Students must complete at least 15 credits of additional elective courses, including a minimum of two different course rubrics:	15.0
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ANTH 117	Introduction to World Religions
ANTH 217	Anthropology of Interfaith Relations
ANTH 270	Comparative Religious Ethics

ENGL 330	The Bible as Literature
ENGL 335	Mythology
ENGL 350	Jewish Literature and Civilization or JWST 20 Jewish Literature and Civilization
HIST 155	The Historical Jesus
HIST 181	Religion, Science, and Medicine in History
HIST 249 [WI]	Modern Jewish History or JWST 20 Modern Jewish History
HIST 253	Jewish Life and Culture in the Middle Ages or JWST 20 Jewish Life and Culture in the Middle Ages
HIST 257	The Reformation Age
HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean
HIST 358	Witches, Demons, and Witch-hunters in European History
JWST 212	Contemporary Jewish Life
JWST 216	Yiddish Literature & Culture
PHIL 201	Non-Western Philosophies
PHIL 291	Judaism and Christianity: Two Religions or One?
PHIL 391	Philosophy of Religion
RELS T280	Special Topics in Religious Studies *
RELS T380	Special Topics in Religious Studies *
Total Credits	24.0-25.0

*

Special Topics courses focused on religious studies will be considered for elective credit. Students must receive permission from the department.

Minor in Science, Technology and Society

About the Minor

The minor in Science, Technology and Society (STS) allows students to explore the cultural, ethical, historical, political, and institutional dimensions of science, medicine, and technology. By taking courses in different disciplines, students develop an interdisciplinary approach that empowers them to critically analyze the social dimensions of science, medicine, and technology. STS programs, also called science and technology studies, are growing in the US and worldwide. The ability to critically identify the values and incentives built into scientific knowledge and technology design and use is highly valued in settings such as health care organizations, government agencies, public policy realms, tech industries, and more.

Additional Information

For more information about this program, please contact:

Kristene Unsworth, PhD
Director, Center for Science, Technology and Society
ku26@drexel.edu
215.895.0277

Additional information can be found on Drexel's Center for Science, Technology and Society (<http://drexel.edu/coas/academics/departments-centers/science-technology-society/>) page. All prospective students should meet with an advisor from the College as soon as possible.

Select 6 - 8 classes from the list below, with a minimum of 24.0 credits. One class must be SCTS 101. At least 2 different subject areas must be represented among these classes.	24.0
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ANTH 330	Media Anthropology
ANTH 345	Visual Anthropology

ANTH 355	Digital Culture
ARCH 315	Sustainable Built Environment I
BIO 114	Climate Change and Human Health
BIO 212	Biotechnology
COM 240	New Technologies In Communication
COM 247	Strategic Social Media Communication
COM 351	Emergent Media and Self
CJS 210	Race, Crime, and Justice
CJS 220	Crime and the City
CJS 240	Seminar in Justice Informatics
CJS 263	Crime, Violence, and Climate Change
CJS 273	Surveillance, Technology, and the Law
CJS 274	Sex, Violence, & Crime on the Internet
CJS 366	Technology and the Justice System
CJS 304	Mental Illness and the Criminal Justice System
ENGL 300 [WI]	Literature & Science
ENGL 302	Environmental Literature
ENGL 303	Science Fiction
ENGL 370	Topics in Literature and Medicine
ENVS 260	Environmental Science and Society
ENVS 275	The Science of Climate Change
ENVS 286	Community and Ecosystem Ecology
ENSS 244	Sociology of the Environment
ENSS 275	Global Climate Change
INTR 310	Sustainability: History, Theory and Criticism
HIST 181	Religion, Science, and Medicine in History
HIST 283	Technology and Identity
HIST 285	Technology in Historical Perspective
HIST 287	History of Science: Ancient to Medieval
HIST 288	History of Science: Medieval to Enlightenment
HIST 289	History of Science: Enlightenment to Modernity
HIST 290	Technology and the World Community
HIST 321	Themes in Global Environmental History
HIST 341	Disabilities in History
HIST 380 [WI]	Advanced History Seminar
HSAD 210	Health-Care Ethics I
HSAD 225	Perspectives on Disability
HSAD 309	Advanced Health-Care Ethics
HSAD 362	Madness, Mental Health and Psychiatry in the Modern West
INFO 150	Introduction to Ubiquitous Computing
INFO 215	Social Aspects of Information Systems
INFO 405	Social and Collaborative Computing
MGMT 364	Technology Management
PBHL 302	History of Public Health
PBHL 362	Global Air Pollution and Health
PHIL 111	Symbolic Logic I
PHIL 121	Symbolic Logic II
PHIL 311	Ethics and Information Technology
PHIL 321	Biomedical Ethics
PHIL 340	Environmental Ethics
PHIL 341	Environmental Philosophy
PHIL 351	Philosophy of Technology
PHIL 355	Philosophy of Medicine
PHIL 361	Philosophy of Science
PSCI 284	Environmental Politics
PSCI 289	Technology and Politics
PSCI 334	Politics of Environment and Health
PSCI 369	The Politics of Food
PSCI 371	Science, Technology, & Public Policy
PSCI 373	Animal Politics
PSY 290	History and Systems of Psychology
SCTS 101	Introduction to Science, Technology, and Society

SCTS 200	Addiction & Society
SCTS 202	Innovation and Social Justice
SCTS 205	Artificial Intelligence and Society
SCTS 207	Medicine and Society
SOC 222	Sex and Society
SOC 235	Sociology of Health and Illness
SOC 244	Sociology of the Environment
SOC 261	Sex and The City
SOC 313	Sociology of Global Health
SOC 346	Environmental Justice
SOC 349	Sociology of Disasters
SOC 405	Medicine, Technology and Science
SOC 430	Politics of Life
WGST 225	Women & Human Rights Worldwide
WGST 275	Women's Health and Human Rights

Total Credits

24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Sociology

About the Minor

The sociology minor is designed to give students specializing in other fields a broader knowledge of contemporary social issues such as poverty, racism, economic inequality, unemployment, and environmental change through a sociological lens. For students majoring in such fields as business and engineering, the minor helps develop skills in critical thinking that go beyond the acquisition of specialized, professional techniques. It will further students' ability to systematically identify how gender, race or class, for example, shape work, medicine, technology, and society. For students majoring in another area of the liberal arts, the minor offers the opportunity to place the issues raised in the major discipline within a larger social context.

