

**ADD, CHANGE OR DELETE UNIT, PROGRAM REQUIREMENTS, OR ACADEMIC POLICIES**

Complete this form consistent with the instructions in Academic Policy 1622.20. Use the form to add, change, or delete a program or unit or to change program policies. Proposed additions and changes must be consistent with Academic Policies 1100.40 and 1621.10 and any other policies which apply.

**SECTION I: Approvals**

Department / Program Chair	Date Submitted	Graduate Council Chair	Date
College Dean	Date	Faculty Senate Chair	Date
Honors College Dean	Date	Provost	Date
Core Curriculum Committee	Date	Board of Trustees Approval/Notification Date	
University Course and Programs Committee	Date	Arkansas Higher Education Coordinating Board Approval/Notification Date	

**SECTION II: Profile Data - Required Information and Name Change Information**

Academic Unit:  Major/Field of Study  Minor  Other Unit ARSC  Policy  
 Level:  Undergraduate  Graduate  Law Effective Catalog Year 2013-2014

Program changes are effective with the next available catalog. See Academic Policy Series 1622.20

Current Name Chemistry, Bachelor of Science

College, School, Division ARSC

Department Code CHBC

Current Code (6 digit Alpha) CHEMBS

Proposed Code (6 digit Alpha) \_\_\_\_\_

Prior approval from the Office of the Registrar is required.

Interdisciplinary Program

CIP Code 40.0501

Prior assignment from Office of Institutional Research is required.

Proposed Name \_\_\_\_\_

When a program name is changed, enrollment of current students reflects the new name.

**SECTION III: Add a New Program/Unit**

For new program proposals, complete Sections II and VII and use as a cover sheet for a full program proposal as described in 'Criteria and Procedures for Preparing Proposals for New Programs in Arkansas.' ADHE  
[http://www.adhe.edu/divisions/academicaffairs/Pages/aa\\_academicproposals.aspx](http://www.adhe.edu/divisions/academicaffairs/Pages/aa_academicproposals.aspx)

Program proposal uses courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_

**SECTION IV: Eliminate an Existing Program/Unit**

Code/Name \_\_\_\_\_ Effective Catalog Year \_\_\_\_\_

No new students admitted to program after Term: \_\_\_\_ Year: \_\_\_\_\_

Allow students in program to complete under this program until Term: \_\_\_\_ Year: \_\_\_\_\_

**SECTION V: Proposed Changes to an Existing Program or Program Policies**

Insert here a statement of the exact changes to be made: 1.) The total number of degree credit hours is being reduced from 124 to 120. Any references to "124" within the CHEM major's catalog text are being changed to 120. Elective hours are being removed from the 8-semester plans to reflect the 120-hr requirement.

- 2.) The regular CHEMBS 8-semester plan also moves some elective hours from the Spring Yr 1 term to the Spring Yr 3 term.**  
**3.) The biochemistry option is reducing the total number of CHEM hours from 39 to 38, thus reducing the number of credit hours required by the major by one credit hour.**

Check if either of these boxes apply and provide the necessary signature:

- Program change proposal adds courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_
- Program change proposal deletes courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: \_\_\_\_\_

Check all the boxes that apply and complete the required sections of the form:

- Change of Name and Code (Complete only sections I, II, V and VII.)
- Change Course Requirements: (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Delivery Site/Method (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Total Hours (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change in Program Policies

### **SECTION VI: Justification**

*Justify this change and state its likely effect on any other degree program (including those outside the school or college). Identify any program or program components (other than courses) to be eliminated if this program is implemented. (Program and course change forms must also be submitted for such related changes.)*

**1.) The overall reduction in hours from 124 to 120 is needed to comply with state-wide mandate, Act 747.**

**2.) In the "regular" Chemistry, BS major, the elective hours are being moved for a more even distribution of credit hours across terms.**

**3.) The BS in Chemistry, Biochemistry option requires "either CHEM 4213/4211L or CHEM 4123". Students choosing the first end up with the required 39 hours in chemistry but those choosing the latter only end up with 38 hours. This is a problem often not faced until the last semester of their program and such students are left trying to come up with a way to earn the extra hour needed. Although we always manage to come up with a solution, it is not always the same from year to year and sometimes from student to student in the same year. We feel the most equitable solution is to decrease the requirement to 38 hours in chemistry which would cover students pursuing either course option.**

### **SECTION VII: Catalog Text and Format**

*In the box below, insert the current catalog text which is to be changed, with changes highlighted with the color yellow. Include all proposed changes identified in Section V. Only changes explicitly stated in Section V will be considered for approval by the University Course and Programs Committee, the Graduate Council and the Faculty Senate. If you are proposing a new program, give proposed text with all of the elements listed below. If you are proposing modified text, include these elements as appropriate.*

