

Date Submitted: 06/14/18 1:44 pm

Viewing: **CHEMBS-BIOS : Chemistry:****Biochemistry Concentration**

Last approved: 03/30/18 3:43 pm

Last edit: 06/19/18 8:23 am

Changes proposed by: rcc003

Catalog Pages Using

this Program

[Chemistry B.S. with Biochemistry Option](#)[Chemistry and Biochemistry \(CHBC\)](#)

Submitter: User ID: crsleaf1 Phone:
479-575-4601

Program Status Active

Academic Level Undergraduate

Type of proposal Major/Field of Study

Select a reason for this modification

Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding Focused Study)

Are you adding a concentration?

No Yes

Are you adding a track?

No

Are you adding a focused study?

No

Effective Catalog Year Fall 2019

College/School Code

Fulbright College of Arts and Sciences (ARSC)

Department Code

In Workflow

1. ARSC Dean Initial
2. Director of Program Assessment and Review
3. Registrar Initial
4. Institutional Research
5. CHBC Chair
6. ARSC Curriculum Committee
7. ARSC Dean
8. Global Campus
9. Provost Review
10. University Course and Program Committee
11. Faculty Senate
12. Provost Final
13. Provost's Office-- Notification of Approval
14. Registrar Final
15. Catalog Editor Final

Approval Path

1. 06/14/18 2:21 pm
Jeannine Durdik (jurdik): Approved for ARSC Dean Initial
2. 06/19/18 8:23 am
Alice Griffin (agriffin): Approved for Director of Program

Department of Chemistry and Biochemistry(CHBC)

Program Code CHEMBS-BIOS
Degree Bachelor of Science
CIP Code

- Assessment and Review
3. 06/26/18 2:50 pm
Karen Turner
(kvestal): Approved for Registrar Initial
 4. 06/26/18 2:59 pm
Gary Gunderman
(ggunderm): Approved for Institutional Research
 5. 10/11/18 2:43 pm
Wesley Stites
(wstites): Approved for CHBC Chair
 6. 10/15/18 12:58 pm
Pearl Dowe
(pkford): Approved for ARSC Curriculum Committee
 7. 10/15/18 2:07 pm
Jeannine Durdik
(jdurdik): Approved for ARSC Dean
 8. 10/15/18 3:34 pm
Miran Kang (kang): Approved for Global Campus
 9. 10/16/18 9:49 am
Terry Martin
(tmartin): Approved for Provost Review
 10. 10/29/18 10:14 am
Alice Griffin
(agriffin): Approved for University Course and Program Committee

History

1. Aug 15, 2014 by
Leepfrog
Administrator
(clhelp)
2. Oct 9, 2015 by
Donna Draper
(ddraper)
3. Mar 4, 2016 by
Charlie Alison
(calison)
4. May 25, 2017 by
Karen Turner
(kjvestal)
5. May 25, 2017 by
Karen Turner
(kjvestal)
6. Mar 30, 2018 by
Gina Daugherty
(gdaugher)

40.0501 - Chemistry, General.

Program Title

Chemistry: Biochemistry Concentration

Program Delivery

Method

On Campus

Is this program interdisciplinary?

No

Does this proposal impact any courses from another College/School?

No

What are the total na
hours needed to
complete the
program?

Program Requirements and Description

Requirements

Requirements for a B.S. degree with a Major in Chemistry, Biochemistry Concentration: In addition to the [University Core](#) requirements and the Fulbright College of Arts and Sciences [Graduation Requirements](#) (see 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 Core requirements.

A Minimum of 38 Semester Hours in Chemistry including:

One of the following sequences of courses:

8

[CHEM 1203](#) Chemistry for Majors I
& **[CHEM 1201L](#)** and Chemistry for Majors I Laboratory

and

[CHEM 1223](#) Chemistry for Majors II
& **[CHEM 1221L](#)** and Chemistry for Majors II Laboratory

or

[CHEM 1103](#) University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)
& **[CHEM 1101L](#)** and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)

and

[CHEM 1123](#) University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)
& **[CHEM 1121L](#)** and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

[CHEM 2263](#) Analytical Chemistry Lecture

4

& **[CHEM 2261L](#)** and Analytical Chemistry Laboratory

Select from the following:

4 -

10

[CHEM 3504](#) Physical Chemistry I

and

[CHEM 3514](#) Physical Chemistry II
& **[CHEM 3512L](#)** and Physical Chemistry Laboratory

or

[CHEM 3453](#) Elements of Physical Chemistry
& **[CHEM 3451L](#)** and Elements of Physical Chemistry Laboratory

[CHEM 3703](#) Organic Chemistry I Lecture for Chemistry Majors

5

& **[CHEM 3702L](#)** and Organic Chemistry I Lab for Chemistry Majors

[CHEM 3713](#) Organic Chemistry II Lecture for Chemistry Majors

5

& **[CHEM 3712L](#)** and Organic Chemistry II Lab for Chemistry Majors

Either

3

[CHEM 4853](#) Biochemical Techniques

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 400VH](#)** (honors chemistry research) during each of 3 different semesters.