Open to all undergraduate Drexel students. All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Please note: No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

Additional Information

For more information about the Sociology minor, visit the Department of Sociology (<https://nam10.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.drexel.edu%2Fcoas%2Facademics%2Fdepartments-centers%2Fsociology%2F&data=05%7C01%7Cdag56%40drexel.edu%7Cb1d923130c3247c6e08108db5c7f350e%7C3664e6fa47bd45a696708c4f080f8ca6%7C0%7C0%7C638205473639834134%7CUnknown%7CTWFpbGZsb3d8eyJWljiMC4wLjAwMDAiLCJQIjoiV2luMzliLCJBTiI6IklhaWwILCJXVCJiOiI6MD%3D%7C3000%7C%7C%7C&sdata=zJTpWoYlqqeW9v8zIOubPFiBhqplLHrNgBFbCp3VAXc%3D&reserved=0>) webpage.

Required Courses *		
SOC 355 [WI]	Classical Social Theory	4.0
or SOC 356	Contemporary Social Theory	
Select five of the following: **		20.0
SOC 115	Social Problems	
SOC 207	Medicine and Society	
SOC 210	Race, Ethnicity and Social Inequality	
SOC 215	Sociology of Work	
SOC 220	Wealth and Power	
SOC 221	Sociology of the Family	
SOC 222	Sex and Society	
SOC 230	Gender and Society	
SOC 235	Sociology of Health and Illness	
SOC 238	Sociology of Health Professions	
SOC 240	Urban Sociology	
SOC 241	Research Design: Qualitative Methods	
SOC 242	Research Design: Quantitative Methods	
SOC 244	Sociology of the Environment	
SOC 261	Sex and The City	
SOC 268	Sociology of Sport	
SOC 271	Sociology of Aging	
SOC 278	Global Climate Change and Society	
SOC 281	Gentrification and Neighborhood Change	
SOC 313	Sociology of Global Health	
SOC 318	Social Networks and Health	
SOC 320	Sociology of Deviance	
SOC 330	Development and Underdevelopment in the Global South	
SOC 335	Sociology of Education	
SOC 340	Globalization	
SOC 346	Environmental Justice	
SOC 349	Sociology of Disasters	
SOC 405	Medicine, Technology and Science	
SOC 406	Housing and Homelessness	
SOC 410	Imagining Multiple Democracies	
SOC 420	Love, Rage & Debt: The Debt Society	
SOC 430	Politics of Life	
SOC 444	Social Movements	
SOC T380	Special Topics in Sociology	
SOC 450	Capstone in Sociology	
SOC T480	Special Topics in Sociology	
SOC I499	Independent Study in SOC	
Total Credits		24.0

*
No more than three courses that are required for a student's major can count towards fulfilling requirements for the minor.

**
Students must take at least three elective courses at the 300 or 400 level.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Minor in Spanish

About the Minor

In our globalized world, intercultural and multilingual communication is an indispensable asset for the 21st century citizen and worker. As part of the Department of Global Studies and Modern Languages, we offer language instruction rooted in communication and embedded in authentic cultural contexts. Language study opens a world of opportunities for our students, from co-ops and study abroad programs to engagement with global communities here in Philadelphia. Media and technology, as well as travel and commerce, make the study of languages more crucial than ever, for tackling global challenges such as climate change and inequality demand that our students communicate across languages and cultures.

Additional Information

For more information, contact:

Kate Hughes
Associate Director and Advisor
Department of Global Studies and Modern Languages
kfh28@drexel.edu

Program Requirements

The Spanish minor requires a minimum of 24 credits above SPAN 103, including at least 12 credits above SPAN 310. Students can choose from the following 300 and 400 level courses. 24.0

SPAN 201	Intermediate Spanish I
SPAN 202	Intermediate Spanish II
SPAN 211	Spanish for Healthcare Professionals II
SPAN 212	Spanish for Healthcare Professionals III
SPAN 310 [WI]	Advanced Writing and Speaking
SPAN 320	Introduction to Language for the Professions
SPAN 330	Introduction to Identities and Communities
SPAN 340	Introduction to Power and Resistance

SPAN 350	Introduction to Language, Media, and Society	
SPAN 410 [WI]	Advanced Grammar and Translation	
SPAN 420	Advanced Studies in Language for the Professions	
SPAN 430	Advanced Studies in Identities and Communities	
SPAN 440	Advanced Studies in Power and Resistance	
SPAN 450	Advanced Studies in Language, Media, and Society	
Total Credits		24.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in War and Society

About the Minor

This minor concentrates on the history of wars, military and related institutions and their broader historical and political contexts. This minor may not be taken in combination with the Minor in History.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Complete 16 credits in the following courses: *		16.0
HIST 230	United States Military History I (before 1900)	
HIST 231	US Military History II (since 1900)	
HIST 234	The United States Civil War	
HIST 235	The Great War, 1914-1918	
HIST 236	World War II	
HIST 239	The Pacific War	
HIST 248	History of the Holocaust or JWST 22 History of the Holocaust	
HIST 331 [WI]	The American Revolution	
HIST 338 [WI]	The Vietnam War	
HIST 341	Disabilities in History	
JWST 215	Reconstructing History After Genocide	
PSCI 150	International Politics	
PSCI 250	American Foreign Policy	
PSCI 310	Civilians in Armed Conflict	
PSCI 352	Ethics and International Relations	

PSCI 353	International Human Rights	
Complete any 2 additional history courses		8.0
Total Credits		24.0

*
At least 8 credits must be HIST courses.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Minor in Writing

About the Minor

The Minor in Writing provides a foundation of advanced writing knowledge and practice while also allowing a focus on areas of writing you find most interesting, enjoyable, or relevant to your goals.

