

CHEMISTRY (CH)

The Bachelor of Science degree in chemistry prepares the student for a career in industrial or governmental chemistry laboratories, graduate study, or secondary teaching. With proper electives, the chemistry major also may enter graduate degree programs in law, medical or dental school, environmental sciences, and related fields.

Bachelor of Science - Chemistry Major

MAJOR CODE: 40.0501

Program components for the Bachelor of Science degree with a major in Chemistry include:

1. **APPLICABLE GENERAL UNIVERSITY REQUIREMENTS:**

To graduate, each student must:

- complete a minimum of 33 semester hours of the last 39 semester hours at ASU.
- complete 60 to 64 semester hours of upper level college/university credit (300-400 level courses).
- complete a minimum of 15 semester hours of upper (300/400) level coursework in his or her major at Athens State University, not including courses taken by consortium arrangement. School or departmental regulations may require more than 15 semester hours of coursework in the major at Athens State University.
- complete all course requirements for major(s).
- complete all course requirements for minor (if applicable).
- complete all of the general education requirements for the degree.
- attain an overall grade point average of 2.0, a 2.0 on all coursework attempted at Athens State University and at least a 2.0 in the major field. School or departmental regulations may require more than a 2.0 grade point average (see major requirements in each discipline).
- complete the total degree requirements as specified by the degree.
- complete the teacher certification requirements (if applicable).

EACH STUDENT MUST ASSUME RESPONSIBILITY FOR KNOWING THE ACADEMIC REQUIREMENTS FOR THE DEGREE THAT IS BEING PURSUED.

2. **GENERAL EDUCATION REQUIREMENTS:**

Area I. Written Composition 6 semester hours ___ __

Area II. Humanities/Fine Arts (12 semester hours)

At least one fine arts course 3 semester hours ___

At least one literature course 3 semester hours ___

Other Humanities/Fine Arts courses 6 semester hours ___ __

Area III. Mathematics and Natural Sciences (12 semester hours)

Calculus I* 4 semester hours ___

College Chemistry I and II 8 semester hours ___ __

Area IV. History/Behavioral and Social Sciences (12 semester hours)

At least one history course 3 semester hours ___

Other History/Behavioral or Social Science courses 9 semester hours ___ __ __

***Prerequisites: Precalculus Algebra and Precalculus Trigonometry**

TOTAL GENERAL EDUCATION REQUIREMENTS 42 SEMESTER HOURS

3. **MAJOR PREREQUISITE COURSES (PRE-PROFESSIONAL COURSES):**
- | | | |
|---|------------------|-----|
| Calculus II | 4 semester hours | ___ |
| Calculus III | 4 semester hours | ___ |
| General Physics I (Calculus based) | 4 semester hours | ___ |
| General Physics II (Calculus based) | 4 semester hours | ___ |
| Microcomputer Applications | 3 semester hours | ___ |
| Electives | 3 semester hours | ___ |
- TOTAL MAJOR PREREQUISITE HOURS: 22 SEMESTER HOURS**
- TOTAL GEN. ED. REQ. & MAJOR PREREQUISITE HOURS: 64 SEMESTER HOURS**

4. **PROFESSIONAL COURSES:**
- | | | |
|---|------------------|-----|
| CH 311/CH 311L Organic Chemistry I | 5 semester hours | ___ |
| CH 312/CH 312L Organic Chemistry II | 5 semester hours | ___ |
| CH 314/CH 314L Polymer Science | 4 semester hours | ___ |
| CH 324/CH 324L Analytical Chemistry | 4 semester hours | ___ |
| CH 330 Environmental Chemistry** | 3 semester hours | ___ |
| CH 410/CH 410L Instrumental Analysis | 4 semester hours | ___ |
| CH 420 Intermediate Inorganic Chemistry | 3 semester hours | ___ |
| CH 430/CH 430L Physical Chemistry I | 5 semester hours | ___ |
| CH 431/CH 431L Physical Chemistry II | 4 semester hours | ___ |
- **The major who plans to attend medical school or health related professional (e.g., veterinary, chiropractic, osteopathic, pharmacy) schools may substitute CH 409 Biochemistry for either CH 314 or CH 330.

TOTAL PROFESSIONAL HOURS: 37 SEMESTER HOURS

5. The chemistry major must complete a minimum of 24 semester hours of upper division 300/400 level chemistry coursework at Athens State University. For those majors who plan to attend graduate, medical, or other professional school, the following courses are recommended:
- CH 409 Biochemistry
MA 421 Differential Equations

6. A minor is not required.

7. **GENERAL ELECTIVES: 27 semester hours** ___ ___ ___ ___
 ___ ___ ___ ___

8. **TOTAL HOURS FOR GRADUATION 128 SEMESTER HOURS**

9. **Pre-assessment and Exit Examinations:** During the first term of enrollment at Athens State, the chemistry major must complete a pre-assessment examination. During the final term of enrollment at Athens State, the chemistry major must complete the major field achievement examination for chemistry.

Chemistry Minor

A minor in Chemistry requires 20 semester hours of chemistry coursework including a minimum of 9 semester hours of upper division coursework which must be completed at Athens State University.

College Chemistry I, II or CH 303, 304, 305	8-9 semester hours
CH 324 /CH 324L Analytical Chemistry	4 semester hours
Upper Level 300/400 Chemistry courses to be determined by Chemistry Faculty Advisor	7-8 semester hours
TOTAL HOURS REQUIRED FOR MINOR:	20 semester hours

Bachelor of Science - Chemistry Major
(Licensure and Certification Track for Teaching in Secondary Education) (Grades 6-12)
MAJOR CODE: 40.0501

(Due to the No Child Left Behind Federal Act of 2001, the program listed below may have changed. See your advisor.)

