

Biology Education Program

OVERVIEW OF THE PROGRAM:

The science education program is designed to provide a strong content background in one or more science disciplines and extensive practice using constructivist teaching strategies to prepare teacher candidates for today's classroom. Certifications (specializations) are available in biology (9-adult), chemistry (9-adult), physics (9-adult), earth and space science (5-adult), and general science (5-adult). Our program provides early teaching opportunities in middle school classrooms, workshops in association with the NASA IV&V Educator Resource Center, participation in state science teacher conferences, membership in professional organizations, opportunities for international travel and public outreach, and research experiences using radio telescopes at the Green Bank Observatory in Green Bank, WV.

Science education students earn the B.A. Degree in Education with specializations in two or more science areas. Some students choose to double major, earning both a B.S. in a science discipline (e.g., chemistry or biology) and a B.A. in Education.

EMPLOYMENT OPPORTUNITIES:

Students graduating from Fairmont State with science teaching specializations are typically recruited prior to graduation by area schools and/or by school districts in Maryland, Virginia, and North Carolina. The biology, chemistry, earth and space, or physics certification coupled with a general science certification provides the widest range of teaching opportunities. Due to the shortage of science teachers, graduates with the science specialization are heavily recruited.

GRADUATE OPPORTUNITIES:

Many science education graduates eventually continue on in their education to pursue a Master of Education (M.Ed.) degree. The Master of Arts in Teaching (M.A.T.) degree is another new option at Fairmont State for those who already have a bachelor's degree or higher with substantial earth science content.

fairmontstate.edu/collegeofscitech



**FAIRMONT STATE
UNIVERSITY™**

**College of Science and
Technology**



CONTACT INFORMATION

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BIOLOGY CONTENT SPECIALIZATION

In addition to their area of specialization, science education majors choose another content specialization (e.g. physics, chemistry, biology, earth and space science, or general science). Also, they take required Education courses and general studies electives. A model schedule for Biology and General Science certifications is shown at right.

BIOLOGY CONTENT COURSES (48 HOURS)

| | | |
|-----------|---|---|
| BIOL 1105 | BIOLOGICAL PRINCIPLES I | 4 |
| BIOL 1106 | BIOLOGICAL PRINCIPLES II | 4 |
| BIOL 2202 | GENERAL BOTANY | 4 |
| BIOL 2203 | GENERAL ZOOLOGY | 4 |
| BIOL 3306 | FUNDAMENTALS OF ECOLOGY | 4 |
| BIOL 3380 | GENETICS | 4 |
| CHEM 1105 | CHEMICAL PRINCIPLES I | 5 |
| CHEM 2220 | FOUNDATIONAL BIOCHEMISTRY | 4 |
| GEOL 1102 | HISTORICAL GEOLOGY | 4 |
| PHYS 1101 | INTRODUCTION TO PHYSICS | 4 |
| PHSC 4430 | SCIENCE INTEGRATION SEMINAR | 1 |
| PHSC 4431 | METHODS AND MATERIALS IN TEACHING SCIENCE | 3 |
| SCIE 1120 | METEOROLOGY | 4 |

EDUCATION CONTENT COURSES (39 hours)

| | | |
|-----------|---|----|
| EDUC 2200 | INTRODUCTION TO EDUCATION | 3 |
| EDUC 2201 | INSTRUCTIONAL TECHNOLOGY | 3 |
| EDUC 2203 | HUMAN DEVELOPMENT, LEARNING AND TEACHING | 3 |
| EDUC 2240 | HIGH INCIDENCE DISABILITIES FOR EDUCATORS | 3 |
| EDUC 2260 | INSTRUCTIONAL DESIGN I | 3 |
| EDUC 2265 | FIELD EXPERIENCE II | 1 |
| EDUC 3331 | READING IN THE CONTENT AREAS | 3 |
| EDUC 3340 | INSTRUCTIONAL DESIGN II | 3 |
| EDUC 3351 | INCLUSIVE CLASSROOM PRACTICES | 3 |
| EDUC 3365 | FIELD EXPERIENCE III | 2 |
| EDUC 4485 | ACTION RESEARCH | 1 |
| EDUC 4486 | PORTFOLIO | 1 |
| EDUC 4496 | SECONDARY STUDENT TEACHING | 10 |