**Include the following elements, in order, in the catalog text for proposed undergraduate program(s) or program changes:**

- State complete major/program name
- Briefly define or describe the major/program or discipline.
- Identify typical career goals or paths for graduates. (Optional)
- State admission requirements (if any) for entry or entry into upper/advanced level of major/program.
- Identify location in catalog of university, college/school, and department/program requirements which the student must meet in addition to hours in the major, but do not restate these requirements.
- State course requirements in the major and any allied areas, giving number of hours and specific courses; specify electives or elective areas and give numbers of hours and courses in elective pools or categories; identify any other course requirements.
- State any other requirements (required GPA, internship, exit exam, project, thesis, etc.).
- Identify name and requirements for each concentration (if any).
- Specify whether a minor or other program component is allowed or required and provide details.
- State eight-semester plan requirements

**For minors, state requirements in terms of hours, required courses, electives, etc.**

**For graduate program/units, include elements (as needed) parallel to those listed for undergraduate programs above.**

**For Law School program/units, prepare text consistent with current catalog style.**

**For centers, prepare text consistent with current catalog style.**

**Requirements for a B.S. degree with a Major in Chemistry:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 40 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), **CHEM 2263**, **CHEM 2261L**, **CHEM 3504**, **CHEM 3512L**, **CHEM 3514**, **CHEM 3703/3702L**, **CHEM 3713/3712L**, **CHEM 4123**, **CHEM 4213/4211L**, **CHEM 4723**, and at least one additional advanced lecture course is required. A minimum of 18 hours of science outside of chemistry and including mathematics through **MATH 2574** and physics through **PHYS 2074** are required. These mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program. Some work in the biological sciences is recommended. This program meets the minimum requirements for certification by the American Chemical Society if **CHEM 3813** (or **CHEM 4813H/4843H** or **CHEM 5813/5843**) is included. Sample schedules may be obtained from the department of chemistry and biochemistry. Prospective students should consult a departmental adviser.

### **Chemistry B.S.**

#### **Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. Students must complete at least 124 hours and this must be considered when scheduling upper-level hours in the senior year.

This program meets the minimum requirements for certification by the American Chemical Society if **CHEM 3813** (or **CHEM 4813H/4843H** or **CHEM 5813/5843**) is included.

#### **Fall Semester Year 1**

3 ENGL 1013 Composition I  
4 †MATH 2554 Calculus I  
4 CHEM 1213/1211L Chem for Majors I or CHEM 1103/1101L University Chem I  
3 University/state core U.S. history requirement  
3 General Elective

#### **17 Semester Hours**

#### **Spring Semester Year 1**

3 ENGL 1023 Composition II  
4 †MATH 2564 Calculus II  
4 CHEM 1223/1221L Chemistry for Majors II or CHEM 1123/1121L University Chemistry II  
3 University/state core social science requirement

~~3 General Elective~~

#### **17-14 Semester Hours**

#### **Fall Semester Year 2**

4 †MATH 2574 Calculus III  
4 †PHYS 2054 University Physics I with lab component  
5 †CHEM 3703/3702L Organic Chemistry I  
3 University/state core fine arts or humanities requirement

#### **16 Semester Hours**

#### **Spring Semester Year 2**

4 †PHYS 2074 University Physics II  
4 †CHEM 3713/3712L Organic Chemistry II for majors  
3 University/state core humanities or fine arts requirement (as needed)  
3 University/state core social science requirement

~~3 General Elective~~

#### **17-14 Semester Hours**

#### **Fall Semester Year 3**

4 †CHEM 3504 Physical Chemistry I  
4 †CHEM 2263/2261L Analytical Chemistry Lecture/Lab  
3-4 †BIOL 1543/1541L or General Elective  
3 University/state core social science requirement

#### **14-15 Semester Hours**

#### **Spring Semester Year 3**

6 †CHEM 3514/3512L Physical Chemistry II  
4 †Advanced Level Elective Course  
3-4 BIOL 1543/1541L (if still needed) or General Elective

~~3 General Elective~~

#### **13-14-16-17 Semester Hours**

#### **Fall Semester Year 4**

3 †CHEM 4123 Advanced Inorganic Chemistry 1  
3 †CHEM 4723 Experimental Methods in Organic and Inorganic  
3 †CHEM 3813 Introduction to Biochemistry  
3 CHEM elective  
3 General Elective

#### **15 Semester Hours**

#### **Spring Semester Year 4**

3 †CHEM 4213/4211L Instrumental Analysis  
3 †CHEM 4853 Biochemistry Techniques  
~~6-9~~ General Electives (as needed to total ~~124~~120)