The Minor in Writing can help you:

- develop rhetorical awareness and knowledge that will help you write and communicate successfully in new contexts
- acquire writing habits and practices that will help you in college classes as well as in professional, civic, and personal life
- write and think creatively and critically in a variety of genres
- develop a portfolio of work that helps demonstrate your skill and experience as a writer
- engage with ideas and modes of expression you care about and find rewarding

Choose from a selection of core courses, and then customize your experience in the minor by selecting one course from the Literacies and Theories category and three courses (or nine credits) from an extensive list of Writing Practices.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Core Courses
Choose one from each pair:

WRIT 195	Threshold Concepts in Writing Studies	3.0
or WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar	
WRIT 210 [WI]	The Peer Reader in Context	3.0
or WRIT 211	Advanced Composition	
WRIT 225 [WI]	Creative Writing	3.0
or WRIT 212	Intro to Rhetorical Theory	
WRIT 312 [WI]	Writing for Target Audiences	3.0
or WRIT 315	Writing for Social Change	
Literacies and Readings		
Choose one course focused on reading or learning about writing in a particular genre or context:		3.0
ANTH 330	Media Anthropology	
COM 210	Theory and Models of Communication	
COM 220	Qualitative Research Methods	
COM 355	Ethnography of Communication	
EDUC 236	Early Literacy I	
EDUC 326 [WI]	Language Arts Processes	
ENGL 200 [WI]	Classical to Medieval Literature	
ENGL 201	Renaissance to the Enlightenment	
ENGL 202 [WI]	Romanticism to Modernism	
ENGL 203 [WI]	Survey of World Literature	
ENGL 204	Post-Colonial Literature	
ENGL 205 [WI]	American Literature I	
ENGL 206 [WI]	American Literature II	
ENGL 207 [WI]	African American Literature	
ENGL 211 [WI]	British Literature I	
ENGL 212	British Literature II	
ENGL 214	Readings in Fiction	
ENGL 215 [WI]	Readings in Poetry	
ENGL 216 [WI]	Readings in Drama	
ENGL 250	Intro to Digital Humanities	
LING 101	Introduction to Linguistics	
LING 102	Language and Society	
PHIL 105	Critical Reasoning	
PHIL 305	Ethics and the Media	
PSCI 335	Political Communication	
WRIT 195	Threshold Concepts in Writing Studies *	
WRIT 200	Language Puzzles and Word Games: Issues in Modern Grammar *	
WRIT 210 [WI]	The Peer Reader in Context *	
WRIT 211	Advanced Composition *	
WRIT 212	Intro to Rhetorical Theory *	
WRIT 295	Forms Seminar	
Writing Practices		
Choose three courses that allow you to practice writing in specific genres or contexts:		9.0
COM 160 [WI]	Introduction to Journalism	
COM 270 [WI]	Business Communication	
COM 310 [WI]	Technical Communication	
COM 320 [WI]	Science Writing	
COM 335 [WI]	Digital Publishing	
CULA 412	Food Writing	
SCRP 220	Playwriting I	
SCRP 225	Playwriting II	
SCRP 270 [WI]	Screenwriting I	
SCRP 275 [WI]	Screenwriting II	
SCRP 280 [WI]	Writing the Short Film	
SCRP 370	Screenplay Story Development	
SCRP 350	TV Writers' Room	

WRIT 215 [WI]	Story Medicine
WRIT 220 [WI]	Creative Nonfiction Writing
WRIT 225 [WI]	Creative Writing *
WRIT 226	Writing in Public Spaces
WRIT 280	The Writers Room Lab Credit
WRIT 290	Writers Room Experience
WRIT 301 [WI]	Writing Poetry
WRIT 302 [WI]	Writing Fiction
WRIT 303	Writing Humor and Comedy
WRIT 305	Life is Beautiful
WRIT 306	Writing About the Media
WRIT 308	Writing Your Novel
WRIT 310	Literary Editing & Publication
WRIT 311	Writing and Reading the Memoir
WRIT 312 [WI]	Writing for Target Audiences *
WRIT 315	Writing for Social Change *
WRIT 320	Publishing Veterans' Memoirs for the Library of Congress
WRIT 330	Writing and Contexts
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web *
WRIT 401	Advanced Poetry Workshop
WRIT 402	Advanced Fiction Workshop
WRIT 405	Internship in Publishing
WRIT T280	Special Topics in Writing
WRIT T380	Special Topics in Writing
WRIT T480	Special Topics in Writing

Total Credits	24.0
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*

Courses marked with an asterisk are also listed as options for core courses for the minor. A student who elects to take one of these courses may not count it twice (once as a core course and once as an elective in the Literacies and Theories category or in the Writing Practices category). For example, a student who chooses to take WRIT 212 *Argument and Rhetoric* as a core course may not count it again as a Literacies and Theories course; however, this student could take WRIT 225 [WI] *Creative Writing* and count it as a Writing Practices course.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Certificate in Ethical Theory and Practice

About the Program

The certificate in Ethical Theory and Practice will help you develop your awareness and understanding of ethical issues. Ethics is a crucial aspect of all personal, familial, institutional, civic, business, scientific, and professional relationships. In ethics classes, you will reflect upon how and why these kinds of problems arise, the nuances and repercussions of tackling them in different ways, and some of the various ways people have thought about how to resolve them in practice. This kind of study adds depth to your understanding of the practical dimensions of all areas of life and work and prepares you for dealing with the complex moral and ethical issues that arise.

Admission Requirements

Open to Drexel students in all schools and colleges in all majors who have completed 15.0 credits.

