

Date Submitted: 09/12/18 12:56 pm

Viewing: **PHYSBS-BIPH : Physics: Biophysics****Concentration**

Last approved: 05/22/18 6:00 pm

Last edit: 10/15/18 10:43 am

Changes proposed by: jkennef

Catalog Pages Using

this Program

[Physics B.S. with Biophysics Concentration](#)[Physics \(PHYS\)](#)

Submitter:

5916 7456

User ID:

jkennef ~~kkulcza~~

Phone:

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

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. PHYS 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. 09/05/18 4:03 pm
Jeannine Durdik (jdurdik): Approved for ARSC Dean Initial
2. 09/07/18 11:44 am
Alice Griffin (agriffin): Rollback to Initiator
3. 09/12/18 1:10 pm
Jeannine Durdik

Department of Physics(PHYS)

Program Code PHYSBS-BIPH
 Degree Bachelor of Science
 CIP Code

- (jdurdik): Approved for ARSC Dean Initial
4. 09/21/18 8:23 am
Alice Griffin
(agriffin): Approved for Director of Program Assessment and Review
 5. 09/24/18 11:29 am
Lisa Kulczak
(lkulcza): Approved for Registrar Initial
 6. 09/24/18 11:56 am
Gary Gunderman
(ggunderm): Approved for Institutional Research
 7. 09/25/18 11:14 am
Julia Kennefick
(jkennef): Approved for PHYS Chair
 8. 10/15/18 12:59 pm
Pearl Dowe
(pkford): Approved for ARSC Curriculum Committee
 9. 10/15/18 2:08 pm
Jeannine Durdik
(jdurdik): Approved for ARSC Dean
 10. 10/15/18 3:36 pm
Miran Kang (kang): Approved for Global Campus
 11. 10/16/18 10:33 am
Terry Martin

(tmartin): Approved
for Provost Review
12. 10/29/18 11:04 am
Alice Griffin
(agriffin): Approved
for University
Course and Program
Committee

History

1. Aug 27, 2014 by
Leepfrog
Administrator
(clhelp)
2. Aug 27, 2014 by
Leepfrog
Administrator
(clhelp)
3. May 9, 2016 by
Donna Draper
(ddraper)
4. May 17, 2016 by
Lisa Kulczak (lkulcza)
5. Mar 27, 2018 by
Donna Draper
(ddraper)
6. Apr 2, 2018 by Gina
Daugherty
(gdaugher)
7. May 22, 2018 by
Lisa Kulczak (lkulcza)

40.0801 - Physics, General.

Program Title

Physics: Biophysics 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 hours needed to complete the program? 120

Program Requirements and Description

Requirements

Biophysics Concentration

<u>PHYS 4333</u>	Thermal Physics	3
13 semester hours numbered 3000 and above in physics, astronomy, biology, and chemistry chosen with the adviser's permission.		13
<u>PHYS 4613</u>	Introduction to Biophysics and Biophysical Techniques	3
<u>A Junior Level Laboratory Course chosen from PHYS 361VL, PHYS 3544, or PHYS 3213</u>		1-4
<u>6-9 semester hours numbered 3000 and above in physics, astronomy, biology, and chemistry chosen with the adviser's permission.</u>		6-9
Total Hours		16

8-Semester Plan

Physics B.S. with Biophysics Concentration

Eight-Semester Degree Plan

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 as well as Fulbright College requirements.

University/state minimum core requirements ~~Core requirement hours~~ may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute **with a three-hour (or more) general electives.** ~~elective in place of a core area. Well prepared students may skip BIOL 1543/ BIOL 1541L, and go immediately into the biology core courses.~~ Students should consult **with their academic advisor.** ~~advisers.~~

First Year

Units

	Fall	Spring
<u>ENGL 1013</u> Composition I (ACTS Equivalency = ENGL 1013)	3	
BIOL 2533 Cell Biology	4	-
& BIOL 2531L Cell Biology Laboratory		
<u>MATH 2554</u> Calculus I (ACTS Equivalency = MATH 2405)	4	
<u>PHYS 2054</u> University Physics I (ACTS Equivalency = PHYS 2034)	4	
Fine Arts university/state minimum core	3	
General Electives	1	
<u>ENGL 1023</u> Composition II (ACTS Equivalency = ENGL 1023)		3
<u>MATH 2564</u> Calculus II (ACTS Equivalency = MATH 2505)		4
BIOL 2323 General Genetics (Highly recommended; serves as a prerequisite to many upper-level BIOL courses.)	-	3
<u>PHYS 2074</u> University Physics II (ACTS Equivalency = PHYS 2044 Lecture)		4
Humanities university/state minimum core		3
General Electives		1
Year Total:	15	15
Second Year		Units
	Fall	Spring
<u>MATH 2574</u> Calculus III (ACTS Equivalency = MATH 2603)	4	
<u>PHYS 2094</u> University Physics III	4	
U.S. History university/state minimum core	3	
Select one of the following four-hour science lecture/lab combinations:1		4
<u>CHEM 1103</u> University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)		
& <u>CHEM 1101L</u> University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)		
<u>CHEM 1123</u> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)		
& <u>CHEM 1121L</u> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)		
<u>CSCE 2004</u> Programming Foundations I		
<u>CSCE 2014</u> Programming Foundations II		
<u>BIOL 1543</u> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)		
& <u>BIOL 1541L</u> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)		
or <u>BIOL 1584</u> Biology for Majors		
<u>GEOS 1113</u> General Geology (ACTS Equivalency = GEOL 1114 Lecture)		
& <u>GEOS 1111L</u> General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)		
<u>GEOS 1133</u> Earth Science (ACTS Equivalency = GEOL 1124 Lecture)		
& <u>GEOS 1131L</u> Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab)		
or an approved four credit hours of other laboratory-based courses from these departments.		
<u>MATH 2584</u> Elementary Differential Equations		4
BIOL 2013 General Microbiology (ACTS Equivalency = BIOL 2004 Lecture)	-	4
& BIOL 2011L General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab)1,3		
<u>PHYS 2613</u> Modern Physics		3