#### **13-12-15 Semester Hours**

#### **124-120 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic

Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

### **Requirements for a B.S. degree with a Major in Chemistry, Biophysical Option:**

In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of 43 semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L**, (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), **CHEM 2263**, **CHEM 2261L**, **CHEM 3504**, **CHEM 3603/3601L** and **3613/3611L** or **CHEM**

**3703/3702L** and **CHEM 3713/3712L**, **CHEM 3514/3512L**, **CHEM 4213/4211L**, **CHEM 4853** or completion of a senior thesis based on independent research wherein at least 1 credit hour is earned in **CHEM 400V** (chemistry research) and/or **CHEM 498V**

(senior thesis) during each of 3 different semesters, and 6 hours from **CHEM 5813-5843** (same as **CHEM 4813H-4843H**) or **CHEM 3813** and **CHEM 4723**, **MATH 2554** and **MATH 2564**, **PHYS 2054** with lab component, and **PHYS 2074** with lab component, and 11 hours from the biological sciences, to include **BIOL 1543/1541L**, **BIOL 2533/2531L**, and one additional lecture course numbered above 3000. The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

### **Chemistry B.S. with Biophysical Option**

#### **Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area.

#### **Fall Semester Year 1**

3 ENGL 1013 Composition I

4 CHEM 1103/1101L University Chemistry

4 †MATH 2554 Calculus I

3 University/state core fine arts or humanities course

#### **14 Semester Hours**

#### **Spring Semester Year 1**

3 ENGL 1023 Composition II

4 †MATH 2564 Calculus II

4 CHEM 1123/1121L University Chemistry II

3 University/state core humanities or fine arts course (as needed)

3 University/state core U.S. history course

#### **17 Semester Hours**

#### **Fall Semester Year 2**

4 †‡CHEM 3603/3601L Organic Chemistry I

4 †PHYS 2054/2050L University Physics I

4 BIOL 1543/1541L Principles of Biology

3 University/state core social science course

#### **15 Semester Hours**

#### **Spring Semester Year 2**

4 †‡CHEM 3613/3611L Organic Chemistry II

4 †PHYS 2074 University Physics II

4 †BIOL 2553/2531L Cell Biology

3 †CHEM 2263 Analytical Chemistry

~~3~~ †Advanced Level Elective

#### ~~18-15~~ **14 Semester Hours**

#### **Fall Semester Year 3**

1 †CHEM 2261L Analytical Chemistry Lab

4 †‡CHEM 3504 Physical Chemistry I

~~3-6~~ †Advanced Level Elective

3 University/state core social science course

~~3~~ General Elective

#### **14 Semester Hours**

#### **Spring Semester Year 3**

6 †‡CHEM 3514/3512L Physical Chemistry II

4 †‡CHEM 4213/4211L Instrumental Analysis

3 University/state core social science course

3 General Elective

#### **16 Semester Hours**

#### **Fall Semester Year 4**

3 †‡CHEM 5813 (4813H) Biochemistry I

3 †‡BIOL 3000/4000 Level Elective

9 General electives

#### **15 Semester Hours**

#### **Spring Semester Year 4**

3 †‡CHEM 5843 (4843H) Biochemistry II

3 †‡CHEM 4853 Biochemistry Techniques

~~9-8~~ General electives

#### ~~15-14~~ **14 Semester Hours**

#### ~~124-120~~ **120 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

**Requirements for a B.S. degree with a Major in Chemistry, Biochemistry Option:** In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 130 under College Academic Regulations and Degree Completion Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

A minimum of ~~39~~**38** semester hours in chemistry including **CHEM 1213/1211L**, **CHEM 1223/1221L** (or **CHEM 1103/1101L**, **CHEM 1123/1121L**), CHEM 2263, CHEM 2261L, either CHEM 3504 and 3514/3512L or CHEM 3453/3451L, CHEM 3703/3702L, CHEM 3713/3712L, CHEM 4853 or completion of a senior thesis based on independent research wherein at least 1 credit hour is earned in CHEM 400V (chemistry research) and/or CHEM 498V (senior thesis) during each of 3 different semesters, CHEM 5813-5843 (same as CHEM 4813H-4843H) or CHEM 3813 and CHEM 4723, and either CHEM 4213/4211L or CHEM 4123, additional required courses to include **MATH 2554** and **MATH 2564**, either **PHYS 2013/2011L**, **PHYS 2033/2031L** or **PHYS 2054** with lab component, **PHYS 2074** with lab component, and 15 hours of biological sciences to include **BIOL 1543/1541L**, BIOL 2533/2531L, BIOL 2013/2011L, and either BIOL 4233 or BIOL 2323. The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

### **Chemistry B.S. with Biochemistry Option Eight-Semester Degree Program**

Students wishing to follow the eight-semester degree plan should see page 41 in the Academic Regulations chapter for university requirements of the program. Core requirement hours may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute a three-hour (or more) general elective in place of a core area. This program meets the minimum requirements for certification by the American Chemical Society if CHEM 3813 (or CHEM 4813H/4843H or CHEM 5813/5843) is included.

