

Drexel University

Catalog 2008/2009

Table of Contents

The School of Education, Undergraduate Programs

About the School of Education	2
Teacher Education (B.S.) Programs	
Elementary Education Certification	7
Biology Certification.....	12
Chemistry Certification	16
Earth and Space Science Certification.....	20
General Science Certification.....	24
Mathematics Certification	28
Physics Certification.....	32
Environmental Education Certification	36
Minor in Education	40

Drexel University

Catalog 2008/2009

The School of Education

About the School

The School of Education is the umbrella for:

- Teacher education and its undergraduate and graduate programs, which lead to B.S. and M.S. degrees and Pennsylvania State Teacher Certification for grades kindergarten through grade 12, and graduate Instructional Technology Specialist and school principal certification programs .
- The Drexel Center for the Prevention of School Violence, which is committed to reducing violence in schools by assisting schools in designing, implementing, and evaluating a creative school violence prevention model of pedagogy based on current research in creativity as opposed to the prevalent punitive focus on discipline.
- Ph.D. degree program in Educational Leadership Development and Learning Technologies, and School Superintendent certification.

Title II Reporting

In compliance with Title II, Section 207, of the Higher Education Act of 1998 and General Standards for the Institutional Preparation of Professional Educators (Chapter 354), pass rates on the Praxis Series Exam for students prepared as teachers by Drexel University are available at the School of Education.

Drexel University

Catalog 2008/2009

The School of Education

About the Curriculum

Certification for classroom instruction is available in:

- Elementary education (emphasis on mathematics, science, and technology)
- Secondary education (grades 7-12)
 - Biology
 - Chemistry
 - Earth and Space Science
 - General Science
 - Mathematics
 - Physics
 - Library Science
- Secondary education (grades K-12)
 - Environmental Education

Students may acquire certification in more than one subject area.

Teacher education uses University-wide resources to prepare fully qualified mathematics and science teachers at both the elementary and secondary levels. It applies the microcomputer in teaching and learning, and it is the only such program in the country to incorporate a six-month paid internship in industry related to the student's area of certification (for example, a prospective chemistry teacher might co-op at a chemical company).

Because the program requires that students have a B average in content courses needed for certification, the student's content coursework is evaluated at the end of the sophomore year for formal admittance into the Teacher Preparation program. All students are expected to meet the B average requirement in content coursework before beginning pre-student field teaching experience. Students who fail to meet this requirement must take additional content coursework until the B average is met.

Students participate in two periods of direct teaching experience. The first period, in the junior year, consists of a ten-week field experience (EDUC 320 WI) through which students participate in limited teaching; on-campus coursework accompanies the field experience (EDUC 325 and EDUC 326 WI). In the senior year, students complete the 12-week student-teaching experience (EDUC 412 WI) required for certification. Students must receive a grade of at least B in student teaching and in all pedagogy coursework to be recommended for certification.

Students pursuing the appropriate majors in the College of Arts and Sciences may also complete the requirements for certification within their area of study. For more information, contact the Program Coordinator for the School of Education at 215-895-6770.

Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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Drexel University

Catalog 2008/2009

The School of Education

Co-operative Education

Drexel University has long been known for its co-operative education program, through which students combine periods of fulltime, career-related employment with their studies. Internship employment is a requirement for all teacher education majors.

The degree is completed in four years, and it includes one six-month or three-month internship period of full-time employment. The goal of the co-op program in teacher education is to provide real-world experiences for future teachers to use in their classrooms.

Students pursue varied positions geared directly to their area(s) of certification. For example, a student working toward certification in chemistry might seek employment in a corporate laboratory, just as a chemistry major would do. Some students, especially elementary certification majors, intern in liberal arts areas or such educationally oriented museums as Philadelphia's Please Touch Museum and the Franklin Institute Science Museum.

Drexel University

Catalog 2008/2009

The School of Education

Combination Certifications

Combination certifications are available. Sample combinations include:

- Biology certification, with courses for additional certification in chemistry.
- Chemistry certification, with courses for additional certification in biology.
- Earth and space science certification, with courses for additional certification in chemistry.
- Earth and space science certification, with courses for additional certification in physics.
- Mathematics certification, with courses for additional certification in physics.
- Physics certification, with courses for additional certification in mathematics.

Drexel University

Catalog 2008/2009

Elementary Education Certification

Bachelor of Science Degree: 183.5 Credits

Degree requirements (incoming students, 2008/2009)

General education requirements

ARTH 101	History of Art	3.0
COM 111	Techniques of Speaking	3.0
ECON 201	Principles of Microeconomics	4.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
INFO 101	Introduction to Information Technology	3.0
MATH 181	Mathematical Analysis I	3.0
MATH 182	Mathematical Analysis II	3.0
MATH 183	Mathematical Analysis III	3.0
MUSC 130	Introduction to Music	4.0
SOC 335	Sociology of Education	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0
	Nutrition elective*	3.0
	Professional or free electives	27.0

*NFS 101 is the recommended Nutrition elective.