Program Requirements

Required Courses

PHIL 105	Critical Reasoning	3.0
or PHIL 151	Ethical Reasoning	
PHIL 110	Introduction to Philosophy	3.0
or PHIL 201	Non-Western Philosophies	
PHIL 241	Social & Political Philosophy	3.0
PHIL 251	Ethics	3.0
Select two of the following:		6.0
PHIL 301	Business Ethics	
PHIL 305	Ethics and the Media	
PHIL 311	Ethics and Information Technology	
PHIL 315	Engineering Ethics	
PHIL 317	Ethics and Design Professions	
PHIL 321	Biomedical Ethics	
PHIL 323	Organizational Ethics	
PHIL 325	Ethics in Sports Management	
PHIL 330	Criminal Justice Ethics	
PHIL 335	Global Ethical Issues	
PHIL 340	Environmental Ethics	
PHIL 385	Philosophy of Law	
Total Credits		18.0

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
Director of Programs in Philosophy
Department of English & Philosophy
MacAlister 5029
peterama@drexel.edu

Certificate in Interfaith and Religious Studies

About the Program

Only available to currently enrolled Drexel students.

The certificate in Interfaith and Religious Studies represents Drexel University's commitment to the study of spirituality and the contribution of the world's organized religions to the psychological and social well-being of individuals, groups, and societies. Through the study of the interrelationship of religions and the efforts of interfaith initiatives, students will better understand group commonalities and differences and attempts for social improvement and the resolution of conflict.

The Jewish Studies program, an interdepartmental and interdisciplinary program in the College of Arts and Sciences, has for many years taught about the centrality of religion in cultural life. In its core courses, the evolution of Judaism alongside the rise of Christianity and Islam has been studied. As the coordinating body for the certificate in Interfaith and Religious Studies, the Jewish Studies program continues its tradition of exposing Drexel students to the leaders, thinkers, and institutions of the larger, outside community.

All prospective students should meet with an advisor (<https://drexel.edu/coas/academics/undergraduate-advising/>) from the College as soon as possible.

Program Requirements

Students must complete at least 15 credits from the list below:		15.0
JWST 117	Introduction to World Religions	
or ANTH 11	Introduction to World Religions	
JWST 221	Anthropology of Interfaith Relations	
or ANTH 21	Anthropology of Interfaith Relations	
JWST 222	Comparative Religious Ethics	
or ANTH 27	Comparative Religious Ethics	
JWST 223	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
or HIST 260	Coexistence and Conflict: Jews, Christians, and Muslims in the Early Mediterranean	
JWST 224	Judaism and Christianity: Two Religions or One?	
or PHIL 291	Judaism and Christianity: Two Religions or One?	
JWST 225	Philosophy of Religion	
or PHIL 391	Philosophy of Religion	
Total Credits		15.0

Any travel-add-on component to these courses can be counted towards the Certificate.

Certificate in Health and Medical Humanities

Only available to currently enrolled Drexel students.

About the Program

The certificate program in Health and Medical Humanities is designed for students majoring in any of the biological sciences and health professions including biomedical engineering, nursing, and public health as well as non-health-related majors such as those found in the humanities

and the social sciences with the aim of promoting dialogue and mutual appreciation for various approaches to health-related issues.

The wide range of applicable courses within designated disciplines fosters an interdisciplinary context for investigating the many challenges within medicine and caregiving. This format, in turn, encourages students to explore illness, disability, dying, and healing as human experiences and to evaluate some of the limitations of an exclusively scientific perspective on medical practice and research.

The program director will help students choose courses best suited for their personal and professional interests. Note that most courses applicable to the program also fulfill humanities electives for other majors and that courses may change as departments offer more options. Students will receive periodic updates notifying them of additional course offerings.

Opportunities

Those students who successfully complete the program will receive a certificate in Health and Medical Humanities. This certificate highlights the student's proficiency in an interdisciplinary approach to health-related issues not easily attainable through isolated courses. The series of courses that make up the certificate program are also helpful in preparing for the humanities sections of the MCAT.

Program Requirements

Required Courses

ENGL 370	Topics in Literature and Medicine	3.0
ENGL 470	Capstone Seminar in Health and Medical Humanities	3.0
PHIL 355	Philosophy of Medicine	3.0
Select one of the following ethics courses:		3.0
BMES 338	Biomedical Ethics and Law	
HSAD 210	Health-Care Ethics I	
HSAD 309	Advanced Health-Care Ethics	
HSAD 324	Health Technology and Ethical Responsibility	
HSAD 352	Ethics in Health Care Research	
PBHL 309	Public Health Ethics	
PHIL 251	Ethics	
PHIL 321	Biomedical Ethics	
Select two courses from the following:		6.0
BIO 212	Biotechnology	
ENGL 300 [WI]	Literature & Science	
HIST 278	Medicine Before Germs	
HIST 285	Technology in Historical Perspective	
HSAD 313	Evolution of Health Care in the United States	
HSAD 316	Health Care across Cultures	
HSAD 318	Health and Vulnerable Populations	
HSAD 319	Women and the Health Professions	
HSAD 322	Health-Care Law	
HSAD 333	Health, Illness, and the Arts	
HSAD 343	Health and Illness in Film	
PBHL 101	Public Health 101	
PBHL 303	Overview of Issues in Global Health	
PBHL 304	Introduction to Health & Human Rights	
PBHL 333	Health Inequality	
PHIL 255	Philosophy of Sex & Love	
PHIL 361	Philosophy of Science	
PSY 244	Cross-Cultural Psychology	
PSY 252	Death and Dying	
PSY 355	Health Psychology	
PSY 356	Women's Health Psychology	
SCTS 101	Introduction to Science, Technology, and Society	

SOC 222	Sex and Society
SOC 235	Sociology of Health and Illness
SOC 271	Sociology of Aging
SOC 313	Sociology of Global Health
SOC 318	Social Networks and Health
WRIT 215 [WI]	Story Medicine
WRIT 305	Life is Beautiful

Total Credits

18.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

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Additional Information

For more information, contact the program director:

Stacey Ake, PhD (Biology), PhD (Philosophy)
Department of English and Philosophy
sea29@drexel.edu

Philosophy, Arts, and Humanities Certificate

About the Program

Only available to currently enrolled Drexel students.

