

New York University Bulletin



UNDERGRADUATE 2010-2012

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Steinhardt School of Culture, Education, and Human Development

Applied Psychology

Art

Education

Health

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Music



Science Education

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Pamela Fraser-Abder
Program Director

Helping Others to Explore the Wonders of Science

Every day, science expands its profound role in our lives—for instance, through biotechnology, space exploration, medical research, and ecological discoveries. The goal of the science teacher is to stimulate in students a deep interest in understanding the world, to help them experience the challenge of exploring natural phenomena on this planet and beyond, and to encourage aptitudes that may lead to careers in science, teaching, research, or professional practice. But this goal can only be achieved if the teacher develops the abilities to be a creative, caring, lifelong learner with a strong science and pedagogical background. Our program is designed to help you achieve your goal and provide you with the resources for you to continue to evolve as an educator.

A Program in the National Forefront

Since its inception, the Bachelor of Science Program in Teaching Science, Grades 7-12, in the Department of Teaching and Learning has

been a leader in the nationwide movement in teacher education to stimulate the study of science, technology, and society in the secondary school. Today, we supplement our emphasis on science, technology, and society with a focus on training teachers to adapt curricula to multicultural environments, especially in urban areas, so that all students can become scientifically literate.

Science, Education, and Liberal Arts

You prepare to teach one of the following: biology, chemistry, earth science, or physics. All science courses are taken in NYU's College of Arts and Science, along with mathematics, humanities, and social science courses required for the liberal arts core.

In the Steinhardt School of Culture, Education, and Human Development, you take courses in methods for teaching science and the development of curricula for junior and senior high school students. The teaching strategies that you learn are designed to help make your own students feel more comfortable with scientific concepts and practices.

Small Program, Constant Feedback

Our program is small, permitting one-on-one academic and professional counseling from our faculty. We also use peer feedback and evaluation; student teaching is videotaped for critique sessions in which students review and discuss each other's techniques and lesson plans.

Your Teaching Internship

To ensure continuity between the college classroom and the real teaching world, you complete 100 hours of observation prior to beginning your two semesters of student teaching in an urban public or independent school selected for its diversity of student population. You are supervised by experienced teachers of science and by our own faculty.

Recent placements, for example, have been in the School of the Future and the High School for Environmental Science in Manhattan, Manhattan Center for Science and Mathematics, Friends Seminary on Manhattan's East Side, and Boys and Girls High School in Brooklyn.

Education in Comparative Perspectives

You are strongly encouraged to spend a semester abroad at one of NYU's many study abroad sites in Accra (Ghana), Berlin, Buenos Aires, Florence, London, Madrid, Paris, Prague, Shanghai, or Tel Aviv. The NYU site in London offers a special course for teacher education students that takes them to British schools and classrooms for observation and firsthand learning.

Senior Honors

Qualified seniors who wish to pursue a guided research in an area of educational inquiry may participate in a special yearlong seminar called Honors Research in Teaching and Learning. Working with the faculty instructor, students are guided through the process of selecting a topic of inquiry developing research questions, choosing and implementing appropriate methodologies, building outlines, developing bibliographies, writing literature reviews, and preparing drafts. The seminar meets regularly during the first semester as students develop their questions and proj-

ects. During the second semester, students work independently on their projects under the direction of their own faculty supervisor, with whom they hold regular meetings. Students meet periodically with their seminar classmates to share their research and findings as they refine and complete their final projects.

Helping You Start Your Career

Through the New York City Alliance for Science—our local network with science teachers—we learn about job openings in the schools. And student teaching placements frequently lead to full-time employment upon graduation.

Other Programs to See:

- Childhood Education and Childhood Special Education
- Early Childhood Education and Early Childhood Special Education
- Mathematics Education
- Nutrition and Dietetics

YOUR CAREER OPPORTUNITIES

Prospects for our graduates are excellent as secondary school enrollments rise and public interest in science education increases. To qualify for initial certification in New York State, you take the New York State Teacher Certification Examinations. These examinations have several parts, which may be taken during your course of study. Please see your adviser for more detailed information.

Our graduates are also successful in applying the knowledge and skills they gain in the program to pursue employment in industry, publishing, and research or at institutions placing special emphasis on making science accessible to the general public—in museums, zoos, and environmental centers, for example.

