Chemistry Major and Secondary Cognate Major Requirements
Catalog Year: 2013-14
Degree: Bachelor of Arts
Credit Hours: 84+ (Chemistry 40+; Secondary Cognate 44)

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Chemistry Teacher Education Program (Grades 9-12)

Students interested in teacher certification in chemistry must complete both the chemistry major and the secondary education cognate major requirements. See the School of Education, Health and Human Performance section of the undergraduate catalog for a listing of the required secondary education cognate major courses. Students should apply for acceptance to this program no later than the second semester of their sophomore year.

Requirements for this include admission to and successful completion of the approved teacher education program. Students must successfully complete all requirements for certification in secondary education.

When declaring teacher certification in chemistry through the Program of Study Management System (POSM), students must first select “Declare or Add a Major” and then “Secondary Education Cognate” from the major list. Once this selection is made, a second menu box will appear with a list of the associated majors. Select the chemistry major and follow the on-screen instructions.

Required Courses

- **CHEM 111** Principles of Chemistry (3) PR: MATH 111 or equivalent; CO: CHEM 111L
- **CHEM 111L** Principles of Chemistry Lab (1) CO: CHEM 111
- **CHEM 112** Principles of Chemistry (3) PR: CHEM 111, CHEM 111L or HONS 153, HONS 153L; CO: CHEM 112L
- **CHEM 112L** Principles of Chemistry Lab (1) CO: CHEM 112
- **CHEM 221** Quantitative Analysis (4) PR: CHEM 112, CHEM 112L or HONS 154, HONS 154L; CO: CHEM 221L
- **CHEM 221L** Quantitative Analysis Laboratory (0) CO: CHEM 221
- **CHEM 231** Organic Chemistry (3) PR: CHEM 112, CHEM 112L or HONS 154, HONS 154L; CO: CHEM 231L
- **CHEM 231L** Introduction to Organic Chemistry Laboratory Techniques (1) CO: CHEM 231
- **CHEM 232** Organic Chemistry (3) PR: CHEM 231, CHEM 231L; CO: CHEM 232L
- **CHEM 232L** Organic Synthesis and Analysis (1) CO: CHEM 232
- **CHEM 341** Physical Chemistry (3) PR: CHEM 221 and MATH 220; CO: CHEM 341L (MATH 221 is strongly recommended.)
- **CHEM 341L** Physical Chemistry Laboratory (1) CO: CHEM 341
- **CHEM 342** Physical Chemistry (3) PR: CHEM 341, CHEM 341L; CO: CHEM 342L
- **CHEM 342L** Physical Chemistry Laboratory (1) CO: CHEM 342
- **CHEM 492** Senior Seminar (1) PR: CHEM 341 and senior standing

Additional Chemistry Elective: Select 3 credit hours from any 300-level or above CHEM course excluding CHEM 583.

- **CHEM 343** Introduction to Modeling in Chemistry (1) PR: CHEM 231, CHEM 231L
- **CHEM 351** Biochemistry (3) PR: CHEM 232, CHEM 232L
- **CHEM 352** Biochemistry (3) PR: CHEM 351
- **CHEM 354** Biochemistry Laboratory (1) PR: CHEM 351
- **CHEM 371** Chemical Synthesis Character (3) PR: CHEM 221, CHEM 221L, CHEM 232, CHEM 232L
CHEM 381* Internship (1, repeatable up to 4) PR: Junior or senior standing and at least a 2.50 GPA both overall and in major

CHEM 399 * Tutorial (3; repeatable up to 12) PR: Junior or senior standing and at least a 2.50 GPA both overall and in major

CHEM 481 Introductory Research (2) PR: Instructor permission

CHEM 482 Introductory Research II (2) PR: Instructor permission

CHEM 490 Chemistry and Biochemistry Seminar (1) PR: Junior or senior standing

CHEM 511 Advanced Inorganic Chemistry (3) PR or CO: CHEM 341, CHEM 341L and CHEM 342, CHEM 342L

CHEM 512L Advanced Inorganic Chemistry Laboratory (1) PR or CO: CHEM 511

CHEM 521 Instrumental Analysis (4) PR: CHEM 221, CHEM 221L; CO: CHEM 521L

CHEM 521L Instrumental Analysis (0)

CHEM 522 Environmental Chemistry (3) PR: CHEM 221; CO: CHEM 522L

CHEM 522L Environmental Chemistry Laboratory (1) CO: CHEM 522

CHEM 526 Introduction to Nuclear and Radiochemistry (1) PR: CHEM 221, CHEM 221L OR CHEM 231, CHEM 231L

CHEM 528 Nuclear and Radiochemistry (3) PR: CHEM 221 or CHEM 231

CHEM 531 Advanced Organic Chemistry (3) PR: CHEM 232, CHEM 232L

Notes: *CHEM 381 is repeatable up to 4 credit hours earned. *CHEM 399 is repeatable up to 12 credit hours earned.

