

B.A.Ed. in Biology/Chemistry Secondary

Woodring College of Education & College of Sciences and Technology

2006-2007

Academic Advising Center

Old Main 380

360.650.3850

Advising@cc.wwu.edu

This document has been created for advising purposes only. Please contact the appropriate department for major and/or graduation requirements.

What is the study of Biology/Chemistry Secondary?

The Department of Chemistry, in addition to its core of fundamental studies in physical, inorganic, organic, analytical and biochemistry, has added a variety of elective courses that offer diversity in

training, study and research at the undergraduate level.

Biology, as the study of living things, is an academic endeavor with a basic research focus on seeking answers to questions rather than on

applying biological knowledge to solve problems. As scientists, biologists have two prime motivations: (1) intellectual curiosity about biological systems, and (2) the philosophy that creating and

Why should I consider a Biology/Chemistry-Secondary Major?

Are you **interested in Biology but do not want a career in biology?** Do you want a liberal arts education with a focus in Biology? Do you want to know all about the life that you see, hear, touch, taste and smell and how this affects us? But you have interests in other scholastic areas as well? Consider a Bachelors of Arts

of Education degree in Biology and Chemistry!

The programs of study within the chemistry major provide many benefits to students. There are a wide variety of accredited programs that are designed to meet diverse career goals. There is close student-faculty contact and

relatively small classes. The students have direct access to modern laboratory equipment and instrumentation, and there are opportunities for research work under the direction of a faculty advisor.

Declaring a Biology/Chemistry-Secondary Major?

Declare your Biology major as soon as you think you may want to be a Biology major. See Nancy Kirchgatter in the Biology Department Office, BI

315 for details. Freshmen, first quarter is not too soon. Students planning to major in Chemistry are advised to consult the department at the

beginning of their first quarter on campus to arrange for proper sequence of courses.

Mid Program Checkpoint:

Students intending to complete a Bachelor's of Arts in Education degree in Biology/Chemistry-Secondary within four years should complete the following courses by the start of their junior year. Students are expected to follow all prerequisite requirements for courses and seek early departmental advisement.

Coursework:

Complete General Chemistry Sequence (121-123).

Complete Math 124.

Complete Biology Sequence (204-206).

Start Organic Chemistry Sequence (351-354).

Begin Physics Sequence.

Other Activities:

Work with or volunteer with school aged children.

Tutor children in science or math.

Attend Biology Seminars on Wednesdays at 4 p.m.

Contact

Information:

www.biol.wwu.edu/biology/
www.chem.wwu.edu/dept/wwuchem.html

Chemistry Department:
CB 270, 360-650-3070
chemdept@chem.wwu.edu

Chemistry Education Advisor:

Steven Gammon
CB 244, 360-650-3825
gammon@chem.wwu.edu

Biology Department Chair:

Dr. Joann Otto
BI 315
(360) 650-4044
Joann.Otto@wwu.edu

Biology Undergraduate Advisor:

Nancy Kirchgatter
BI 315
(360) 650-3627
Nancy.Kirchgatter@wwu.edu

Sample Career Fields:

- Secondary Education Teacher

Biology/Chemistry—Secondary Major Requirements: 103-104 Credits

CHEM 121 General Chemistry I (5)
CHEM 122 General Chemistry II (5)
CHEM 123 General Chemistry III (4)
CHEM 333 Analytical Chemistry with Lab (5)
OR CHEM 125 General Chemistry I, Honors (5)
CHEM 126 General Chemistry II, Honors (5)
CHEM 225 General Chemistry III, Honors (5)
CHEM 351 Organic Chemistry (4)
CHEM 352 Organic Chemistry (4)
CHEM 353 Organic Chemistry (3)
CHEM 354 Organic Chemistry Lab I (2)
CHEM 471 Molecular Biology and Biochemistry (3)
CHEM 472 Molecular Biology and Biochemistry (3)
CHEM 474 Biochemistry Lab (3)
BIOL 204 Introduction to Evolution, Ecology and Biodiversity (4)
BIOL 205 Introduction to Cellular and Molecular Biology (5)
BIOL 206 Introduction to Organismal Biology (5)
BIOL 321 Genetics (4)
BIOL 323 Cell Biology (3)

BIOL 322 Genetics Lab (2)
OR BIOL 324 Methods in Molecular Biology with Lab (3)

BIOL 325 Ecology (3)
BIOL 326 Ecology Lab (2)
BIOL 432 Principles of Organic Evolution (4)

PHYS 114 Principles of Physics I (5)
PHYS 115 Principles of Physics II with Lab (5)
PHYS 116 Principles of Physics III with Lab (5)
OR PHYS 121/131 Physics with Calculus I/Lab (4, 1)
PHYS 122/132 Physics with Calculus II/Lab (4, 1)
PHYS 123/133 Electricity & Magnetism/Lab (4, 1)

MATH 124 Calculus and Analytic Geometry I (5)
OR MATH 224 Multivariable Calculus and Geometry (5)

SCED 370 Science and Society (3)
SCED 481 Fundamentals of Teaching Science (2)
SCED 491 Secondary Education for Science Teachers (5)

These required or elective courses will also satisfy the GUR or other Graduation Requirement:

QSR: Math 124

ASCI:

BIO 204, 205, 206

CHEM 121, 122, 123

PHYS 114, 115, 116 or 121, 122, 123

WP: BIOL 432

Other Biology and Chemistry

Biology:

B.A. in Biology (74 credits)
BA in Behavioral Neuroscience (109-110 credits)
B.A. in Biology/Anthropology (86 credits)
B.S. in Biology (90-95 credits)
B.S. in Cellular and Molecular Biology/Biochemistry (109 credits)
B.S. in Biology/Anthropology (101-104 credits)
B.S. in Biology/Mathematics (105 credits)
Minor in Biology (43 credits)

Chemistry:

B.A. in Chemistry (86 credits)
B.S. in Chemistry (106 credits)
B.S. in Biochemistry (108 credits)
B.A.Ed. Chemistry/Physics—Secondary (104-117 credits + cert. program)
B.A.Ed. Chemistry/Biology—Secondary (105-106 credits + cert. program)
Minor in Chemistry (30-32 credits)

Secondary Education Program

Woodring College of Education

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Why should I consider a career in Secondary Education?