#### **Fall Semester Year 1**

3 ENGL 1013 Composition I

3-4 MATH 1213 Plane Trig or MATH 1284C PreCalculus or †MATH 2554 Calculus I

4 CHEM 1213/1211L Chemistry for Majors I or CHEM 1103/1101L University Chemistry I

3 University/state core fine arts or humanities requirement

0-3 University/state core U.S. history requirement if taking MATH 1213

#### **14-16 Semester hours**

#### **Spring Semester Year 1**

3 ENGL 1023 Composition II

4 †MATH 2554 Calculus I or †MATH 2564 Calculus II

4 CHEM 1223/1221L Chem for Majors II or CHEM 1123/1121L University Chemistry II

3 University/state core humanities or fine arts requirement (as needed)

3 University/state core social science requirement

#### **17 Semester hours**

#### **Fall Semester Year 2**

3-4 †MATH 2564 Calculus II (if needed) or University/state core U.S. history requirement (as needed)

4 †PHYS 2013/2011L College Physics or †PHYS 2054/2050L University Physics I

5 ††CHEM 3703/3702L Organic Chemistry I for majors

3 University/state core social science requirement

#### **15-16 Semester hours**

#### **Spring Semester Year 2**

4 †PHYS 2033/2031L College Physics or †PHYS 2074 University Physics II

5 ††CHEM 3713/3712L Organic Chemistry II for majors

4 BIOL 1543/1541L Principles of Biology

3 ††CHEM 2263 Analytical Chemistry Lecture

#### **16 Semester hours**

#### **Fall Semester Year 3**

4 ††CHEM 3453/3451L Elements of Physical Chemistry

1 †CHEM 2261L Analytical Chemistry Laboratory

4 BIOL 2533/2531L Cell Biology

3 University/state core social science requirements

3 General Elective

#### **15 Semester hours**

#### **Spring Semester Year 3**

3-4 ††CHEM 4213/4211L Instrumental Analysis or ††CHEM 4123 Advanced Inorganic Chemistry I

4 BIOL 2013/2011L General Microbiology

[3 †† 3000+ General Elective \(if CHEM 4123 is taken\) else General Elective](#)

[9-5-6](#) General Electives

#### **16-15-17 Semester hours**

#### **Fall Semester Year 4**

3 ††CHEM 4813H Biochemistry I

3-4 †† BIOL 2323 General Genetics or ††BIOL 4233 Microbial Genetics

3 †† 3000+ General Elective (if BIOL 2323 is taken) else General Elective

96 General Electives

**15-16 Semester hours**

**Spring Semester Year 4**

3 ††CHEM 4843H Biochemistry II

3 ††CHEM 4853 Biomechanical Techniques

~~6-10~~ General Electives (as needed to complete ~~124-120~~ hour requirement)

**~~12-16~~ Semester hours**

**124-120 Total Hours**

† Meets 40-hour advanced credit hour requirement. See College Academic Regulations on page 131 of this chapter

‡ Meets 24-hour rule (24 hours of 3000-4000 level courses in Fulbright College), in addition to meeting the 40-hour rule. See College Academic Regulations on page 131 of this chapter.

PHYS 2054 Calculus Based University Physics (pre- or co-requisite MATH 2554) and PHYS 2074 (pre- or co-requisite MATH 2564), is a better choice for students interested in graduate school.

## SECTION VIII: Action Recorded by Registrar's Office

PROGRAM INVENTORY/DARS

PGRM \_\_\_\_\_ SUBJ \_\_\_\_\_ CIP \_\_\_\_\_ CRTS \_\_\_\_\_

DGRE \_\_\_\_\_ PGCT \_\_\_\_\_ OFFC&CRTY VALID \_\_\_\_\_

REPORTING CODES

PROG. DEF. \_\_\_\_\_ REQ. DEF. \_\_\_\_\_  
Initials \_\_\_\_\_ Date \_\_\_\_\_

### Distribution

Notification to:

(1) College  
(7) Treasurer

(2) Department  
(8) Undergraduate Program Committee

(3) Admissions

(4) Institutional Research

(5) Continuing Education

(6) Graduate School

5/12/08