The certificate in Philosophy, Arts, and Humanities provides an excellent opportunity for undergraduate students in all majors to deepen and broaden their educational experience through engagement with questions and ideas related to the arts and the humanities. What is the nature of art and how is it related to ideas about "beauty?" What does art say about the experience of being human or a particular human? How do interpretations contribute to our thinking about what is true and what is right? How can competing interpretations of our duties and obligations in society and the state be assessed and evaluated? How should we understand the ways people have thought about humanity's place in the cosmos over time? These and many other related issues will be explored.

Contact your academic advisor in order to add this certificate to your program.

Program Requirements

Required Courses		
PHIL 105	Critical Reasoning	3.0
PHIL 110	Introduction to Philosophy	3.0
PHIL 231	Aesthetics: Philosophy of Art	3.0
Select three of the following:		9.0
PHIL 201	Non-Western Philosophies	
PHIL 255	Philosophy of Sex & Love	
PHIL 291	Judaism and Christianity: Two Religions or One?	
PHIL 381 [WI]	Philosophy in Literature	
PHIL 385	Philosophy of Law	
PHIL 391	Philosophy of Religion	
Total Credits		18.0

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
Director of Programs in Philosophy
Department of English & Philosophy
MacAlister 5029
peterama@drexel.edu

Philosophy, Science, and Technology Certificate

About the Program

Only available to currently enrolled Drexel students.

The certificate in Philosophy, Science, and Technology provides an excellent opportunity for undergraduate students in all majors to deepen

and broaden their educational experience by exploring issues related to science and technology. What is the nature and scope of natural science? What should count as "knowledge" as opposed to "opinion"? How do the sciences produce knowledge? How do philosophers think about the reality of space, time, and mathematics? What is the role played by their technical apparatus in the ways scientists think about the things they study? Is technology a neutral factor in human life and history? What is our responsibility to the environment? These and many other questions will be explored.

Contact your academic advisor in order to add this certificate to your program.

Program Requirements

Required Courses		
PHIL 110	Introduction to Philosophy	3.0
PHIL 111	Symbolic Logic I	3.0
Select one of the following:		3.0
PHIL 121	Symbolic Logic II	
PHIL 216	Philosophy of Time	
PHIL 218	Philosophy of Mathematics	
PHIL 221	Epistemology: Philosophy of Knowledge	
Select three of the following:		9.0
PHIL 341	Environmental Philosophy	
PHIL 351	Philosophy of Technology	
PHIL 355	Philosophy of Medicine	
PHIL 361	Philosophy of Science	
Total Credits		18.0

Additional Information

For more information about Drexel Philosophy classes and programs, please visit the Department of English & Philosophy (<http://www.drexel.edu/coas/academics/departments-centers/english-philosophy/>) website or stop by to see our director anytime. The Department of English & Philosophy is located in MacAlister Hall, Room 5016. The director can be contacted at:

Dr. Peter Amato
Director of Programs in Philosophy
Department of English & Philosophy
MacAlister 5029
peterama@drexel.edu

Spanish for Health Professionals Certificate

Only available to currently enrolled Drexel undergraduate students.

The Spanish for Health Professionals certificate prepares students to engage Spanish-speaking populations in the field of healthcare. It offers a critical advantage to health professions students (College of Nursing and Health Professions, Public Health, Pre-Med) who will be much better positioned in the job market if they can certify their ability to use Spanish in the workplace and engage with patients in culturally sensitive ways.

Additional Information

For more information, contact:

Kate Hughes
Associate Director and Advisor

Department of Global Studies and Modern Languages
kfh38@drexel.edu

Program Requirements

Category 1: Spanish language coursework [*]		4.0-12.0
SPAN 113	Spanish for Healthcare Professionals I	
SPAN 211	Spanish for Healthcare Professionals II	
SPAN 212	Spanish for Healthcare Professionals III	
Category 2: Latin American/Latinx Health coursework		6.0-14.0
Students must complete between 6—14 credits of Latin American/Latinx Health coursework, and are encouraged to complete some of those credits through community-based and/or study abroad courses. ^{**}		
BACS 255	Multicultural Counseling	
HSAD 316	Health Care across Cultures	
HSAD 328	Health Care for Diverse Groups	
PBHL 101	Public Health 101	
PBHL 303	Overview of Issues in Global Health	
PBHL 304	Introduction to Health & Human Rights	
PBHL 309	Public Health Ethics	
PBHL 333	Health Inequality	
PHIL 321	Biomedical Ethics	
PHIL 335	Global Ethical Issues	
SPAN 320	Introduction to Language for the Professions (When focused on health professions, taught in Spanish)	
SOC 313	Sociology of Global Health	
Total Credits		18.0-26.0

^{*}

Students are required to complete a minimum of 4 credits (SPAN 212 is required), and a maximum of 12 credits of language coursework. Students who take 4 credits of language courses must complete 14 credits of Latin American/Latinx Health coursework.

^{**}

In addition to the course options above in Category 2, approved community-based/study abroad courses include: GST 231 *Introduction to Identities and Communities* (Disaster & Resilience in Puerto Rico: Community-Based Learning Course); LANG T180 *Special Topics in Languages* (Intensive Spanish for Medical Professional: Costa Rica study abroad course); HSAD 366 *Global Aging Intensive Course Abroad*; HSAD T480 *Special Topics in Health Services Administration* (Health Care Systems in Latin America: Costa Rica study abroad course) CHP 691 *Public Health Practice in and with Latino Communities*; CHP 692 Migration and Health; and relevant special topics and study abroad courses will be considered with department permission. GST 261 and GST 361 can also be approved for Category 2, Latin American/Latinx Health coursework, when focused on relevant subject matter, such as GST 261: *Introduction to Global Health and Sustainability* (Race, Medicine, and Global Inequalities).