NOTE: To teach in secondary schools, the students MUST:

- 1) complete the below listed requirements to include the minor for certification and licensure;
- 2) contact the certification officer in the College of Education for approval of appropriate professional education courses and compliance with NCLB Federal Act of 2001 and State Department of Education licensure standards;
- 3) maintain a grade point average of at least a 2.75 on a 4.0 scale in each of the following: professional education, teaching field, and overall education. This is a requirement for student teaching and for graduation.
- 4) repeat courses in which D's and F's are made and realize that all attempts are calculated in the GPA. Education courses with the prefixes ED, EL, ER, SC, SE, CE, and HPE may be repeated one time only ; and
- 5) understand that underlined courses in the minor require admission into the Teacher Education Program (TEP).

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- complete 60 to 64 semester hours of upper level college/university credit (300-400 level courses).
- complete a minimum of 15 semester hours of upper (300/400) level coursework in his or her major at Athens State University, not including courses taken by consortium arrangement. School or departmental regulations may require more than 15 semester hours of coursework in the major at Athens State University.
- complete all course requirements for major(s).
- complete all course requirements for minor (if applicable).
- complete all of the general education requirements for the degree.
- complete the total hour requirement as specified by the degree.
- complete the teacher certification requirements (if applicable).

EACH STUDENT MUST ASSUME RESPONSIBILITY FOR KNOWING THE ACADEMIC REQUIREMENTS FOR THE DEGREE THAT IS BEING PURSUED. PLEASE FOLLOW CAREFULLY.

2. GENERAL EDUCATION REQUIREMENTS:

Area I. Written Composition 6 semester hours ___ ___

Area II. Humanities and Fine Arts (12 semester hours)

The Arts 3 semester hours ___
 Speech (SPH 106 or SPH 107) 3 semester hours ___
 Humanities Elective 3 semester hours ___
 Literature* 3 semester hours ___ or 6 semester hours ___ ___

Area III. Natural Sciences and Mathematics (12 semester hours)

Calculus I** 4 semester hours ___
 College Chemistry I and II 8 semester hours ___

Area IV. History/Behavioral and Social Sciences (12 semester hours)

History* 3 semester hours ___ or 6 semester hours ___ ___
 General Psychology 3 semester hours ___
 Other History/Behavioral or Social Science Elective 3 semester hours ___

*Students must complete a 6 semester hour sequence in either Area II Literature or Area IV History.

**Prerequisites: Precalculus Algebra and Precalculus Trigonometry

TOTAL GENERAL EDUCATION REQUIREMENTS: 42 SEMESTER HOURS

3.	MAJOR PREREQUISITE COURSES (PRE-PROFESSIONAL)	
	Calculus II	4 semester hours ___
	Calculus III	4 semester hours ___
	General Physics I (Calculus based)	4 semester hours ___
	General Physics II (Calculus based)	4 semester hours ___
	Electives	6 semester hours ___ ___
	TOTAL MAJOR PREREQUISITE HOURS:	22 SEMESTER HOURS
	TOTAL GEN. ED. REQ. AND MAJOR PREREQUISITE HOURS:	64 SEMESTER HOURS
4.	PROFESSIONAL COURSES:	
	CH 311/CH 311L Organic Chemistry I	5 semester hours ___
	CH 312/CH 312L Organic Chemistry II	5 semester hours ___
	CH 324 /CH 324L Analytical Chemistry	4 semester hours ___
	CH 330 Environmental Chemistry	3 semester hours ___
	CH 409 Biochemistry	3 semester hours ___
	CH 410/CH 410L Instrumental Analysis	4 semester hours ___
	CH 420 Intermediate Inorganic Chemistry	3 semester hours ___
	CH 430/CH 430L Physical Chemistry I	5 semester hours ___
	CH 431/CH 431L Physical Chemistry II	4 semester hours ___
	TOTAL PROFESSIONAL HOURS:	36 SEMESTER HOURS
5.	The chemistry major must complete a minimum, of 24 semester hours of upper division 300/400 level chemistry coursework at Athens State University.	
6.	Pre-assessment and Exit Examinations: During the first term of enrollment at Athens State University, the chemistry major must complete a pre-assessment examination. During the final term of enrollment at Athens State, the chemistry major must complete the major field achievement examination for chemistry.	
7.	MINOR COURSES FOR CERTIFICATION:	
	ED 301 Foundations of Education I	1 semester hour ___
	ED 302 Foundations of Education II	2 semester hours ___
	ED 305 Technology & Media in Education	3 semester hours ___
	SC 331 Issues and Management in Secondary Education	3 semester hours ___
	SC 333 Teaching Reading/Writing in the Content Areas	3 semester hours ___
	SC 362 Assessment and Evaluation in Secondary Education	3 semester hours ___
	PS 334 Adolescent Psychology	3 semester hours ___
	SE 301 Introduction to Exceptional Learners	3 semester hours ___
	CH 456 Materials and Methods of Teaching Chemistry in Middle School/ High School	3 semester hours ___
	SC 486 Internship in High School Education	9 semester hours ___ ___
	TOTAL MINOR REQ. FOR CERTIFICATION/LICENSURE	33 SEMESTER HOURS
	TOTAL HOURS FOR GRADUATION	133 SEMESTER HOURS