PHYS 3013 Modern Physics 3

Select one of the following four-hour science lecture/lab combinations:1 **4**

CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)

& CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)

CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)

& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

CSCS 2004 Programming Foundations I

CSCS 2014 Programming Foundations II

BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)

& BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)

or **BIOL 1584** Biology for Majors

GEOS 1113 General Geology (ACTS Equivalency = GEOL 1114 Lecture)

& GEOS 1111L General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)

GEOS 1133 Earth Science (ACTS Equivalency = GEOL 1124 Lecture)

& GEOS 1131L Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab)

or an approved four credit hours of other laboratory-based courses from these departments.

Social Sciences university/state minimum core **3**

General Electives **1**

Year Total: 15 15

Third Year Units

FallSpring

MATH 3083 Linear Algebra 3

A junior-level laboratory course chosen from PHYS 361VL, PHYS 3544, or PHYS 3213 **1-4**

PHYS, ASTR, BIOL, or CHEM course numbered 3000 or higher 3

Social Sciences university/state minimum core 3

CHEM 3603 Organic Chemistry I **4 -**

& CHEM 3601L Organic Chemistry I Laboratory1,2

General Electives **2-5**

PHYS 3453 Electromagnetic Theory I 3

PHYS 4333 Thermal Physics 3

CHEM 3613 Organic Chemistry II **- 4**

& CHEM 3611L Organic Chemistry II Laboratory2

PHYS, ASTR, BIOL, or CHEM course numbered 3000 or higher 3

Social Sciences university/state minimum core **3**

General Electives **3**

Year Total: 15 15

Fourth Year Units

FallSpring

PHYS 4073 Introduction to Quantum Mechanics 3

BIOL 4003 Course BIOL 4003 Not Found (Or other 3000-level or higher PHYS, ASTR, BIOL, or CHEM course as approved by adviser)1,2,3	3
PHYS, ASTR, BIOL, or CHEM course numbered 3000 or higher (if needed). Otherwise, take General Electives.	3
University Residency Requirement Electives	1
General Electives	8
BIOL 3023 Evolutionary Biology (Or other 3000-level or higher PHYS, ASTR, BIOL, or CHEM course as approved by adviser)2	3
<u>PHYS 4991</u> Physics Senior Seminar	1
General Electives as needed to total 120-degree credit hours	- 12
PHYS 4613 Introduction to Biophysics and Biophysical Techniques	3
General Electives	11
Year Total:	15 15

Total Units in Sequence: 120

1BIOL 1543/1541L, CHEM 1103/1101L, and CHEM 1123/1121L are highly recommended as they serve as prerequisites for many higher-level BIOL and CHEM courses.

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.

3 Any astronomy or physics elective numbered 3000 or above, or another chemistry or biology elective.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program N/A Existing Program

Scheduled Program Review Date N/A Existing Program

Program Goals and Objectives

Program Goals and Objectives

N/A Existing Program

Learning Outcomes

Learning Outcomes

N/A Existing Program

Description and justification of the request

Description of specific change

Justification for this change

Description of specific change	Justification for this change
<p>We are adding a junior level laboratory course requirement to our BS degree to be chosen from PHYS 462VL (now 361VL), PHYS 3544 or PHYS 3213.</p>	<p>Our faculty feel that our majors need more laboratory experience at an advanced level. Each of these junior courses are applicable to all subareas of physics, especially those in our department, and letting students choose between these three gives them some flexibility in their program of study.</p> <p>I have listed two BIOL upper level courses in the 4th year as 1 of many possibilities, but am hesitant to remove the 2000 BIOL classes or Organic Chem I and II from the degree program as it was designed by our biophysics faculty to meet their recommendations.</p>

Upload attachments

Reviewer Comments

Alice Griffin (agriffin) (09/07/18 11:44 am): Rollback: Please visit with Ryan Cochran to address the discrepancies in the eight semester plan and degree requirements.

Ryan Cochran (rcc003) (09/25/18 3:16 pm): Corrected hours total with ::3.

Key: 541