

Physics 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.

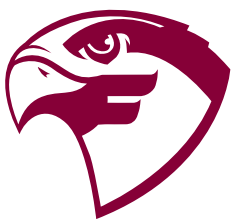
EMPLOYMENT OPPORTUNITIES:

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

Dr. Deb Hemler
Science Education Coordinator
Department of Natural Sciences

315 Hunt-Haught Hall

dhemler@fairmontstate.edu

Phone: (304) 367-4393

PHYSICS CONTENT SPECIALIZATIONS

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

PHYSICS CONTENT COURSES (45-48 hours)

PHYS 1105/06	PRINCIPLES OF PHYSICS I, II	10
-OR-		
PHYS 1101/02	INTRODUCTION TO PHYSICS I, II	8
PHYS 2202	ASTRONOMY	3
PHYS 3211/12	INTERMEDIATE PHYSICS IA, IB	6
PHYS 3221/22	INTERMEDIATE PHYSICS LABORATORY IIA, IIB	6
PHYS 3230	INTERMEDIATE PHYSICS LABORATORY	2
PHSC 4430	SCIENCE INTEGRATION SEMINAR	1
PHSC 4431	METHODS & MATERIALS IN TEACHING SCIENCE	3
MATH 3315	CALCULUS II	4
-OR-		
MATH 1586	APPLIED CALCULUS II	4
-OR-		
TECH 3300	ENGINEERING ANALYSIS II	4
BIOL 1105	BIOLOGICAL PRINCIPLES I	4
CHEM 1105/2200	CHEMICAL PRINCIPLES I / FOUNDATIONAL BIOCHEMISTRY	9
-OR-		
CHEM 1101/02	GENERAL CHEMISTRY I,II	8

EDUCATION CONTENT COURSES (39 hours)

EDUC 2200	INTRO 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	3
Quantitative Literacy - MATH 1585 or 1190	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 1101 or CHEM 1105	*
Cultural Awareness - ENGL 2220 or Any course in Attribute 16	*

Additional General Studies hours

FREE ELECTIVES	3-6
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*MET BY EXISTING COURSE WORK

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

FRESHMAN FIRST SEMESTER

CHEM 1105	CHEMICAL PRINCIPLES	5
COMM 2200 OR 2201 OR 2202		3
EDUC 2200	INTRODUCTION TO EDUCATION	3
ENGL 1101	WRITTEN ENGLISH I	3
MATH 1585/1190	APPLIED CALC I/CALCULUS I	4
		18

FRESHMAN SECOND SEMESTER

CHEM 2200	FOUNDATIONAL BIOCHEMISTRY	4
ENGL 1102	WRITTEN ENGLISH II	3
EDUC 2201	INSTRUCTIONAL TECHNOLOGY	3
MATH 1586/3315	APPLIED CALC II/CALCULUS II	4
G.S.	ELECTIVE	3
		17

SOPHOMORE FIRST SEMESTER

BIOL 1105	BIOLOGICAL PRINCIPLES I	4
EDUC 2203	HUMAN DEVELOPMENT, LEARNING AND TEACHING	3
PHYS 1105	PRINCIPLES OF PHYSICS I	5
-OR-		
PHYS 1101	INTRODUCTION TO PHYSICS I	4
G.S. ELECTIVE		3
G.S. ELECTIVE		3
		18-19

SOPHOMORE SECOND SEMESTER

BIOL 1106	BIOLOGICAL PRINCIPLES II	4
EDUC 2240	HIGH INCIDENCE DISABILITIES FOR EDUCATORS	3
MATH 1186	APPLIED CALC II	4
-OR-		
MATH 3315	CALCULUS II	4
PHYS 1106	PRINCIPLES OF PHYSICS II	5
-OR-		
PHYS 1102	INTRODUCTION TO PHYSICS II	4
G.S. ELECTIVE		3
		18-19

JUNIOR FIRST SEMESTER

EDUC 2260	INSTRUCTIONAL DESIGN I	3
EDUC 2265	FIELD EXPERIENCE II	1
GEOG 1101	PHYSICAL GEOLOGY	4
PHYS 3311	INTERMEDIATE PHYSICS IA	3
PHYS 3312	INTERMEDIATE PHYSICS IB	3
PHYS 2202	ASTRONOMY	3
		17

JUNIOR SECOND SEMESTER

EDUC 3331	READING IN THE CONTENT AREAS	3
GEOG 1102	HISTORICAL GEOLOGY	4
PHSC 4431	METHODS & MATERIALS IN TEACHING SCIENCE	3
PHYS 3321	INTERMEDIATE PHYSICS IIA	3
PHYS 3322	INTERMEDIATE PHYSICS IIB	3
G.S. ELECTIVE		3
		19

SENIOR FIRST SEMESTER

EDUC 3351	INCLUSIVE CLASSROOM PRACTICES	3
EDUC 3340	INSTRUCTIONAL DESIGN II	3
EDUC 3365	FIELD EXPERIENCE III	2
PHYS 3330	INTERMEDIATE PHYSICS LAB	2
PHYS 2202	ASTRONOMY (EVEN YEARS)	3
PHSC 4430	SCIENCE INTEGRATION SEMINAR	1
G.S. ELECTIVE		3
		17

SENIOR SECOND SEMESTER

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