Math Requirement

☐ MATH 120 Introductory Calculus (4) PR: Placement or C- or better in MATH 111

☐ MATH 220 Calculus II (4) PR: MATH 120 or HONS 115

Notes:

• Honors students can take the alternative sequence of HONS 191/HONS 191L, HONS 192/HONS192L, HONS 293/HONS 293L, and HONS 294/HONS 294L in lieu of CHEM 111/111L, CHEM 112/112L, CHEM 231/231L, and CHEM 232/232L.

Secondary Cognate Major Requirements

“PR” indicates a pre-requisite. “CO” indicates a co-requisite.

Courses within this major may also satisfy general education requirements. Please consult http://registrar.cofc.edu/general-edu for more information.

Students interested in teacher certification in secondary education must complete a content major, additional coursework required for certification (if applicable), and the secondary education cognate major requirements. Content majors are available in biology (Bachelor of Science Teaching Option), chemistry (Bachelor of Arts), English (Bachelor of Arts), history (Bachelor of Arts, for certification in social studies), mathematics (Bachelor of Science teacher education track), physics (Bachelor of Arts). Students must successfully complete all requirements for certification in secondary education.

Required Courses

☐ COMM 104 Public Speaking (3) PR: None

☐ EDFS 201* Foundations of Education (3) PR: Sophomore standing.

Note: *EDFS 201 is prerequisite to all other education courses with a grade of C or better.

☐ EDFS 303* Human Growth and the Educational Process (3) PR: None
EDFS 326* Integrating Technology Into Teaching (3) PR: None

EDFS 330* Classroom and Behavior Management (3) PR: EDFS 201 and class rank of junior or above

EDFS 345 Introduction to the Education of Exceptional Children and Youth (3) PR: EDFS 303 or equivalent.

EDFS 455 Literacy and Assessment in the Content Areas (3) PR: None

EDFS 456 Teaching Strategies in the Content Areas (English, Math, Science, Social Studies) (3) PR: None

Note: *Candidates who have received credit for PSYC 224 (previously listed as PSYC 311) prior to beginning a teacher education program should not take EDFS 303 (credit will not be awarded). Students must enroll in the Secondary sections for each of the courses marked with an asterisk. (See associate department chair to register for courses.) Each course requires a school-based field experience. Students will need a 3-hour block of time per week between the hours of 7 a.m. and 2 p.m. Monday through Friday, to complete each school-based experience.

Clinical Practice Internship Requirement

EDFS 460* Clinical Practice in the Content Area (12) PR: Admission to a teacher education program and completion of all education requirements.

Note: *Students seeking recommendation for South Carolina certification in Secondary Education must complete the program of study above and meet the admission, retention, and exit requirements of the program and the School of Education, Health, and Human Performance. Recommendation to the South Carolina Department of Education for certification in South Carolina is contingent upon successful completion of Clinical Practice, and achievement of passing scores on the necessary Praxis II test(s) for recommendation. Students who do not take Clinical Practice may not earn a degree in Secondary Education and will not be recommended for certification. See your faculty advisor for additional information.

Additional Coursework required beyond Content major (Chemistry, BA) for Chemistry Certification:

PHYS 101 Introductory Physics (3) PR: None; CO or PR: PHYS 101L

PHYS 101L Introductory Physics Lab (1) CO: PHYS 101

AND

PHYS 102 Introductory Physics II (3) PR: PHYS 101 or PHYS 111 or HONS 157; CO: PHYS 102L

PHYS 102L Introductory Physics Lab (1) CO: PHYS 102

OR

PHYS 111 General Physics I (3) PR or CO: MATH 120 or equivalent or instructor permission; CO: PHYS 111L

PHYS 111L General Physics I Lab (1) CO: PHYS 111

AND

PHYS 112 General Physics II (3) PR: PHYS 111 or HONS 157; CO or PR: MATH 220 or equivalent or instructor permission; CO: PHYS 112L

PHYS 112L General Physics II Lab (1) CO: PHYS 112

Notes:

- You should apply for admission (this is NOT declaring your major) to the Teacher Education Program the semester you are enrolled in EDFS 201 Foundations of Education. Requirements for admission:
  - Minimum overall GPA of 2.50 and 60 earned credit hours.
  - Passing score on the 3 components of the PRAXIS 1: Pre-Professional Skills Test (Reading, Writing, and Mathematics) as designated by the South Carolina Department of Education OR qualifying SAT or ACT scores.
  - Disposition forms from (a) a general education faculty member, (b) your EDFS 201 professor, and (c) someone who has observed you working with children.
• If a student has transfer credit for a course that is equivalent to EDFS 201, they must meet with the Teacher Education department chair and complete 1 hour of work.
• A grade of C or better in EDFS 201 Foundations of Education.

• Your admission process must be completed before beginning the professional program.
• You must complete a major in the content area and the cognate major to be forwarded to the State Department of Education for certification.