Certificate in Writing and Publishing

About the Program

The certificate in Writing and Publishing (CWP) offers currently enrolled Drexel University students the opportunity for both professional and personal development through a combination of available courses in professional writing, creative writing, and publishing. The certificate enhances employment opportunities, opening a broad range of professional choices in cooperative employment and in the post-degree job market as skills are acquired. The CWP improves on-the-

job performance as the student develops writing skills and associated professional knowledge.

The program develops core competencies through the synergy of writing and publishing courses. The courses develop the student's skills in writing and publishing both through theory and practical application.

General Requirements

The certificate in Writing and Publishing allows students to achieve certification in one or more of the following tracks:

- Professional writing and publishing (with a focus in business communication, technical communication, or journalism)
- Creative writing and publishing
- Entertainment writing and publishing
- Comprehensive writing and publishing (**This track is no longer accepting new students.**)

Each track requires the completion of a minimum of six courses (18.0 credits). Tracks can be designed to meet the professional needs and personal interests of the individual student.

Prospective students should meet with their advisor or contact Daniel Driscoll dwd27@drexel.edu for more information.

Professional Writing and Publishing Track

18.0 quarter credits

The Professional Writing and Publishing track is useful for business majors or students in technical or science areas who want to highlight their acquisition of writing skills. For students majoring in the humanities, it provides an opportunity to develop areas of writing and publishing competencies in the professional arena.

This track offers three focus options:

- Business Communication and Publishing: for students interested in a career in business.
- Technical Communication and Publishing: for students interested in engineering, science, information science, and technology and careers in higher education.
- Journalism: for students interested in global journalism, communication, and international affairs.

Program Requirements

Business Communication and Publishing

Required Courses		
COM 270 [WI]	Business Communication	3.0
COM 350 [WI]	Document Design and Evaluation	3.0
or COM 375	Grant Writing	
or WRIT 312	Writing for Target Audiences	
Select one of the following:		3.0
COM 320 [WI]	Science Writing	
COM T380	Special Topics in Communication Theory	
Select one of the following:		3.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
VSCM 479	Graphic Design Seminar: Advanced Media (Bookmaking)	
WRIT 310	Literary Editing & Publication	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
Select two of the following:		6.0

COM 160 [WI]	Introduction to Journalism	
COM 315 [WI]	Investigative Journalism	
CULA 412	Food Writing	
HNRS 301	Honors Colloquium *	
WRIT 210 [WI]	The Peer Reader in Context	
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 225 [WI]	Creative Writing	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT 303	Writing Humor and Comedy	
WRIT 306	Writing About the Media	
WRIT 312 [WI]	Writing for Target Audiences	
WRIT T380	Special Topics in Writing	
Total Credits		18.0

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By Director's permission only.

Technical Communication and Publishing

Required Courses		
COM 310 [WI]	Technical Communication	3.0
COM 375 [WI]	Grant Writing	3.0
or WRIT 312 Writing for Target Audiences		
Select one of the following:		3.0
COM 320 [WI]	Science Writing	
COM 350 [WI]	Document Design and Evaluation	
COM T380	Special Topics in Communication Theory	
Select one of the following:		3.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
VSCM 479	Graphic Design Seminar: Advanced Media (Bookmaking)	
WRIT 310	Literary Editing & Publication	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following:		6.0
COM 160 [WI]	Introduction to Journalism	
COM 315 [WI]	Investigative Journalism	
CULA 412	Food Writing	
HNRS 301	Honors Colloquium *	
WRIT 210 [WI]	The Peer Reader in Context	
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT 303	Writing Humor and Comedy	
WRIT 306	Writing About the Media	
WRIT 312 [WI]	Writing for Target Audiences	
WRIT T380	Special Topics in Writing	
Total Credits		18.0

★
By Director's permission only.

Journalism

Required Courses		
COM 160 [WI]	Introduction to Journalism	3.0
COM 261 [WI]	Advanced Journalism	3.0
COM 315 [WI]	Investigative Journalism	3.0
Select one of the following:		3.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
WRIT 310	Literary Editing & Publication	

WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following:		6.0
COM 270 [WI]	Business Communication	
or COM 310Technical Communication		
COM 320 [WI]	Science Writing	
COM 375 [WI]	Grant Writing	
CULA 412	Food Writing	
HNRS 301	Honors Colloquium *	
VSCM 479	Graphic Design Seminar: Advanced Media (Bookmaking)	
WRIT 210 [WI]	The Peer Reader in Context	
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 225 [WI]	Creative Writing	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT 303	Writing Humor and Comedy	
WRIT 306	Writing About the Media	
WRIT 312 [WI]	Writing for Target Audiences	
WRIT T380	Special Topics in Writing	
Total Credits		18.0

★
By Director's permission only.

Creative Writing and Publishing track

18.0 quarter credits

This track is designed for students who want to develop their creative writing skills either for personal development and expression, or because they recognize that creative writing develops imagination; sharpens clarity of expression; and enhances sensitivity to other people. Creative writing is a good pre-professional concentration for pre-law, pre-med, and the social sciences. The importance of creative writing has been recognized for engineering and for business.

Select three of the following (one of which must be a 200-level course):		9.0
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 225 [WI]	Creative Writing	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT 303	Writing Humor and Comedy	
WRIT 306	Writing About the Media	
WRIT T380	Special Topics in Writing	
Select one of the following:		3.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
COM 350 [WI]	Document Design and Evaluation	
VSCM 479	Graphic Design Seminar: Advanced Media (Bookmaking)	
WRIT 310	Literary Editing & Publication	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
WRIT 405	Internship in Publishing *	
Select any two additional Certificate in Writing and Publishing courses, including but not limited to the following:		6.0
COM 160 [WI]	Introduction to Journalism	
COM 261 [WI]	Advanced Journalism	
COM 270 [WI]	Business Communication	
COM 310 [WI]	Technical Communication	
COM 315 [WI]	Investigative Journalism	
COM 320 [WI]	Science Writing	
COM 350 [WI]	Document Design and Evaluation	
COM 375 [WI]	Grant Writing	
CULA 412	Food Writing	

HNRS 301	Honors Colloquium **	
WRIT 210 [WI]	The Peer Reader in Context	
WRIT 312 [WI]	Writing for Target Audiences	
Total Credits		18.0

*

WRIT 405 must be taken twice if no other publishing course is taken.