A sampling of teaching jobs accepted by recent graduates includes the following:

- Science teacher at the School of the Future, High School for Environmental Science, and Friends Seminary in Manhattan
- Science artist and illustrator of children's books
- Research technician at the NYU Langone Medical Center
- Instructors at museums, halls of science, and zoos

SCIENCE EDUCATION

The 126- to 132-point curriculum in science education, grades 7-12, offers students a choice of program of study in biology, chemistry, earth

science, or physics. These in-depth content core classes, directing the student's focus of scientific study, are combined with a pedagogical

foundation that exposes students to the methods for teaching science and the development of curricula for middle and high school stu-

dents. The student's program of study culminates in two semesters of teaching opportunities in a public or independent school setting.

SCIENCE EDUCATION: TEACHING BIOLOGY, GRADES 7-12, SAMPLE CURRICULUM WORKSHEET

Freshman Year 36 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS	New Student Seminar. E03.00010	LIBERAL ARTS	Inquiries into Teaching and Learning I. E27.00014
Writing the Essay. V40.0100 . . .4	General Chemistry I. V25.0101 .4	Foundations of Contemporary Culture: Texts and Ideas. V55.04••4	General Chemistry II. V25.0102 . .4
Foundations of Contemporary Culture: Culture and Contexts. V55.05••4	General Chemistry I Lab. V25.01032	The Advanced College Essay. E52.01104	General Chemistry II Lab. V25.01042
Calculus I. V63.01214	TOTAL <u>18</u>		TOTAL <u>18</u>

Sophomore Year 34 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS	Field Observations in Schools and Other Educational Settings. E27.00051	LIBERAL ARTS	Human Development II: Application for Educators of Early Adolescents and Adolescents. E63.00232
Foreign Language4	Principles of Biology I. V23.00114	Liberal Arts Elective4	Principles of Biology II. V23.00124
Liberal Arts Elective4	TOTAL <u>18</u>	Foundations of Contemporary Culture: Societies and the Social Sciences. V55.06•• . . .4	TOTAL <u>16</u>
MAJOR		MAJOR	
General Physics I. V85.00115		Human Development I. E63.00202	

Junior Year 30 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS	Biology by Advisement. V23.••••4	LIBERAL ARTS	Biology Elective by Advisement. V23.••••4
Language Acquisition and Literacy Education in a Multilingual and Multicultural Context. E27.10304	Major Methods I: Teaching of Science in Middle School and High School. E14.10393	Methods II: Teaching Science in Middle School and High School. E14.10403	Biology Elective by Advisement. V23.••••4
Molecular and Cell Biology I. V23.00214	TOTAL <u>15</u>	Molecular and Cell Biology II. V23.00224	TOTAL <u>15</u>

Senior Year 28 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS	Organic Chemistry I. V25.02434	LIBERAL ARTS	Supervised Student Teaching of Science in High School. E14.11503
Supervised Student Teaching of Science in Middle School. E14.11493	Organic Chemistry I Lab. V25.02452	Liberal Arts Elective4	Biology Elective by Advisement. V23.••••4
Education as a Social Institution. E20.10153	Drug and Alcohol Education/Child Abuse Identification/School Violence Prevention: The Social Responsibilities of Teachers. E81.19991	MAJOR	TOTAL <u>15</u>
Critical Study of Education. E55.10313	TOTAL <u>13</u>	Teaching Students with Disabilities in General Education Classrooms. E75.10054	

GRAND TOTAL: 128 Points

SCIENCE EDUCATION: TEACHING EARTH SCIENCE, GRADES 7-12, SAMPLE CURRICULUM WORKSHEET

Freshman Year 33 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS			
Calculus I. V63.01214	New Student Seminar. E03.00010	LIBERAL ARTS	Inquiries into Teaching and Learning I. E27.00014
Writing the Essay. V40.0100 . . .4	Field Observations in Schools and Other Educational Settings. E27.00051	Foundations of Contemporary Culture: Cultures and Contexts. V55.05••4	Earth System Science. V36.02004
Foundations of Contemporary Culture: Texts and Ideas. V55.04••4	Evolution of the Earth. V36.02104	The Advanced College Essay. E52.01104	TOTAL <u>16</u>
	TOTAL <u>17</u>		

Sophomore Year 36 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS			
Liberal Arts Elective4	General Chemistry I. V25.01014	LIBERAL ARTS	Human Development I. E63.00202
Foundations of Contemporary Social Sciences. V55.06•• . . .4	General Chemistry I Lab. V25.01032	Foreign Language4	Living Environment. V49.00084
	Environmental Systems Science. V36.01004	MAJOR	General Chemistry II. V25.01024
	TOTAL <u>18</u>	Human Development II: Application for Educators of Early Adolescents and Adolescents. E63.00232	General Chemistry II Lab. V25.01042
		TOTAL <u>18</u>	TOTAL <u>18</u>