One of the following courses 3.0

HIST 201	U.S. History to 1815	
HIST 202	U.S. History 1815 -1900	
HIST 203	The United States Since 1900	

Science requirements Credits

BIO 102	Bioscience I	4.0
BIO 104	Bioscience II	4.0
CHEM 111	General Chemistry I	
or		
PHYS 103	General Physics I	4.0
CHEM 112	General Chemistry II	
or		
PHYS 104	General Physics II	4.0
ENVS 260	Environmental Science and Society	3.0
PHYS 131 WI	Survey of the Universe	3.0

Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0
Student teaching experience		
EDUC 412 WI	Student Teaching	12.0

Electives* **33.0
Credits**

***Students wishing to receive PA Teacher Certification upon graduation in the area of Elementary Education should take the following Special Topic courses as electives:**

HIST 298	Special Studies in History: Pennsylvania/Philadelphia History	3.0
EDUC 475	Conflict Resolution/Prevention School Violence	3.0

Additional Suggested Professional Electives"

Bioscience

BIO 201	Human Physiology I	4.0
BIO 203	Human Physiology II	4.0
BIO 221	Microbiology	5.0
BIO 244	Genetics I	3.0
BIO 254	Invertebrate Morphology and Physiology	5.0
BIO 256	Vertebrate Morphology and Physiology	5.0
BIO 260	Plant Biology I: Evolution and Diversity	4.0
BIO 262	Plant Biology II: Morphology and Physiology	4.0
BIO 235	Terrestrial Ecology	5.0

Chemistry	Credits	
CHEM 103	General Chemistry III	5.0

CHEM 230	Quantitative Analysis	3.0
CHEM 231 WI	Quantitative Analysis Laboratory	2.0
CHEM 241	Organic Chemistry I	4.0
CHEM 242	Organic Chemistry II	4.0

Nutrition and foods		Credits
NFS 200 WI	Nutrition I: Principles of Nutrition	4.0

Physics		Credits
PHEV 145	Weather 1: Climate and Global Change	4.0
PHEV 146	Weather 2: Analysis and Forecasting	4.0
PHYS 106 WI	The Physics of High Fidelity	3.0

Writing-Intensive Course Requirements

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BS Education

4 YR UG Co-op Concentration /Elementary Education

Recommended Plan Of Study

		Credits
Term 1		
EDUC 105	Freshman Seminar	1.0
ENGL 101	Expository Writing and Reading	3.0
INFO 101	Introduction to Information Technology	3.0
MATH 181	Mathematical Analysis I	3.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	14.0
Term 2		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 102	Persuasive Writing and Reading	3.0
MATH 182	Mathematical Analysis II	3.0
UNIV 101	The Drexel Experience	1.0
COM 111	Principles of Communication	3.0
	<i>Term Credits</i>	17.0
Term 3		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
ENGL 103	Analytical Writing and Reading	3.0
MATH 183	Mathematical Analysis III	3.0
	<i>Term Credits</i>	14.5
Term 4		Credits
BIO 102	Biology I: Cells and Tissues	4.0
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
	English (ENGL) course between 200-329	3.0
	<i>Term Credits</i>	15.5
Term 5		Credits
ARTH 101	History of Art I: Ancient to Medieval	3.0
BIO 104	Biology II: Growth and Heredity	4.0
COOP 101	Career Management/Professional Development	0.0
EDUC 218	Math: Methods and Content	3.0
EDUC 325	Multimedia in Instructional Design	3.0
	Free elective	3.0
	<i>Term Credits</i>	16.0
Term 6		Credits
ECON 201	Economics I	4.0
EDUC 246	Literacy and Content Skill Development	4.5
NFS 101	Introduction to Nutrition and Foods	3.0
HIST 201	US History to 1815	3.0
or		
HIST 203	US History Since 1900	3.0
or		
HIST 202	US History, 1815-1900	3.0
	Free elective	3.0
	<i>Term Credits</i>	17.5

Term 7		Credits
EDUC 305	Junior Seminar	1.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 326	Language Arts Processes	3.0
SOC 335	Sociology of Education I	3.0
PHYS 103	General Physics I	4.0
or		
CHEM 111	General Chemistry I	4.0
	Free elective	2.0
	Term Credits	16.0
Term 8		Credits
EDUC 305	Junior Seminar	1.0
EDUC 322	Evaluation of Instruction	4.0
ENVS 260	Environmental Science and Society I	3.0
HIST 298	Special Studies in History: PA/Philadelphia History	3.0
PHYS 104	General Physics II	4.0
or		
CHEM 112	General Chemistry II	4.0
	Free elective	3.0
	Term Credits	18.0
Term 9		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 320	Professional Studies in Instruction	6.0
HIST 280	History of Science I	3.0
	Free elective	3.0
	Term Credits	15.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
MUSC 130	Introduction to Music	3.0
PHYS 131	Survey of the Universe	3.0
PSY 320	Educational Psychology	3.0
	Free elective	3.0
	Term Credits	13.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	Free elective	3.0
	Term Credits	15.0
Term 12		Credits
	Free electives	12.0
	Term Credits	12.0
	Total Credits (minimum)	183.5

Last Updated: April 21, 04:18 pm

[Home](#) [Contents](#) [Index](#) [Email](#) [Search](#) [Feedback](#)

Drexel University

Catalog 2008/2009

Biology Certification

Bachelor of Science: 190.0 credits

Certification is for grades 7 - 12

Degree requirements (incoming students, 2008/2009)

General education requirements

HIST 280	History of Science I	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0

Science requirements

		Credits
BIO 121	Physiology and Nutrition	4.5
BIO 122	Cells and Genetics	4.5
BIO 123	Organismal Diversity and Ecology	4.5
BIO 201	Human Psychology I	4.0
BIO 214	Principles of Cell Biology	3.0
BIO 215	Techniques of Cell Biology	2.5
BIO 218	Principles of Molecular Biology	3.0
BIO 219	Techniques of Molecular Biology	2.5
BIO 270	Developmental Biology	3.0
BIO 271	Developmental Biology Laboratory	2.0
BIO 306	Biochemistry Laboratory	2.0
BIO 404	Structure and Function of Biomolecules	4.0
BIO 460	Evolution	3.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 241	Organic Chemistry I	4.0
CHEM 242	Organic Chemistry II	4.0
CHEM 244	Organic Chemistry I Laboratory	3.0
CHEM 245	Organic Chemistry Laboratory II	3.0
ENVS 230	General Ecology	3.0
ENVS 284 WI	Physiological and Population Ecology	3.0
ENVS 285	Population Ecology Laboratory	2.0
PHYS 152	Introductory Physics I	4.0

Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0
Student teaching experience		
EDUC 412 WI	Student Teaching	12.0

Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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BS Education

4 YR UG Co-op Concentration /Biological Sciences

Recommended Plan Of Study

		Credits
Term 1		
EDUC 105	Freshman Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 101	Expository Writing and Reading	3.0
MATH 121	Calculus I	4.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	<i>15.0</i>
Term 2		
CHEM 101	General Chemistry I	3.5
EDUC 105	Freshman Seminar	1.0
EDUC 301	Introduction to Personalized Systems of Instruction	3.0
ENGL 102	Persuasive Writing and Reading	3.0
MATH 122	Calculus II	4.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	<i>15.5</i>
Term 3		
CHEM 102	General Chemistry II	4.5
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
ENGL 103	Analytical Writing and Reading	3.0
MATH 123	Calculus III	4.0
	<i>Term Credits</i>	<i>20.0</i>
Term 4		
CHEM 241	Organic Chemistry I	4.0
EDUC 205	Sophomore Seminar	1.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 326	Language Arts Processes	3.0
HIST 280	History of Science I	3.0
BIO 121	Physiology of Nutrition	4.5
	<i>Term Credits</i>	<i>20.0</i>
Term 5		
BIO 122	Cells and Genetics	4.5
CHEM 242	Organic Chemistry II	4.0
CHEM 244	Organic Chemistry Lab I	3.0
COOP 101	Career Management/Professional Development	0.0
EDUC 205	Sophomore Seminar	1.0
EDUC 218	Math: Methods and Content	3.0
	<i>Term Credits</i>	<i>15.5</i>
Term 6		
BIO 123	Organismal Diversity & Ecology	4.5
CHEM 245	Organic Chemistry Lab II	3.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 246	Literacy and Content Skill Development	4.5
PHIL 251	Ethics	3.0
PSY 320	Educational Psychology	3.0
	<i>Term Credits</i>	<i>21.0</i>
Term 7		
		Credits

BIO 218	Principles of Molecular Biology	3.0
BIO 219	Techniques in Molecular Biology	2.5
EDUC 305	Junior Seminar	1.0
PHYS 152	Introductory Physics I	4.0
	English (ENGL) course between 200-329	3.0
	<i>Term Credits</i>	13.5
Term 8		Credits
BIO 214	Principles of Cell Biology	3.0
BIO 215	Techniques in Cell Biology	2.5
EDUC 305	Junior Seminar	1.0
EDUC 322	Evaluation of Instruction	4.0
PHYS 153	Introductory Physics II	4.0
	<i>Term Credits</i>	14.5
Term 9		Credits
BIO 201	Human Physiology I	4.0
BIO 270	Development Biology	3.0
BIO 271	Developmental Biology Laboratory	2.0
EDUC 320	Professional Studies in Instruction	6.0
HIST 280	History of Science I	3.0
	<i>Term Credits</i>	18.0
Term 10		Credits
BIO 306	Biochemistry Laboratory	2.0
BIO 404	Structure and Function of Biomolecules	4.0
EDUC 324	Current Research in Curriculum & Instruction	3.0
EDUC 405	Senior Seminar	1.0
ENVS 230	General Ecology	3.0
	<i>Term Credits</i>	13.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
BIO 460	Evolution	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 325	Multimedia in Instructional Design	3.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 285	Population Ecology Lab	2.0
	<i>Term Credits</i>	14.0
	Total Credits (minimum)	192.0

Last Updated: April 21, 04:18 pm

[Home](#)

[Contents](#)

[Index](#)

[Email](#)

[Search](#)

[Feedback](#)

Drexel University

Catalog 2008/2009

Chemistry Certification

Bachelor of Science: 195.5 credits

(Certification is for grades 7 - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements		38.0
		Credits
HIST 280	History of Science I	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0
Science requirements		89.0
		Credits
BIO 102	Biology I: Cells and Tissues	4.0
BIO 104	Biology II: Growth and Heredity	4.0
BIO 306	Biochemistry Laboratory	2.0
CHEC 352	Physical Chemistry and Applications	4.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	5.0
CHEM 110	Environmental Chemistry	2.0
CHEM 230	Quantitative Analysis	3.0
CHEM 231 WI	Quantitative Analysis Laboratory	2.0
CHEM 241	Organic Chemistry	4.0
CHEM 242	Organic Chemistry II	4.0
CHEM 243	Organic Chemistry III	3.0
CHEM 244	Organic Chemistry Laboratory I	3.0
CHEM 245	Organic Chemistry Laboratory II	3.0
CHEM 252	Physical Chemistry I	3.0
CHEM 357	Physical Chemistry I Laboratory	2.5
CHEM 358	Physical Chemistry II Laboratory	2.5
CHEM 420	Molecular Symmetry and Group Theory Chemistry	3.0
CHEM 421	Inorganic Chemistry I	3.0
CHEM 430	Analytical Chemistry I	3.0

ENVS 401	Chemistry of the Environment	3.0
PHEV 145	Weather 1: Climate and Global Change	4.0
PHYS 111	Physics I	4.5
PHYS 112	Physics II	4.5
PHYS 211	Physics III	4.5

Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0

Student teaching experience

EDUC 412 WI	Student Teaching	12.0
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Writing-Intensive Course Requirements