**

By Director's permission only.

Entertainment Writing and Publishing Track

18.0 quarter credits

Entertainment Writing and Publishing is designed for students in any major who want to highlight their acquisition of writing skills. For students majoring in any entertainment field it provides an opportunity to develop areas of writing and publishing competencies in the professional entertainment field.

The track is designed for students who want to pursue writing either for personal development and expression as a personal or creative pursuit or profession. The Entertainment Writing and Publishing track will give students a strong multidisciplinary introduction to writing for a variety of entertainment professions including screenwriting, sports journalism, food writing, game writing, grant writing, and more. This track is designed for both students already studying any of the entertainment fields (such as Entertainment and Arts Management), as well as other students who are interested in exploring the field.

General Requirements

WRIT 306	Writing About the Media	3.0
or WRIT 226	Writing in Public Spaces	
WRIT 312 [WI]	Writing for Target Audiences	3.0
or COM 375	Grant Writing	
Select two of the following:		6.0
COM 265	Audio Journalism	
COM 305	Sports Journalism	
CULA 412	Food Writing	
DSMR 315 [WI]	Media Merchandising I	
ENGL 323	Literature and Other Arts	
HNRS 301	Honors Colloquium *	
SCRIP 241	Writing TV Comedy	
SCRIP 242	Writing TV Drama	
SCRIP 260	Writing Comics	
SCRIP 270 [WI]	Screenwriting I	
SCRIP 280 [WI]	Writing the Short Film	
SCRIP 290	Game: Universe & Story	
WRIT 303	Writing Humor and Comedy	
Select one of the following:		3.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
VSCM 479	Graphic Design Seminar: Advanced Media ((Bookmaking))	
WRIT 310	Literary Editing & Publication	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
WRIT 405	Internship in Publishing **	
Select one of the following:		3.0
COM 160 [WI]	Introduction to Journalism	
COM 270 [WI]	Business Communication	
COM 320 [WI]	Science Writing	

WRIT 210 [WI]	The Peer Reader in Context	
WRIT 220 [WI]	Creative Nonfiction Writing	
WRIT 225 [WI]	Creative Writing	
WRIT 301 [WI]	Writing Poetry	
WRIT 302 [WI]	Writing Fiction	
WRIT T380	Special Topics in Writing	
Total Credits		18.0

*

By Director's permission only.

**

WRIT 405 must be taken twice if no other publishing course is taken.

Comprehensive Certificate track

18.0 quarter credits

The Comprehensive Track is designed for students whose majors and minors include writing courses (either as electives or required courses) and whose schedules allow for the additional credits to obtain certification.

Select two of the following:		6.0
COM 335 [WI]	Digital Publishing	
COM 340	Modern Desktop Publishing	
VSCM 479	Graphic Design Seminar: Advanced Media	
WRIT 310	Literary Editing & Publication	
WRIT 400 [WI]	Writing in Cyberspace: Writing for/about the Web	
WRIT 405	Internship in Publishing *	

Select two of the following: **		12.0
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Creative Writing

Track A	
WRIT 220 [WI]	Creative Nonfiction Writing
Any 300-level writing (WRIT) course	

Track B	
WRIT 225 [WI]	Creative Writing
Any 300-level writing (WRIT) course	

Professional Writing

Track A	
COM 310 [WI]	Technical Communication
COM 375 [WI]	Grant Writing

Track B	
COM 270 [WI]	Business Communication
COM 375 [WI]	Grant Writing
or COM 35C Document Design and Evaluation	

Journalism

COM 160 [WI]	Introduction to Journalism
Select one of the following:	
COM 315 [WI]	Investigative Journalism
CULA 412	Food Writing
WRIT 210 [WI]	The Peer Reader in Context ***

Total Credits		18.0
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*

WRIT 405 must be taken twice.

**

Students select two of the following course sequences from at least two different categories.

By Director's permission only.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Arabic Proficiency Certificate

The Intermediate Arabic Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
Associate Director and Advisor
Department of Global Studies and Modern Languages
kfh28@drexel.edu

Program Requirements

The Intermediate Arabic Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate Arabic Certificate requires a minimum of 8.0 credits*** 8.0--20.0 including the successful completion of the required course, ARBC 202. Students can choose from the following courses:

ARBC 101	Introductory Arabic I
ARBC 102	Introductory Arabic II
ARBC 103	Introductory Arabic III
ARBC 201	Intermediate Arabic I
ARBC 202	Intermediate Arabic II
ARBC 310	Advanced Writing and Speaking

Total Credits 8.0-20.0

*

Only students who place at or below the ARBC 202 level are eligible for the Intermediate Arabic Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in ARBC 101, ARBC 102, ARBC 103, and/or ARBC 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

- 101 – 20 credits
- 102 – 16 credits
- 103 – 12 credits
- 201 – 8 credits
- 202 – 8 credits (student has to take 310 as well)

Intermediate Chinese Proficiency Certificate

The Intermediate Chinese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
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kfh28@drexel.edu

Program Requirements

The Intermediate Chinese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

The Intermediate Chinese Certificate requires a minimum of 8 credits*** 8.0-20.0 including the successful completion of the required course, CHIN 202. Students can choose from the following courses:

CHIN 101	Introductory Chinese I
CHIN 102	Introductory Chinese II
CHIN 103	Introductory Chinese III
CHIN 201	Intermediate Chinese I
CHIN 202	Intermediate Chinese II
CHIN 310	Advanced Writing and Speaking

Total Credits 8.0-20.0

*

Only students who place at or below CHIN 202 level are eligible for the Intermediate Chinese Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in CHIN 101, CHIN 102, CHIN 103, and/or CHIN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

- 101 – 20 credits
- 102 – 16 credits
- 103 – 12 credits
- 201 – 8 credits
- 202 – 8 credits (student has to take 310 as well)

