

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
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. 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 hours needed to complete the program?

na

Program Requirements and Description

Requirements

Computational Concentration

<u>PHYS 3113</u>	Analytical Mechanics	3
13 semester hours numbered 3000 and above in physics, astronomy, advanced computer science, or mathematics chosen with the adviser's permission.		13
A Junior Level Laboratory Course chosen from PHYS 361VL, <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
	FallSpring
<u>ENGL 1013</u> Composition I (ACTS Equivalency = ENGL 1013)	3
I <u>MATH 2554</u> Calculus I (ACTS Equivalency = MATH 2405)	4

<u>PHYS 2054</u> University Physics I (ACTS Equivalency = PHYS 2034)	4
General Electives (as desired)	2-3
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
<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

FallSpring

<u>MATH 2574</u> Calculus III (ACTS Equivalency = MATH 2603)	4
<u>PHYS 2094</u> University Physics III	4
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>CSC 2004</u> Programming Foundations I	
<u>CSC 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.S. History university/state minimum core	3
<u>MATH 2584</u> Elementary Differential Equations	4
<u>PHYS 3613</u> Modern Physics	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>CSC 2004</u> Programming Foundations I	
<u>CSC 2014</u> Programming Foundations II	
<u>BIOL 1543</u> Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	

~~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

~~University/State Core Social Science requirement 3 -~~

PHYS 3113 Analytical Mechanics 3

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

Social Sciences university/state minimum core 3

General Electives 2-5

PHYS 3453 Electromagnetic Theory I 3

Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher 6

Social Sciences university/state minimum core 3

~~CSCE course~~

~~Advanced Level Electives~~

~~PHYS/ASTR Group A-3~~

~~PHYS/ASTR Group A or Advanced Level Electives 1,2,3 - 3~~

General Electives 3

~~General Elective - 4~~

Year Total: 15 15

Fourth Year Units
 FallSpring

PHYS 4073 Introduction to Quantum Mechanics 3

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

Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher 3

~~CSCE 4133 Algorithms (recommended; else other upper-level PHYS, ASTR, CSCE, or MATH course selected with advisor's approval)~~

~~PHYS/ASTR Group A or Advanced Level Electives 3~~

~~PHYS/ASTR Group A or Advanced Level Electives 1,2, 4 -~~

University Residency Requirement Electives 1

General Electives	8
Select one of the following:	- 4
PHYS/ASTR Group A1,2,3	
3000+ Level Fulbright College Elective (if needed)1,2,3	
Advanced Level Electives3	
PHYS 4991 Physics Senior Seminar	1
Advanced Level Electives1	- 9
Any PHYS, ASTR, CSCE, or MATH course numbered 3000 or higher (if needed). Otherwise, take General Electives.	3
General Electives	11
Year Total:	15 15

Total Units in Sequence: 120

1 CSCE 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 Review Date NA

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
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