

Date Submitted: 09/12/18 1:20 pm

## Viewing: **PHYSBS-CMPT : Physics: Computational Concentration**

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

Last edit: 10/15/18 10:52 am

Changes proposed by: jkennef

Catalog Pages Using

this Program

[Physics B.S. with Computational 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 4:12 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 4:54 pm  
Jeannine Durdik

## Department of Physics(PHYS)

Program Code           PHYSBS-CMPT  
 Degree                   Bachelor of Science  
 CIP Code

(jdurdik): Approved  
 for ARSC Dean  
 Initial

4. 09/21/18 8:24 am  
 Alice Griffin  
 (agriffin): Approved  
 for Director of  
 Program  
 Assessment and  
 Review
5. 09/24/18 11:31 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 10:32 am  
 Terry Martin

(tmartin): Approved  
for Provost Review

## History

1. Aug 27, 2014 by  
Leepfrog  
Administrator  
(clhelp)
2. Aug 27, 2014 by  
Leepfrog  
Administrator  
(clhelp)
3. Jun 10, 2015 by  
Charlie Alison  
(calison)
4. May 17, 2016 by  
Lisa Kulczak (lkulcza)
5. Mar 2, 2017 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: Computational 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

### Computational Concentration

<u>PHYS 3113</u>	Analytical Mechanics	3
<del>13 semester hours numbered 3000 and above in physics, astronomy, advanced computer science, or mathematics chosen with the adviser's permission:</del>		<del>13</del>
A Junior Level Laboratory Course chosen from <u>PHYS 361VL</u> , <u>PHYS 3544</u> , or <u>PHYS 3213</u>		1-4
9-12 credit hours numbered 3000 or higher in PHYS, ASTR, CSCE, or MATH chosen in consultation with an advisor		9-12
Total Hours		16

8-Semester Plan

### Physics B.S. with Computational Concentration

#### 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 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.~~ **Students** ~~Students~~ should consult **with their academic advisors.** ~~advisers.~~

First Year	Units
	Fall Spring
<u>ENGL 1013</u> Composition I (ACTS Equivalency = ENGL 1013)	3
<u>MATH 2554</u> Calculus I (ACTS Equivalency = MATH 2405)	4
<u>PHYS 2054</u> University Physics I (ACTS Equivalency = PHYS 2034)	4
<del>General Electives (as desired)</del>	<del>2-3</del>
Fine Arts university/state minimum core	3
<b>General Electives</b>	<b>1</b>
<u>ENGL 1023</u> Composition II (ACTS Equivalency = ENGL 1023)	3
<u>MATH 2564</u> Calculus II (ACTS Equivalency = MATH 2505)	4