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BS Education

4 YR UG Co-op Concentration /Chemistry

Recommended Plan Of Study

		Credits
Term 1		
EDUC 105	Freshman Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 101	Expository Writing and Reading	3.0
MATH 121	Calculus I	4.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	<i>15.0</i>
Term 2		
CHEM 101	General Chemistry I	3.5
EDUC 105	Freshman Seminar	1.0
ENGL 102	Persuasive Writing and Reading	3.0
MATH 122	Calculus II	4.0
PHYS 111	Physics I	4.5
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	<i>17.0</i>
Term 3		
CHEM 102	General Chemistry II	4.5
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 123	Calculus III	4.0
PHYS 112	Physics II	4.5
	<i>Term Credits</i>	<i>20.0</i>
Term 4		
BIO 102	Biology I: Cells and Tissues	4.0
CHEM 103	General Chemistry III	5.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
EDUC 205	Sophomore Seminar	1.0
PHYS 211	Physics III	4.5
	<i>Term Credits</i>	<i>19.0</i>
Term 5		
BIO 104	Biology II: Growth and HereditY	4.0
COOP 101	Career Management/Professional Development	0.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 301	Introduction to Personalized Systems of Instruction	3.0
	<i>Term Credits</i>	<i>17.5</i>
Term 6		
BIO 306	Biochemistry Laboratory	2.0
EDUC 114	Science Teaching Methods	3.0
EDUC 246	Literacy and Content Skill Development	4.5
EDUC 326	Language Arts Processes	3.0
MATH 200	Multivariate Calculus	4.0
	<i>Term Credits</i>	<i>16.5</i>
Term 7		
CHEM 110	Environmental Chemistry	2.0
CHEM 230	Quantitative Analysis	3.0

CHEM 231	Quantitative Analysis Lab	2.0
CHEM 241	Organic Chemistry I	4.0
EDUC 305	Junior Seminar	1.0
HIST 280	History of Science I	3.0
	<i>Term Credits</i>	15.0
Term 8		Credits
CHEM 242	Organic Chemistry II	4.0
CHEM 244	Organic Chemistry Laboratory I	3.0
CHEM 356	Physical Chemistry Lab	2.0
EDUC 322	Evaluation of Instruction	4.0
ENVS 401	Chemistry of the Environment	3.0
	<i>Term Credits</i>	16.0
Term 9		Credits
CHEM 352	Physical Chemistry II	4.0
CHEM 245	Organic Chemistry Lab II	3.0
EDUC 320	Professional Studies in Instruction	6.0
PHIL 251	Ethics	3.0
	<i>Term Credits</i>	16.0
Term 10		Credits
CHEM 421	Inorganic Chemistry I	3.0
CHEM 430	Analytical Chemistry I	3.0
EDUC 405	Senior Seminar	1.0
PHEV 145	Weather I: Climate and Global Change	4.0
PSY 320	Educational Psychology	3.0
	English (ENGL) course between 200-329	3.0
	<i>Term Credits</i>	17.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
CHEM 243	Organic Chemistry III	3.0
CHEM 357	Physical Chemistry Lab I	2.5
CHEM 420	Molecular Symmetry and Group Theory-Chemistry	3.0
EDUC 324	Current Research in Curriculum & Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
	<i>Term Credits</i>	14.5
	Total Credits (minimum)	195.5

Last Updated: April 21, 04:18 pm

[Home](#) [Contents](#) [Index](#) [Email](#) [Search](#) [Feedback](#)

Drexel University

Catalog 2008/2009

Earth and Space Science Certification

Bachelor of Science: 186.0 credits

(Certification is for grades 7 - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements

ECON 201	Principles of Microeconomics	4.0
HIST 285	Technology in Historical Perspective	3.0
HIST 280	History of Science I	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0
	Elective	3.0

Science requirements

		Credits
BIO 121	Physiology and Nutrition	4.5
BIO 122	Cells and Genetics	4.5
BIO 123	Organismal Diversity and Ecology	4.5
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
ENVS 272	Physical Geology	4.0
ENVS 270	History of Life on Earth	4.0
ENVS 284 WI	Physiological and Population Ecology	3.0
ENVS 285	Population Ecology Laboratory	2.0
ENVS 286 WI	Community and Ecosystem Ecology	3.0
ENVS 287	Community and Ecosystem Ecology Laboratory	2.0
ENVS 260	Environmental Science and Society	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 370	Practice of Environmental Economics	3.0
ENVS 390	Marine Ecology	3.0
PHEV 145	Weather 1: Climate and Global Change	4.0
PHEV 146	Weather 2: Analysis and Forecasting	4.0
PHYS 111	Physics I	4.5
PHYS 112	Physics II	4.5

Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0

Student teaching experience

EDUC 412 WI	Student Teaching	12.0
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Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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Recommended Plan Of Study