Do you have a passion for your chosen subject area? Do you want to share this passion with middle or high school level students? Are you looking for a way to have a positive, dynamic impact on the lives of adolescents? Then consider a career in Secondary

Education.

The Secondary Education Department offers Washington State Residency teacher certification at the undergraduate, post baccalaureate and Master's level. The plan below applies

to undergraduate students.

For information on the other routes to certification, as well as information on all aspects of the program, consult Secondary website.

Secondary Education Philosophy:

The Secondary Teacher Education curriculum is a carefully sequenced professional program that is firmly backed by current

research on effective teaching which embraces three basic strands in education: Artistic, Scientific, Professional. The Secondary faculty are

committed to preparing the highest quality teachers to enter the diverse and challenging field of teaching.

Applying to the Secondary Education Program:

To be completed before application deadline:

Completion of at least **75 credits**.

Cumulative overall, or last 45 credits, **GPA of 2.75 or higher**.

Satisfaction of the **testing requirement**:
Pass the WEST-B.

English composition course with a grade of **B** or higher.

Adequate academic major preparation. See an advisor from your academic major department prior to consulting with an Education advisor.

Contact Information:

Department Chairperson:
<http://www.wce.wvu.edu/Depts/SEC/>

Ray Wolpow
MH 306B
Ray.Wolpow@wvu.edu
360-650-3337

Program Manager:
Patricia Roberts
MH 306
Patricia.Roberts@wvu.edu
360-650-3327

Sample Career Fields:

- Secondary Education Teacher

Mid Program Checkpoint:

Students intending on complete a Bachelor's of Arts in Education degree in with the Secondary Education Program should complete the following by mid-way through their education. Students are expected to follow all prerequisite requirements for courses and seek early departmental advisement.

Coursework:

Adequate academic major preparation (see first page of this handout.).

Completion of English composition course.

Other Activities:

Secondary Education Program Requirements: 64 Credits

Course work: 40 Credits

- EDUC 301 Educational Psychology I: Development and Individual Differences (4)
- EDUC 302 Educational Psychology II: Motivation, Learning and Assessment (4)
- EDUC 310 Teaching and the Social Order (4)
- SEC 411 Foundations of Education (4)
- SPED 363b Secondary Students with Special Needs (3)
- IT 444b Classroom Use of Instructional Technology (3)
- SEC 410 Dynamics of Teaching (2)
- SEC 425 Developmental Reading, Writing & Learning in Secondary Schools (4)
- SEC 431 Instruction in Secondary Schools – Methods I (4)
- SEC 431a Middle Level Practicum (2)
- SEC 432 Instruction in Secondary Schools – Methods II (4)
- SEC 432a Secondary School Practicum (1)
- SEC 433 Peer Teaching Laboratory (1)

Internship: 24 credits Total

- SEC 495 Internship – Secondary (2-18)

Choosing an Academic Major:

All Secondary Education students are advised to speak with an academic department major advisor early in their program. Western Washington University academic departments offer the following majors which have been

approved by the State Board of Education and lead to a recommendation by that department for a primary teaching endorsement.

Supporting Endorsements: A supporting endorsement can only be obtained by an individual who has already received or is simultaneously earning a primary endorsement. Supporting endorsements are offered by individual departments.

Anthropology/Social Studies: B.A., 86-88 credits

Art: B.A.Ed, 72 credits, Grades P-12

Biology : B.S., 90 credits + SCED 370, 481, 491;

B.A., 74 credits + SCED 370, 481, 491

Biology/Chemistry: B.A.Ed. 105-106 credits

Chemistry: B.S., 106 credits + SCED 370, 481, 491;

B.A. 86 credits + SCED 370, 481, 491;

B.S. Biochemistry, 108 credits + SCED 370, 481, 491

Chemistry/Mathematics: B.A.Ed., 108-122 credits

Chemistry/Physics: B.A.Ed., 108-122 credits

Earth Science: B.A.Ed, 86–88 Credits

Earth Science/General Science: B.A.Ed, 107-108 credits

Economics/Social Studies: B.A., 90-91 credits

English Language Arts: B.A.Ed., 60 credits

French: B.A., 55 credits + additional LANG

General Science: B.A.Ed., 90-101 credits

Geography/Social Studies: B.A., 91-93 credits

Geology: B.S., 97-110 credits + SCED 370, 481, 491

German: B.A., 55 credits + additional LANG

Health and Fitness: B.A.Ed, 138 credits with education certification courses, Grades P-12

History/Social Studies: B.A., 90 credits

Mathematics: B.A.Ed., 70 credits

Music Education: B.M, 109-110 credits, Grades P-12

Physics: B.S., 107-108 credits + SCED 370, 481, 491

Physics/Mathematics: B.A.Ed, 108-109 credits

Political Science/Social Studies: B.A., 91-93 credits

Spanish: B.A. 55 credits + additional LANG

Special Education: B.A.Ed., 99-100 credits with education certification courses, Grades P-12

Theatre Arts: B.A.Ed., 51 credits, Grades P-12

The credit requirement for each major listed above do not include the Secondary Education Program curriculum, unless noted.