<a href="#">PHYS 2074</a> University Physics II (ACTS Equivalency = PHYS 2044 Lecture)	4
Humanities university/state minimum core	3
<b>General Electives</b>	<b>1</b>
Year Total:	15 15
Second Year	Units
	FallSpring
<a href="#">MATH 2574</a> Calculus III (ACTS Equivalency = MATH 2603)	4
<a href="#">PHYS 2094</a> University Physics III	4
<b>Select one of the following four-hour science lecture/lab combinations:1</b>	<b>4</b>
<a href="#">CHEM 1103</a> University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & <a href="#">CHEM 1101L</a> University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	
<a href="#">CHEM 1123</a> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & <a href="#">CHEM 1121L</a> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
<a href="#">CSCE 2004</a> Programming Foundations I	
<a href="#">CSCE 2014</a> Programming Foundations II	
<a href="#">BIOL 1543</a> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) & <a href="#">BIOL 1541L</a> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab) or <a href="#">BIOL 1584</a> Biology for Majors	
<a href="#">GEOS 1113</a> General Geology (ACTS Equivalency = GEOL 1114 Lecture) & <a href="#">GEOS 1111L</a> General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
<a href="#">GEOS 1133</a> Earth Science (ACTS Equivalency = GEOL 1124 Lecture) & <a href="#">GEOS 1131L</a> Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab) or an approved four credit hours of other laboratory-based courses from these departments.	
U.S. History university/state minimum core	3
<a href="#">MATH 2584</a> Elementary Differential Equations	4
<a href="#">PHYS 3613</a> Modern Physics	3
<b>Select one of the following four-hour science lecture/lab combinations:1</b>	<b>4</b>
<a href="#">CHEM 1103</a> University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & <a href="#">CHEM 1101L</a> University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)	
<a href="#">CHEM 1123</a> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & <a href="#">CHEM 1121L</a> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
<a href="#">CSCE 2004</a> Programming Foundations I	
<a href="#">CSCE 2014</a> Programming Foundations II	
<a href="#">BIOL 1543</a> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) & <a href="#">BIOL 1541L</a> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab) or <a href="#">BIOL 1584</a> Biology for Majors	
<a href="#">GEOS 1113</a> General Geology (ACTS Equivalency = GEOL 1114 Lecture) & <a href="#">GEOS 1111L</a> General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
<a href="#">GEOS 1133</a> Earth Science (ACTS Equivalency = GEOL 1124 Lecture) & <a href="#">GEOS 1131L</a> 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
<b>General Electives</b>	<b>1</b>
Year Total:	15 15
 Third Year	 Units
	FallSpring
<u>MATH 3083</u> Linear Algebra	3
<del>University/State Core Social Science requirement</del>	<del>3 -</del>
<u>PHYS 3113</u> Analytical Mechanics	3
<b>A junior-level laboratory course chosen from PHYS 361VL, PHYS 3544, or PHYS 3213</b>	<b>1-4</b>
Social Sciences university/state minimum core	3
General Electives	2-5
<u>PHYS 3453</u> Electromagnetic Theory I	3
<b>Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher</b>	<b>6</b>
Social Sciences university/state minimum core	3
<del>CSCE-course</del>	
<del>Advanced Level Electives</del>	
<del>PHYS/ASTR-Group A3</del>	
<del>PHYS/ASTR Group A or Advanced Level Electives1,2,3</del>	<del>- 3</del>
General Electives	3
<del>General Elective</del>	<del>- 4</del>
Year Total:	15 15
 Fourth Year	 Units
	FallSpring
<u>PHYS 4073</u> Introduction to Quantum Mechanics	3
<del>University/state core humanities or fine arts requirement (as needed)</del>	<del>3 -</del>
Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher	3
<del>CSCE 4133 Algorithms (recommended; else other upper-level PHYS, ASTR, CSCE, or MATH course selected with advisor's approval)</del>	
<del>PHYS/ASTR-Group A or Advanced Level Electives3</del>	
<del>PHYS/ASTR Group A or Advanced Level Electives1,2;</del>	<del>4 -</del>
<b>University Residency Requirement Electives</b>	<b>1</b>
General Electives	8
Select one of the following:	<del>- 4</del>
<del>PHYS/ASTR-Group A1,2,3</del>	
<del>3000+ Level Fulbright College Elective (if needed)1,2,3</del>	
<del>Advanced Level Electives3</del>	
<u>PHYS 4991</u> Physics Senior Seminar	1
<del>Advanced Level Electives1</del>	<del>- 0</del>

~~ADVANCED LEVEL ELECTIVES:~~

**Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher (if needed). Otherwise, take** **3**

**General Electives.**

**General Electives** **11**

Year Total: 15 15

Total Units in Sequence: 120

**1CSCE 2004 and CSCE 2014 are highly recommended for students who plan to take additional computer science (CSCE) courses.**

- ~~1 Meets 40-hour advanced credit hour requirement. See College Academic Regulations.~~
- ~~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 Nine hours of upper division computer science or mathematics courses can count toward the physics major.~~

~~Group Any PHYS or ASTR classes numbered 3000 or above.~~

~~A~~

Are Similar Programs available in the area?

No

Estimated Student Demand for Program NA

Scheduled Program NA

Review Date

Program Goals and Objectives

**Program Goals and Objectives**

NA

Learning Outcomes

**Learning Outcomes**

NA

Description and justification of the request

**Description of specific change**

**Justification for this change**

Description of specific change	Justification for this change
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.	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.

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.

Key: 536