BS Education

4 YR UG Co-op Concentration /Earth & Space Science

Term 1	Credits
EDUC 105 Freshman Seminar	1.0
EDUC 310 Computer Applications in Teaching	3.0
ENGL 101 Expository Writing and Reading	3.0
ENVS 169 Environmental Science	3.0
MATH 121 Calculus I	4.0
PSY 101 General Psychology I	3.0
UNIV 101 The Drexel Experience	1.0
<i>Term Credits</i>	<i>18.0</i>
Term 2	Credits
CHEM 101 General Chemistry I	3.5
EDUC 105 Freshman Seminar	1.0
EDUC 301 Introduction to Personalized Systems of Instruction	3.0
ENGL 102 Persuasive Writing and Reading	3.0
MATH 122 Calculus II	4.0
UNIV 101 The Drexel Experience	1.0
<i>Term Credits</i>	<i>15.5</i>
Term 3	Credits
CHEM 102 General Chemistry II	4.5
EDUC 105 Freshman Seminar	1.0
EDUC 112 Integrative Instruction	3.0
EDUC 142 Special Education Foundations: Referral and Assessment	4.5
ENGL 103 Analytical Writing and Reading	3.0
MATH 123 Calculus III	4.0
<i>Term Credits</i>	<i>20.0</i>
Term 4	Credits
BIO 121 Physiology and Nutrition	4.5
EDUC 205 Sophomore Seminar	1.0
EDUC 244 Inclusionary Practices for Exceptional Students	4.5
EDUC 326 Language Arts Processes	3.0
PHYS 111 Physics I	4.5
<i>Term Credits</i>	<i>17.5</i>
Term 5	Credits
BIO 122 Cells and Genetics	4.5
EDUC 218 Mathematics: Methods and Content	3.0
ENVS 230 General Ecology	3.0
ENVS 260 Environmental Science and Society I	3.0
PHYS 112 Physics II	4.5
<i>Term Credits</i>	<i>18.0</i>
Term 6	Credits
BIO 123 Organismal Diversity & Ecology	4.5
ECON 201 Economics I	4.0
EDUC 216 Diversity and Today's Teacher	3.0
EDUC 246 Literacy and Content Skill Development	4.5
PSY 320 Educational Psychology	3.0
<i>Term Credits</i>	<i>19.0</i>
Term 7	Credits
EDUC 305 Junior Seminar	1.0
ENVS 284 Physiological and Population Ecology	3.0

ENVS 285	Population Ecology Lab	2.0
HIST 280	History of Science I	3.0
PHIL 251	Ethics	3.0
PHYS 131	Survey of the Universe	3.0
	<i>Term Credits</i>	15.0
Term 8		Credits
EDUC 322	Evaluation of Instruction	4.0
ENVS 272	Physical Geology	4.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 287	Community Ecology Lab	2.0
PHEV 146	Weather II: Analysis and Forecasting	4.0
	<i>Term Credits</i>	17.0
Term 9		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 320	Professional Studies in Instruction	6.0
EDUC 325	Multimedia in Instructional Design	3.0
	<i>Term Credits</i>	12.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
ENVS 330	Aquatic Ecology	3.0
ENVS 390	Marine Ecology	3.0
	Free elective	3.0
	English (ENGL) course between 200-329	3.0
	<i>Term Credits</i>	13.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
EDUC 324	Current Research in Curriculum and Instruction	3.0
ENVS 270	History of Life on Earth	4.0
ENVS 390	Marine Ecology	3.0
HIST 285	Technology in Historical Perspective	3.0
	<i>Term Credits</i>	13.0
	Total Credits (minimum)	190.0

Last Updated: April 21, 04:18 pm

[Home](#)

[Contents](#)

[Index](#)

[Email](#)

[Search](#)

[Feedback](#)

Drexel University

Catalog 2008/2009

General Science Certification

Bachelor of Science: 180.5 credits

(Certification is for grades 7 - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements

ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
HIST 280	History of Science I	3.0
	English elective course between 200-329	3.0
	Science, Technology, Human Affairs electives *	6.0
	Electives	17.0

*Any History (HIST) course from 281-294.

Science requirements

BIO 102	Bioscience I	4.0
BIO 104	Bioscience II	4.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
CHEM 103	General Chemistry III	5.0
ENVS 270	History of Life on Earth	4.0
ENVS 272	Physical Geology	4.0
ENVS 284 WI	Physiological and Population Ecology	3.0
ENVS 285	Population Ecology Laboratory	2.0
ENVS 286 WI	Community and Ecosystem Ecology	3.0
ENVS 287	Community and Ecosystem Ecology Laboratory	2.0
ENVS 390	Marine Ecology	3.0
PHEV 145	Weather 1: Climate and Global Change	4.0
PHYS 111	Physics I	4.5
PHYS 112	Physics II	4.5
PHYS 131 WI	Survey of the Universe	3.0

68.5

Pedagogy requirements		Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0
Student teaching experience		
EDUC 412 WI	Student Teaching	12.0

Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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BS Education

4 YR UG Co-op Concentration /General Science

Recommended Plan Of Study

		Credits
Term 1		
EDUC 105	Freshman Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 101	Expository Writing and Reading	3.0
MATH 121	Calculus I	4.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	15.0
Term 2		
CHEM 101	General Chemistry I	3.5
EDUC 105	Freshman Seminar	1.0
EDUC 301	Introduction to Personalized Systems of Instruction	3.0
ENGL 102	Persuasive Writing and Reading	3.0
MATH 122	Calculus II	4.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	15.5
Term 3		
CHEM 102	General Chemistry II	4.5
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
ENGL 103	Analytical Writing and Reading	3.0
MATH 123	Calculus III	4.0
	<i>Term Credits</i>	20.0
Term 4		
BIO 102	Biology I: Cells and Tissues	4.0
EDUC 205	Sophomore Seminar	1.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 326	Language Arts Processes	3.0
PHYS 111	Physics I	4.5
	<i>Term Credits</i>	17.0
Term 5		
BIO 104	Biology II: Growth and Heredity	4.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
PHYS 112	Physics II	4.5
	<i>Term Credits</i>	14.5
Term 6		
CHEM 103	General Chemistry III	5.0
EDUC 246	Literacy and Content Skill Development	4.5
	English (ENGL) course between 200-329	3.0
	Free elective	3.0
	Science, Technology and Human Affairs elective (Any HIST course 281-294)	3.0
	<i>Term Credits</i>	18.5
Term 7		
EDUC 305	Junior Seminar	1.0
ENVS 284	Physiological and Population Ecology	3.0
ENVS 285	Population Ecology Lab	2.0

