

Chemistry 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.

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UNIVERSITY™**

**College of Science and
Technology**



CONTACT INFORMATION

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CHEMISTRY 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 Chemistry and General Science certifications is shown at right.

CHEMISTRY CONTENT COURSES (45-47 HOURS)

BIOL 1105	BIOLOGICAL PRINCIPLES I	4
CHEM 1105	CHEMICAL PRINCIPLES I	5
CHEM 2220	FOUNDATIONAL BIOCHEMISTRY	4
CHEM 2201	ORGANIC CHEMISTRY I	4
CHEM 3304	INORGANIC CHEMISTRY	4
CHEM 3301	PHYSICAL CHEMISTRY I	4
GEOL 1101	PHYSICAL GEOLOGY	4
MATH**1585	APPLIED CALCULUS I	4
-OR-		
MATH** 1190	CALCULUS	4
PHYS 1101/02	INTRODUCTION TO PHYSICS I, II	8
-OR-		
PHYS 1105/06	PRINCIPLES OF PHYSICS I, II	10
PHSC 4430	SCIENCE INTEGRATION SEMINAR	1
PHSC 4431	METHODS AND MATERIALS IN TEACHING SCIENCE	3

**STUDENTS WHO DO NOT MEET THE PREREQUISITES FOR MATH 1585 OR 1190 WILL BE REQUIRED TO TAKE MATH 1530 AND/OR MATH 1540.

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 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	4-6

*MET BY EXISTING COURSE WORK

BACHELOR OF ARTS IN EDUCATION WITH CHEMISTRY / GENERAL SCIENCE CERTIFICATIONS

MODEL SCHEDULE

FRESHMAN FIRST SEMESTER

CHEM 1105	CHEMICAL PRINCIPLES	5
EDUC 2200	INTRODUCTION TO EDUCATION	3
ENGL 1101	WRITTEN ENGLISH I	3
MATH 1540	TRIGONOMETRY	3
G.S. ELECTIVE		3
		17

FRESHMAN SECOND SEMESTER

CHEM 2200	FOUNDATIONAL BIOCHEMISTRY	4
COMM 2200 - OR - 2201 - OR - 2202		3
EDUC 2201	INSTRUCTIONAL TECHNOLOGY	3
ENGL 1102	WRITTEN ENGLISH II	3
MATH 1585/1190	APPLIED CALC I/CALCULUS I	4
		17

SOPHOMORE FIRST SEMESTER

BIOL 1105	BIOLOGICAL PRINCIPLES I	4
CHEM 2201	ORGANIC CHEMISTRY I	4
EDUC 2203	HUMAN DEVELOPMENT, LEARNING AND TEACHING	3
PHYS 1101	INTRODUCTION TO PHYSICS I	4
		15

SOPHOMORE SECOND SEMESTER

BIOL 1106	BIOLOGICAL PRINCIPLES II	4
EDUC 2240	HIGH INCIDENCE DISABILITIES FOR EDUCATORS	3
GEOL 1101	PHYSICAL GEOLOGY	4
PHYS 1102	INTRODUCTION TO PHYSICS II	4
G.S. ELECTIVE		3
		18

JUNIOR FIRST SEMESTER

CHEM 3304	INORGANIC CHEMISTRY	4
- OR -		
CHEM 3301	PHYSICAL CHEMISTRY I	4
EDUC 2260	INSTRUCTIONAL DESIGN I	3
EDUC 2265	FIELD EXPERIENCE II	1
PHYS 2202	ASTRONOMY (EVEN YRS)	3
G.S. ELECTIVE		2
G.S. ELECTIVE		3
		16

JUNIOR SECOND SEMESTER

GEOL 1102	HISTORICAL GEOLOGY	4
PHSC 4431	METHODS & MATERIALS IN TEACHING SCIENCE	3
G.S. ELECTIVE		3
G.S. ELECTIVE		3
FREE ELECTIVE		3
		16

SENIOR FIRST SEMESTER

CHEM 3301	PHYSICAL CHEMISTRY	4
- OR -		
CHEM 3304	INORGANIC CHEMISTRY	4
EDUC 3340	INSTRUCTIONAL DESIGN I	3
EDUC 3365	FIELD EXPERIENCE III	2
EDUC 3351	INCLUSIVE CLASSROOM PRACTICES	3
PHSC 4430	SCIENCE INTEGRATION SEMINAR	1
SCIE 1120	INTRODUCTION TO METEOROLOGY	4
		17

SENIOR SECOND SEMESTER

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