GENERAL STUDIES (30+ hours)

| | |
|--|---|
| CRITICAL ANALYSIS - ENGL 1102 OR ANY OTHER ATTRIBUTE 1 | 3 |
| QUANTITATIVE LITERACY - MATH 1540 | 4 |
| WRITTEN COMMUNICATION - ENGL 1101 (REQUIRED) | 3 |
| TEAM WORK - COMM 2201 OR ANY OTHER ATTRIBUTE 4 | 3 |
| INFORMATION LITERACY - ENGL 1102 (REQUIRED) | * |
| TECHNOLOGY LITERACY - EDUC 2201 | * |
| ORAL COMMUNICATION - COMM 2201 OR ANY OTHER ATTRIBUTE 7 | * |
| CITIZENSHIP - POLI 1103 OR ANY OTHER ATTRIBUTE 8 | 3 |
| ETHICS - SOCY 2205 OR ANY OTHER ATTRIBUTE 9 | 3 |
| HEALTH - EDUC 2203 OR ANY OTHER ATTRIBUTE 10 | * |
| INTERDISCIPLINARY - GEOG 2210 OR ANY OTHER ATTRIBUTE 11 | 3 |
| FINE ARTS - ANY COURSE IN ATTRIBUTE 12 | 3 |
| HUMANITIES - ENGL 2220 OR ANY OTHER ATTRIBUTE 13 | 3 |
| SOCIAL SCIENCES - PSYC 1101 OR ANY OTHER ATTRIBUTE 14 | 3 |
| NATURAL SCIENCE - CHEM 1105 | * |
| CULTURAL AWARENESS - ENGL 2220 OR ANY COURSE IN ATTRIBUTE 16 | * |
| FREE ELECTIVES | 2 |

*MET BY EXISTING COURSE WORK

BACHELOR OF ARTS IN EDUCATION WITH BIOLOGY/GENERAL SCIENCE CERTIFICATIONS MODEL SCHEDULE

FRESHMAN FIRST SEMESTER

| | | |
|---------------|-------------------------|----|
| BIOL 1105 | BIOLOGICAL PRINCIPLES I | 4 |
| EDUC 2200 | INTRO TO EDUCATION | 3 |
| ENGL 1101 | WRITTEN ENGLISH I | 3 |
| MATH 1540 | TRIGONOMETRY | 3 |
| G.S. ELECTIVE | | 3 |
| | | 16 |

FRESHMAN SECOND SEMESTER

| | | |
|---------------------------|-----------------------------|----|
| BIOL 1106 | BIOLOGICAL PRINCIPLES I | 4 |
| COMM 2200 OR 2201 OR 2202 | | 3 |
| EDUC 2201 | INSTRUCTIONAL TECHNOLOGY | 3 |
| ENGL 1102 | WRITTEN ENGLISH II | 3 |
| SCIE 1120 | INTRODUCTION TO METEOROLOGY | 4 |
| | | 17 |

SOPHOMORE FIRST SEMESTER

| | | |
|-----------|--|----|
| BIOL 2203 | GENERAL ZOOLOGY | 4 |
| CHEM 1105 | CHEMICAL PRINCIPLES | 5 |
| EDUC 2203 | HUMAN DEVELOPMENT, LEARNING AND TEACHING | 3 |
| PHYS 1101 | INTRODUCTION TO PHYSICS I | 4 |
| | | 16 |

SOPHOMORE SECOND SEMESTER

| | | |
|---------------|---|----|
| BIOL 2202 | GENERAL BOTANY | 4 |
| CHEM 2200 | FOUNDATIONAL BIOCHEMISTRY | 4 |
| EDUC 2240 | HIGH INCIDENCE DISABILITIES FOR EDUCATORS | 3 |
| PHYS 1102 | INTRODUCTION TO PHYSICS II | 4 |
| G.S. ELECTIVE | | 3 |
| | | 18 |

JUNIOR FIRST SEMESTER

| | | |
|---------------|-------------------------|----|
| BIOL 3306 | FUNDAMENTALS OF ECOLOGY | 4 |
| EDUC 2260 | INSTRUCTIONAL DESIGN I | 3 |
| EDUC 2265 | FIELD EXPERIENCE II | 1 |
| GEOL 1101 | PHYSICAL GEOLOGY | 4 |
| G.S. ELECTIVE | | 3 |
| G.S. ELECTIVE | | 3 |
| | | 18 |

JUNIOR SECOND SEMESTER

| | | |
|---------------|---|----|
| EDUC 3331 | READING IN THE CONTENT AREA | 3 |
| GEOL 1102 | HISTORICAL GEOLOGY | 4 |
| PHSC 4431 | METHODS & MATERIALS IN TEACHING SCIENCE | 3 |
| G.S. ELECTIVE | | 3 |
| G.S. ELECTIVE | | 3 |
| | | 16 |

SENIOR FIRST SEMESTER

| | | |
|-----------|-------------------------------|----|
| BIOL 3380 | GENETICS | 4 |
| EDUC 3340 | INSTRUCTIONAL DESIGN II | 3 |
| EDUC 3351 | INCLUSIVE CLASSROOM PRACTICES | 3 |
| EDUC 3365 | FIELD EXPERIENCE III | 2 |
| PHSC 4430 | SCIENCE INTEGRATION SEMINAR | 1 |
| PHYS 2202 | ASTRONOMY (EVEN YRS) | 3 |
| | | 16 |

SENIOR SECOND SEMESTER

| | | |
|-----------|----------------------------|----|
| EDUC 4485 | ACTION RESEARCH | 1 |
| EDUC 4486 | PORTFOLIO | 1 |
| EDUC 4496 | SECONDARY STUDENT TEACHING | 10 |
| | | 12 |