HIST 280	History of Science I	3.0
PHIL 251	Ethics	3.0
PHYS 131	Survey of the Universe	3.0
	Science, Technology and Human Affairs elective (Any HIST course 281-294)	3.0
	<i>Term Credits</i>	18.0
Term 8		Credits
EDUC 322	Evaluation of Instruction	4.0
ENVS 272	Physical Geology	4.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 287	Community Ecology Lab	2.0
	Free elective	3.0
	<i>Term Credits</i>	16.0
Term 9		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 320	Professional Studies in Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
	Free elective	3.0
	<i>Term Credits</i>	12.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
PHEV 145	Weather I: Climate and Global Change	4.0
PSY 320	Educational Psychology	3.0
	Free elective	5.0
	<i>Term Credits</i>	13.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
EDUC 324	Current Research in Curriculum & Instruction	3.0
ENVS 270	History of Life on Earth	4.0
ENVS 390	Marine Ecology	3.0
	Free elective	3.0
	<i>Term Credits</i>	13.0
	Total Credits (minimum)	184.5

Last Updated: April 21, 04:18 pm

[Home](#) [Contents](#) [Index](#) [Email](#) [Search](#) [Feedback](#)

Drexel University

Catalog 2008/2009

Mathematics Certification

Bachelor of Science: 182.5 credits

(Certification is for grades 7 - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements		36.0 Credits
ECON 201	Principles of Economics	4.0
HIST 280	History of Science I	3.0
INFO 108	Foundations of Software	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology I	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0
	Elective	3.0

Mathematics requirements		48.0 Credits
EDUC 428	Cultural and Historical Significance of Math	3.0
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 205	Survey of Geometry	3.0
MATH 210	Differential Equations	4.0
MATH 220	Introduction to Mathematical Reasoning	3.0
MATH 221	Discrete Mathematics	3.0
MATH 311	Probability and Statistics I	4.0
MATH 312	Probability and Statistics II	4.0
MATH 331	Abstract Algebra I	4.0

Science requirements		27.0 Credits
BIO 102	Bioscience I	4.0
BIO 104	Bioscience II	4.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
ENVS 260	Environmental Science and Society	3.0
PHYS 111	Physics I	4.0

PHYS 112	Physics II	4.0
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Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0

Student teaching experience

EDUC 412 WI	Student Teaching	12.0
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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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BS Education

4 YR UG Co-op Concentration /Mathematics

Recommended Plan Of Study

Term 1		Credits
EDUC 105	Freshman Seminar	1.0
ENGL 101	Expository Writing and Reading	3.0
MATH 121	Calculus I	4.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	12.0
Term 2		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 102	Persuasive Writing and Reading	3.0
INFO 108	Foundations of Software	3.0
MATH 122	Calculus II	4.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	18.0
Term 3		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
ENGL 103	Analytical Writing and Reading	3.0
MATH 123	Calculus III	4.0
	<i>Term Credits</i>	15.5
Term 4		Credits
BIO 102	Biology I: Cells and Tissues	4.0
EDUC 205	Sophomore Seminar	1.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 326	Language Arts Processes	3.0
HIST 280	History of Science I	3.0
MATH 200	Multivariate Calculus	4.0
	<i>Term Credits</i>	19.5
Term 5		Credits
BIO 104	Biology II: Growth and Heredity	4.0
COOP 101	Career Management/Professional Development	0.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
MATH 201	Linear Algebra	4.0
	<i>Term Credits</i>	14.0
Term 6		Credits
ECON 201	Economics I	4.0
EDUC 246	Literacy and Content Skill Development	4.5
EDUC 428	Cultural and Historical Significance of Mathematics	3.0
PSY 320	Educational Psychology	3.0
	<i>Term Credits</i>	14.5
Term 7		Credits
CHEM 101	General Chemistry I	3.5
EDUC 305	Junior Seminar	1.0
HIST 280	History of Science I	3.0
MATH 205	Survey of Geometry	3.0

MATH 220	Introduction to Mathematical Reasoning	3.0
PHYS 111	Physics I	4.5
	<i>Term Credits</i>	18.0
Term 8		Credits
CHEM 102	General Chemistry II	4.5
EDUC 322	Evaluation of Instruction	4.0
MATH 210	Differential Equations	4.0
PHYS 112	Physics II	4.5
	<i>Term Credits</i>	17.0
Term 9		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 320	Professional Studies in Instruction	6.0
EDUC 325	Multimedia in Instructional Design	3.0
MATH 221	Discrete Mathematics	3.0
	<i>Term Credits</i>	15.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
ENVS 260	Environmental Science and Society I	3.0
MATH 311	Probability and Statistics I	4.0
PHIL 251	Ethics	3.0
	<i>Term Credits</i>	11.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
EDUC 324	Current Research in Curriculum and Instruction	3.0
MATH 312	Probability and Statistics II	4.0
MATH 331	Abstract Algebra I	4.0
	English (ENGL) course between 200-329	3.0
	Free elective	3.0
	<i>Term Credits</i>	17.0
	Total Credits (minimum)	183.5

Last Updated: April 21, 04:18 pm

[Home](#)

[Contents](#)

[Index](#)

[Email](#)

[Search](#)

[Feedback](#)

Drexel University

Catalog 2008/2009

Physics Certification

Bachelor of Science: 186.0 credits

(Certification is for grades 7 - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements

HIST 280	History of Science I	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
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
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0

Science requirements

BIO 102	Bioscience I	4.0
BIO 104	Bioscience II	4.0
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
ENVS 260	Environmental Science and Society	3.0
PHEV 141	Atmospheric Science I: Climate and Global Change	3.0
PHYS 113	Contemporary Physics I	5.0
PHYS 114	Contemporary Physics II	5.0
PHYS 115	Contemporary Physics III	5.0
PHYS 131 WI	Survey of the Universe	3.0
PHYS 211	Physics III	4.5
PHYS 217	Thermodynamics	4.0
PHYS 311	Classical Mechanics I	4.0
PHYS 312	Classical Mechanics II	4.0
PHYS 321	Electromagnetic Fields I	4.0
PHYS 326	Quantum Mechanics I	4.0