Junior Year 33 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
Education as a Social Institution. E20.1015	Language Acquisition and Literacy Education in a Multilingual and Multicultural Context. E27.10304	LIBERAL ARTS	Earth Science Upper-Level Elective. V36.03••4
or	Methods I: Teaching of Science in Middle School and High School. E14.10393	Liberal Arts Elective4	Principles of Biology II. V23.00124
Critical Study of Education. E55.10313	Field Laboratory in Ecology. V23.00164	MAJOR	TOTAL <u>15</u>
	Principles of Biology I. V23.0011 4	Methods II: Teaching Science in Middle School and High School. E14.10403	
	TOTAL <u>18</u>		

Senior Year 27 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
Liberal Arts Elective4	Supervised Student Teaching of Science in Middle School. E14.11493	LIBERAL ARTS	Teaching Students with Disabilities in General Education Classrooms. E75.10054
MAJOR	Drug and Alcohol Education/ Child Abuse Identification/ School Violence Prevention: The Social Responsibilities of Teachers. E81.19991	Liberal Arts Elective4	Supervised Student Teaching of Science in High School. E14.11503
Earth Science Upper-Level Elective. V36.03••4	TOTAL <u>12</u>	MAJOR	TOTAL <u>15</u>
		Earth Science Upper-Level Elective. V36.03••4	GRAND TOTAL: 129 Points

SCIENCE EDUCATION: TEACHING PHYSICS, GRADES 7-12, SAMPLE CURRICULUM WORKSHEET

Freshman Year 32 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	MAJOR
LIBERAL ARTS	New Student Seminar. E03.00010	LIBERAL ARTS	Inquiries into Teaching and Learning I. E27.00014
Writing the Essay. V40.0100 . . .4	Field Observations in Schools and Other Educational Settings. E27.00051	The Advanced College Essay. E52.01104	Calculus II. V63.01224
Foundations of Contemporary Culture: Texts and Ideas. V55.04••4	Physics I. V85.00913	Foundations of Contemporary Culture: Cultures and Contexts. V55.05••4	TOTAL <u>16</u>
Calculus I. V63.01214	TOTAL <u>16</u>		

Sophomore Year 33 Points

FALL SEMESTER	MAJOR	SPRING SEMESTER	
LIBERAL ARTS	Calculus III. V63.01234	LIBERAL ARTS	Human Development I. E63.00202
Foreign Language4	Physics II. V85.00933	Liberal Arts Elective4	Mathematical Physics. V85.01063
Foundations of Contemporary Culture: Societies and the Social Sciences. V55.06••4	Physics II Lab. V85.00942	MAJOR	Physics III. V85.00953
	TOTAL <u>17</u>	Human Development II: Application for Educators of Early Adolescents and Adolescents. E63.00232	Physics III Lab. V85.00962
		TOTAL <u>16</u>	

Junior Year 33 Points

FALL SEMESTER		SPRING SEMESTER	
MAJOR	Language Acquisition and Literacy Education in a Multilingual and Multicultural Context. E27.10304	MAJOR	Electricity and Magnetism II. V85.01323
Education as a Social Institution. E20.1015	Modern Physics I. V85.0103 . . .5	Methods II: Teaching of Science in Middle School and High School. E14.10403	Liberal Arts Elective4
or	Electricity and Magnetism I. V85.01313	Modern Physics II. V85.0104 . . .5	TOTAL <u>15</u>
Critical Study of Education. E55.10313	Methods I: Teaching of Science in Middle School and High School. E14.10393		
	TOTAL <u>18</u>		

Senior Year 32 Points

FALL SEMESTER		SPRING SEMESTER	
LIBERAL ARTS	Experimental Physics. V85.01123	LIBERAL ARTS	Supervised Student Teaching of Science in High School. E14.11503
Liberal Arts Elective. V•••••4	Drug and Alcohol Education/Child Abuse Identification/School Violence Prevention: The Social Responsibilities of Teachers. E81.19991	Liberal Arts Elective. E/V•••••4	Upper-Level Physics Course3
Liberal Arts Elective. V•••••4	TOTAL <u>18</u>	MAJOR	TOTAL <u>14</u>
MAJOR		Teaching Students with Disabilities in General Education Classrooms. E75.10054	
Supervised Student Teaching of Science in Middle School. E14.11493			
Upper-Level Physics Course3			

GRAND TOTAL: 130 Points