Intermediate French Proficiency Certificate

The Intermediate French Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
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Department of Global Studies and Modern Languages
kfh28@drexel.edu

Program Requirements

The Intermediate French Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate French Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, FREN 202. Students can choose from the following courses:

FREN 101	Introductory French I	8.0-20.0
FREN 102	Introductory French II	
FREN 103	Introductory French III	
FREN 201	Intermediate French I	
FREN 202	Intermediate French II	
FREN 310 [WI]	Advanced Writing and Speaking	
Total Credits		8.0-20.0

*

Only students who place at or below the FREN 202 level are eligible for the Intermediate French Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, actfl.org (https://www.actfl.org/))

Demonstrated proficiency through Drexel's placement test in FREN 101, FREN 102, FREN 103, and/or FREN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

- 101 – 20 credits
- 102 – 16 credits
- 103 – 12 credits
- 201 – 8 credits
- 202 – 8 credits (student has to take 310 as well)

**Students who place above 202 are encouraged to pursue a language minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate German Proficiency Certificate

The Intermediate German Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
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kfh28@drexel.edu

Program Requirements

The Intermediate German Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate German Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, GER 202. Students can choose from the following courses:

GER 101	Introductory German I	8.0-20.0
GER 102	Introductory German II	
GER 103	Introductory German III	
GER 201	Intermediate German I	
GER 202	Intermediate German II	
GER 310 [WI]	Advanced Writing and Speaking	

Total Credits

8.0-20.0

*

Only students who place at or below the GER 202 level are eligible for the Intermediate German Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in GER 101, GER 102, GER 103, and/or GER 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Japanese Proficiency Certificate

The Intermediate Japanese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

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Program Requirements

The Intermediate Japanese Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate Japanese Certificate requires a minimum of 8--20 credits*** including the successful completion of the required course, JAPN 202.

Students can choose from the following courses:

JAPN 101	Introductory Japanese I
JAPN 102	Introductory Japanese II
JAPN 103	Introductory Japanese III
JAPN 201	Intermediate Japanese I
JAPN 202	Intermediate Japanese II
JAPN 310 [WI]	Advanced Writing and Speaking
Total Credits	
8.0-20.0	

*

Only students who place at or below the JAPN 202 level are eligible for the Intermediate Japanese Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in JAPN 101, JAPN 102, JAPN 103, and/or JAPN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

**Students who place above 202 are encouraged to pursue a language minor.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>).

writing-program/). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

Intermediate Korean Proficiency Certificate

The Intermediate Korean Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
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kfh28@drexel.edu

Program Requirements

The Intermediate Korean Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate Korean Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, KOR 202. Students can choose from the following courses:

KOR 101	Introductory Korean I
KOR 102	Introductory Korean II
KOR 103	Introductory Korean III
KOR 201	Intermediate Korean I
KOR 202	Intermediate Korean II
KOR 310	Advanced Writing & Speaking

Total Credits 8.0-20.0

*

Only students who place at or below the KOR 202 level are eligible for the Intermediate Korean Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in KOR 101, KOR 102, KOR 103, and/or KOR 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

- 101 – 20 credits
- 102 – 16 credits
- 103 – 12 credits
- 201 – 8 credits
- 202 – 8 credits (student has to take 310 as well)

Intermediate Spanish Proficiency Certificate

The Intermediate Spanish Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient** to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.

Please note that this certificate is available only to currently matriculated Drexel students.

Additional Information

For more information, contact:

Kate Hughes
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Program Requirements

The Intermediate Spanish Proficiency Certificate* offers students a language certificate at the intermediate level as proof that they are sufficiently proficient to interact with native speakers in a basic everyday context and within standard cultural norms, whether abroad or in the United States.**

The Intermediate Spanish Certificate requires a minimum of 8-20 credits*** including the successful completion of the required course, SPAN 202. Students can choose from the following courses:

SPAN 101	Introductory Spanish I
SPAN 102	Introductory Spanish II
SPAN 103	Introductory Spanish III
SPAN 201	Intermediate Spanish I
SPAN 202	Intermediate Spanish II
SPAN 310 [WI]	Advanced Writing and Speaking

Total Credits 8.0-20.0

*

Only students who place at or below the SPAN 202 level are eligible for the Intermediate Spanish Proficiency Certificate.

**

The proficiency certificate is based on standardized outcomes set by the American Council on the Teaching of Foreign Languages (ACTFL, [actfl.org](https://www.actfl.org/) (<https://www.actfl.org/>)).

Demonstrated proficiency through Drexel's placement test in SPAN 101, SPAN 102, SPAN 103, and/or SPAN 201 may reduce the number of required credits to a minimum of 8.0. (Note that completion of placement test[s] do not count toward academic credit.)

The required credits for the certificate is determined by placement level:

*For students who place into:

101 – 20 credits

102 – 16 credits

103 – 12 credits

201 – 8 credits

202 – 8 credits (student has to take 310 as well)

**Students who place above 202 are encouraged to pursue a language minor.

†

SPAN 113, SPAN 211, or SPAN 212 may be considered for credit toward the intermediate proficiency certificate in certain cases with permission from the department.

Writing-Intensive Course Requirements

In order to graduate, all students must pass three writing-intensive courses after their freshman year. Two writing-intensive courses must be in a student's major. The third can be in any discipline. Students are advised to take one writing-intensive class each year, beginning with the sophomore year, and to avoid "clustering" these courses near the end of their matriculation. Transfer students need to meet with an academic advisor to review the number of writing-intensive courses required to graduate.

A "WI" next to a course in this catalog may indicate that this course can fulfill a writing-intensive requirement. For the most up-to-date list of writing-intensive courses being offered, students should check the Writing Intensive Course List (<https://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/faculty-programs/#writing-intensive-list>) at the University Writing Program (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/>). (<http://drexel.edu/coas/academics/departments-centers/english-philosophy/university-writing-program/drexel-writing-center/>) Students scheduling their courses can also conduct a search for courses with the attribute "WI" to bring up a list of all writing-intensive courses available that term.

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