Pedagogy requirements		Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0
Student teaching experience		
EDUC 412 WI	Student Teaching	12.0

Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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BS Education

4 YR UG Co-op Concentration /Physics

Recommended Plan Of Study

Term 1		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
ENGL 101	Expository Writing and Reading	3.0
MATH 121	Calculus I	4.0
PSY 101	General Psychology I	3.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	15.0
Term 2		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 301	Introduction to Personalized Systems of Instruction	3.0
ENGL 102	Persuasive Writing and Reading	3.0
MATH 122	Calculus II	4.0
PHYS 113	Contemporary Physics I	5.0
UNIV 101	The Drexel Experience	1.0
	<i>Term Credits</i>	17.0
Term 3		Credits
EDUC 105	Freshman Seminar	1.0
EDUC 112	Integrative Instruction	3.0
EDUC 142	Special Education Foundations: Referral and Assessment	4.5
ENGL 103	Analytical Writing and Reading	3.0
PHYS 114	Contemporary Physics II	5.0
	<i>Term Credits</i>	16.5
Term 4		Credits
BIO 102	Biology I: Cells and Tissues	4.0
EDUC 205	Sophomore Seminar	1.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 326	Language Arts Processes	3.0
MATH 123	Calculus III	4.0
PHYS 115	Contemporary Physics III	5.0
	<i>Term Credits</i>	21.5
Term 5		Credits
BIO 104	Biology II: Growth and Heredity	4.0
COOP 101	Career Management/Professional Development	0.0
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
MATH 200	Multivariate Calculus	4.0
PHYS 211	Physics III	4.5
	<i>Term Credits</i>	19.5
Term 6		Credits
EDUC 246	Literacy and Content Skill Development	4.5
MATH 201	Linear Algebra	4.0
MATH 210	Differential Equations	4.0
PSY 330	Cognitive Psychology	3.0
	<i>Term Credits</i>	15.5
Term 7		Credits
CHEM 101	General Chemistry I	3.5
EDUC 305	Junior Seminar	1.0

PHIL 251	Ethics	3.0
PHYS 131	Survey of the Universe	3.0
	<i>Term Credits</i>	10.5
Term 8		Credits
CHEM 102	General Chemistry II	4.5
EDUC 322	Evaluation of Instruction	4.0
PHYS 311	Classical Mechanics I	4.0
	<i>Term Credits</i>	12.5
Term 9		Credits
EDUC 320	Professional Studies in Instruction	6.0
EDUC 325	Multimedia in Instructional Design	3.0
HIST 280	History of Science I	3.0
PHYS 312	Classical Mechanics II	4.0
	<i>Term Credits</i>	16.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
ENVS 260	Environmental Science and Society I	3.0
PHEV 141	Atmospheric Science I: Climate and Global Change	3.0
PHYS 217	Thermodynamics	4.0
	English (ENGL) course between 200-329	3.0
	<i>Term Credits</i>	14.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
PHYS 321	Electromagnetic Fields I	4.0
PHYS 326	Quantum Mechanics I	4.0
	<i>Term Credits</i>	14.0
	Total Credits (minimum)	184.0

Last Updated: April 21, 04:18 pm

[Home](#) [Contents](#) [Index](#) [Email](#) [Search](#) [Feedback](#)

Drexel University

Catalog 2008/2009

Environmental Education Certification

Bachelor of Science: 186.0 credits

(Certification is for grades K - 12)

Degree requirements (incoming students, 2008/2009)

General education requirements		s
ECON 201	Principles of Microeconomics	4.0
HIST 285	Technology in Historical Perspective	3.0
HIST 280	History of Science I	3.0
ENGL 101	Expository Writing and Reading	3.0
ENGL 102	Persuasive Writing and Reading	3.0
ENGL 103	Analytical Writing and Reading	3.0
MATH 121	Calculus I	4.0
MATH 122	Calculus II	4.0
MATH 123	Calculus III	4.0
PHIL 251	Ethics	3.0
PSY 101	General Psychology	3.0
PSY 320	Educational Psychology	3.0
UNIV 101	The Drexel Experience	2.0
	English elective course between 200-329	3.0
	Elective	3.0

Science requirements		Credits
BIO 121	Physiology and Nutrition	4.5
BIO 122	Cells and Genetics	4.5
BIO 123	Organismal Diversity and Ecology	4.5
CHEM 101	General Chemistry I	3.5
CHEM 102	General Chemistry II	4.5
ENVS 272	Physical Geology	4.0
ENVS 270	History of Life on Earth	4.0
ENVS 284 WI	Physiological and Population Ecology	3.0
ENVS 286 WI	Communities and Ecosystem Ecology	3.0
ENVS 260	Environmental Science and Society	3.0
ENVS 330	Aquatic Ecology	3.0
ENVS 370	Practice of Environmental Economics	3.0
ENVS 390	Marine Ecology	3.0
PHEV 145	Weather 1: Climate and Global Change	4.0
PHEV 146	Weather 2: Analysis and Forecasting	4.0
PHYS 111	Physics I	4.5
PHYS 112	Physics II	4.5
PHYS 131 WI	Survey of the Universe	3.0

Pedagogy requirements		68.5 Credits
EDUC 105	Freshman Seminar	3.0
EDUC 112	Integrative Instruction	3.0
EDUC 114	Science Teaching Methods	3.0
EDUC 142	Special Education Foundations	4.5
EDUC 205	Sophomore Seminar	1.0
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 218	Math: Methods and Content	3.0
EDUC 244	Inclusionary Practices for Exceptional Students	4.5
EDUC 246	Literacy Development	4.5
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 305	Junior Seminar	1.0
EDUC 310	Computer Applications in Teaching	3.0
EDUC 320 WI	Professional Studies in Instruction	6.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 326 WI	Language Arts Processes	3.0
EDUC 405	Senior Seminar	1.0