One of the following sequences:

6

[CHEM 4813H](#) and **[CHEM 4843H](#)**

CHEM 3813 and CHEM 4723

<u>CHEM 4213</u>	Instrumental Analysis	3-4
& <u>CHEM 4211L</u>	and Instrumental Analysis Laboratory	
or <u>CHEM 4123</u>	Advanced Inorganic Chemistry I	

Additional Required Courses to Include:

<u>MATH 2554</u>	Calculus I (ACTS Equivalency = MATH 2405)	4
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<u>MATH 2564</u>	Calculus II (ACTS Equivalency = MATH 2505)	4
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Select one of the following physics sequences: 8

<u>PHYS 2013</u>	College Physics I (ACTS Equivalency = PHYS 2014 Lecture)
& <u>PHYS 2011L</u>	and College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)

and

<u>PHYS 2033</u>	College Physics II (ACTS Equivalency = PHYS 2024 Lecture)
& <u>PHYS 2031L</u>	and College Physics II Laboratory (ACTS Equivalency = PHYS 2024 Lab)

or

<u>PHYS 2054</u>	University Physics I (ACTS Equivalency = PHYS 2034) (With Lab Component)
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and

<u>PHYS 2074</u>	University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (With Lab Component)
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15 Hours of Biological Sciences to include:

<u>BIOL 1543</u>	Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	4
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& BIOL 1541L and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)

<u>BIOL 2533</u>	Cell Biology	4
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& BIOL 2531L and Cell Biology Laboratory

<u>BIOL 2013</u>	General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)	4
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& BIOL 2011L and General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab)

<u>BIOL 4233</u>	Genomics and Bioinformatics	3
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or BIOL 2323 General Genetics

The mathematics and physics courses are prerequisites for some advanced courses and should be scheduled early in the student's program.

Total Hours 69-
76

8-Semester Plan

Chemistry B.S. with Biochemistry Option

Eight-Semester Degree Program

Students wishing to follow the eight-semester degree plan should see the [Eight-Semester Degree Policy](#) 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

This program meets the minimum requirements for certification by the American Chemical Society if

[CHEM 3813](#) (or [CHEM 4813H](#)/[CHEM 4843H](#)) is included.

First Year	Units
	FallSpring
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013)	3
Select one of the following:	4
MATH 1213 Plane Trigonometry (ACTS Equivalency = MATH 1203)	
MATH 1284C Precalculus Mathematics (ACTS Equivalency = MATH 1305)	
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405)1	
Select one of the following:	4
CHEM 1203 Chemistry for Majors I	
& CHEM 1201L Chemistry for Majors I Laboratory	
CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)	
& CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	
University/State Core Fine Arts or Humanities requirement	3
University/State Core U.S. History requirement if taking MATH 1213	0-3
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)	3
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405)1	4
or MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)	
Select one of the following:	4
CHEM 1223 Chemistry for Majors II	
& CHEM 1221L Chemistry for Majors II Laboratory	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	
& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
University/State Core Humanities or Fine Arts requirement (as needed)	3
University/State Core Social Science requirement	3
Year Total:	14 17

Second Year	Units
	FallSpring
Select one of the following as needed:	3-4
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505) (if not already taken)1	
University/state core U.S. history requirement (as needed)	
Select one of the following:	4
PHYS 2013 College Physics I (ACTS Equivalency = PHYS 2014 Lecture)	
& PHYS 2011L College Physics I Laboratory (ACTS Equivalency = PHYS 2014 Lab)1	
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034)1,3	
CHEM 3703 Organic Chemistry I Lecture for Chemistry Majors	5
& CHEM 3702L Organic Chemistry I Lab for Chemistry Majors1,2	
University/State Core Social Science requirement	3
Select one of the following:	4

PHYS 2033 College Physics II (ACTS Equivalency = PHYS 2024 Lecture)	
& PHYS 2031L College Physics II Laboratory (ACTS Equivalency = PHYS 2024 Lab)1	
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture)1	
CHEM 3713 Organic Chemistry II Lecture for Chemistry Majors	5
& CHEM 3712L Organic Chemistry II Lab for Chemistry Majors1,2	
BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	4
& BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
CHEM 2263 Analytical Chemistry Lecture1,2	3
Year Total:	15 16
Third Year	Units
	FallSpring
CHEM 3453 Elements of Physical Chemistry	4
& CHEM 3451L Elements of Physical Chemistry Laboratory1,2	
CHEM 2261L Analytical Chemistry Laboratory1	1
BIOL 2533 Cell Biology	4
& BIOL 2531L Cell Biology Laboratory	
University/State Core Social Science requirements	3
General Elective	3
Select one of the following:	3-4
CHEM 4213 Instrumental Analysis	
& CHEM 4211L Instrumental Analysis Laboratory1,2	
CHEM 4123 Advanced Inorganic Chemistry I1,2	
BIOL 2013 General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)	4
& BIOL 2011L General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab)	
3000+ General Elective (if CHEM 4123 is taken), else General Elective	3
General Electives	6
Year Total:	15 16
Fourth Year	Units
	FallSpring
CHEM 4813H Honors Biochemistry I1,2	3
BIOL 2323 General Genetics	3
& BIOL 2321L General Genetics Laboratory1,2	
or BIOL 4233 Genomics and Bioinformatics	
3000+ General Elective (if BIOL 2323 is taken), else General Elective	3
General Electives	6
CHEM 4843H Honors Biochemistry II1,2	3
CHEM 4853 Biochemical Techniques1,2	3
General Electives as needed to complete 120-hour requirement	6
Year Total:	15 12

Total Units in Sequence: 120

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

2 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.

3 [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.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program n/a

Scheduled Program Review Date n/a

Program Goals and Objectives

Program Goals and Objectives

n/a

Learning Outcomes

Learning Outcomes

n/a

Description and justification of the request

Description of specific change	Justification for this change
Removed CHEM 498V as an option for the senior thesis.	The course CHEM 498V was deleted but the text remained in the senior thesis description in the program's requirements. Proposing to remove it from the description so degree audits will be accurate.

Upload attachments

Reviewer Comments

Alice Griffin (agriffin) (06/19/18 8:23 am): Changed response from yes to no with are you adding/changing a concentration. The title or structure of the concentration is not changing. Simply the program requirements were changed. Therefore, there is no need to take action here in the template.