Student teaching experience

EDUC 412 WI	Student Teaching	12.0
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Writing-Intensive Course Requirements

In order to graduate, all students beginning with the entering class of 2002/01 (fall, 2002) 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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Recommended Plan Of Study

BS Education

4 YR UG Co-op Concentration /Environmental Education

Term 1	Credits
EDUC 105 Freshman Seminar	1.0
EDUC 310 Computer Applications in Teaching	3.0
ENGL 101 Expository Writing and Reading	3.0
ENVR 169 Environmental Science	3.0
MATH 121 Calculus I	4.0
PSY 101 General Psychology I	3.0
UNIV 101 The Drexel Experience	1.0
<i>Term Credits</i>	<i>18.0</i>
Term 2	Credits
CHEM 101 General Chemistry I	3.5
EDUC 105 Freshman Seminar	1.0
EDUC 301 Introduction to Personalized Systems of Instruction	3.0
ENGL 102 Persuasive Writing and Reading	3.0
MATH 122 Calculus II	4.0
UNIV 101 The Drexel Experience	1.0
<i>Term Credits</i>	<i>15.5</i>
Term 3	Credits
CHEM 102 General Chemistry II	4.5
EDUC 105 Freshman Seminar	1.0
EDUC 112 Integrative Instruction	3.0
EDUC 142 Special Education Foundations: Referral and Assessment	4.5
ENGL 103 Analytical Writing and Reading	3.0
MATH 123 Calculus III	4.0
<i>Term Credits</i>	<i>20.0</i>
Term 4	Credits
BIO 121 Physiology and Nutrition	4.5
EDUC 205 Sophomore Seminar	1.0
EDUC 244 Inclusionary Practices for Exceptional Students	4.5
EDUC 326 Language Arts Processes	3.0
PHYS 111 Physics I	4.5
<i>Term Credits</i>	<i>17.5</i>
Term 5	Credits
BIO 122 Cells and Genetics	4.5
EDUC 218 Math: Methods and Content	3.0
ENVS 230 General Ecology	3.0
ENVS 260 Environmental Science and Society I	3.0
PHYS 112 Physics II	4.5
<i>Term Credits</i>	<i>18.0</i>
Term 6	Credits
BIO 123 Organismal Diversity & Ecology	4.5
ECON 201 Economics I	4.0
EDUC 216 Diversity and Today's Teacher	3.0
EDUC 246 Literacy and Content Skill Development	4.5
PSY 320 Educational Psychology	3.0
<i>Term Credits</i>	<i>19.0</i>
Term 7	Credits
EDUC 305 Junior Seminar	1.0
ENVS 284 Physiological and Population Ecology	3.0

ENVS 285	Population Ecology Lab	2.0
HIST 280	History of Science I	3.0
PHIL 251	Ethics	3.0
PHYS 131	Survey of the Universe	3.0
	<i>Term Credits</i>	15.0
Term 8		Credits
EDUC 322	Evaluation of Instruction	4.0
ENVS 272	Physical Geology	4.0
ENVS 286	Community and Ecosystem Ecology	3.0
ENVS 287	Community Ecology Lab	2.0
PHEV 146	Weather II: Analysis and Forecasting	4.0
	<i>Term Credits</i>	17.0
Term 9		Credits
EDUC 114	Science Teaching Methods	3.0
EDUC 320	Professional Studies in Instruction	6.0
EDUC 325	Multimedia in Instructional Design	3.0
	<i>Term Credits</i>	12.0
Term 10		Credits
EDUC 405	Senior Seminar	1.0
ENVS 330	Aquatic Ecology	3.0
ENVS 370	Practice of Environmental Economics	3.0
	English (ENGL) course between 200-329	3.0
	Free elective	3.0
	<i>Term Credits</i>	13.0
Term 11		Credits
EDUC 412	Student Teaching	12.0
	<i>Term Credits</i>	12.0
Term 12		Credits
EDUC 324	Current Research in Curriculum	3.0
ENVS 270	History of Life on Earth	4.0
ENVS 390	Marine Ecology	3.0
HIST 285	Technology in Historical Perspective	3.0
	<i>Term Credits</i>	13.0
	Total Credits (minimum)	190.0

Last Updated: April 21, 04:18 pm

[Home](#)

[Contents](#)

[Index](#)

[Email](#)

[Search](#)

[Feedback](#)

Drexel University

Catalog 2008/2009

Minor in Education

The minor in Education provides a structured academic opportunity for students who wish to add a fundamental understanding of the field of education as well as practical knowledge in the art and science of teaching and learning to their undergraduate experience.

Designed for students with a strong interest in education and training, the minor will not necessarily lead to the student being recommended for a state teaching certificate. However, should a student decide to also pursue a teaching certificate as a component of his or her major—or in post-baccalaureate work—the courses required for the minor are applicable to Pennsylvania State certification.

The minor in is comprised of eight required courses totaling 26.0 credits.

Required courses		Credits
EDUC 216	Diversity and Today's Teacher	3.0
EDUC 301	Introduction to Personalized System of Instruction	3.0
EDUC 321	Professional Studies in Instruction	3.0
EDUC 322	Evaluation of Instruction	4.0
EDUC 323 WI	Diagnostic Teaching	4.0
EDUC 324	Current Research in Curriculum and Instruction	3.0
EDUC 325	Multimedia in Instructional Design	3.0
EDUC 327	Learning Disabilities	3.0