

# Program Change Request

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Date Submitted: 04/12/16 9:35 am

Viewing: **PHYSBS : Physics, Bachelor of Science**

Last approved: 06/05/15 2:22 pm

Last edit: 09/22/16 9:24 am

Changes proposed by: **jkennef**

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## In Workflow

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

## Approval Path

1. 04/12/16 9:47 am  
jdurdik: Approved for ARSC Dean Initial
2. 04/13/16 1:11 pm  
agriffin: Approved for Director of Program Assessment and Review
3. 04/26/16 5:51 pm  
lkulcza: Approved for Registrar Initial
4. 04/27/16 11:19 am  
jgeabana: Approved for PHYS Chair
5. 10/10/16 5:03 pm  
fspiegel: Approved for ARSC Curriculum Committee
6. 10/10/16 6:46 pm  
jdurdik: Approved for

ARSC Dean  
 7. 10/11/16 4:41 pm  
 pritchey: Approved  
 for Global Campus  
 8. 10/13/16 5:16 pm  
 tmartin: Approved for  
 Provost Review

### History

1. Aug 25, 2014 by calison
2. Jun 5, 2015 by Ikulcza

Catalog Pages Using this Program [Physics \(PHYS\)](#)

Submitter: User ID: calison

Phone: **5916 7456**

Academic Level Undergraduate

Select a reason for the proposed change: Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding Focused Study)

Program Status Active

Academic Unit Major/Field of Study

Are you adding, changing or deleting a concentration? No

Action	Proposed Code	Proposed Name

Are you adding, changing or deleting a track? No

Action	Proposed Code	Proposed Name

Are you adding, changing or deleting a focused study? No

Action	Proposed Code	Proposed Name

Effective Catalog Year **Fall 2017 Summer 2014**

College, School, Division Fulbright College of Arts and Sciences (ARSC)

Department Code Department of Physics (PHYS)

Program Code PHYSBS

Degree	Bachelor of Science
CIP Code	40.0801 - Physics, General.
Program Title	Physics, Bachelor of Science
Method of Delivery	On Campus
Is this program interdisciplinary or use courses from another College?	No
Does this change the total hours needed to complete the program?	No

## Program Requirements, Description and 8-Semester Plan

### Requirement for B.S. Degree with a Major in Physics

In addition to the [University Core requirements](#) and the [Fulbright College of Arts and Sciences Graduation Requirements](#), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University Core requirements.

The student must present a minimum of 39 semester hours in physics\* including:

<a href="#">PHYS 2054</a>	University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa)	4
<a href="#">PHYS 2074</a>	University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa)	4
<a href="#">PHYS 2094</a>	University Physics III (Fa)	4
<a href="#">PHYS 3414</a>	Electromagnetic Theory (Sp)	4
<a href="#">PHYS 3613</a>	Modern Physics (Sp, Su, Fa)	3
<a href="#">PHYS 4073</a>	Introduction to Quantum Mechanics (Fa)	3
<a href="#">PHYS 4991</a>	Physics Senior Seminar (Sp, Su, Fa)	1

**Concentration hours**

~~16~~  
~~24~~

#### Mathematics Courses:

<a href="#">MATH 2554</a>	Calculus I (ACTS Equivalency = MATH 2405) (Sp, Su, Fa)	4
<a href="#">MATH 2564</a>	Calculus II (ACTS Equivalency = MATH 2505) (Sp, Su, Fa)	4
<a href="#">MATH 2574</a>	Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa)	4
<a href="#">MATH 2584</a>	Elementary Differential Equations (Sp, Su, Fa)	4
<a href="#">MATH 3423</a>	<a href="#">Course MATH 3423 Not Found</a> <sup>±</sup>	
<a href="#">CHEM 1103</a>	University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) (Su, Fa) and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab) (Sp, Su, Fa)	

~~& CHEM 1101L and University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) (Sp, Su, Fa) 8~~  
~~& CHEM 1123 and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) (Sp, Su, Fa)<sup>2</sup>~~  
~~& CHEM 1121L~~

**MATH 3083 Linear Algebra (Sp, Su, Fa) 3**

**Additional Science: 8**

At least 8 hours of other science chosen from CHEM 1103/~~CHEM 1101L~~, ~~CHEM 1123~~/~~CHEM 1121L~~, ~~CSCE 2004~~, ~~CSCE 2014~~, ~~BIOL 1543~~/~~BIOL 1541L~~ (or BIOL 1584), ~~GEOS 1113~~/~~GEOS 1111L~~, or GEOS 1133/~~GEOS 1131L~~, or an approved 8 hours of other laboratory-based courses from these departments.

**Physics BS majors must complete all the requirements for one of seven available concentration areas. All concentrations consist of 16 credit hours with the exception of the Geophysics concentration which requires 24. 16**

Total Hours 66

\* Note: astronomy, biology, chemistry, computer science, and geosciences courses as specified within the concentration requirements listed below can be applied to this 39 hours.

<sup>1</sup> ~~CSCE 3513, CSCE 4423, MEEG 2703, or GEOS 4223~~ can be substituted for ~~MATH 3083~~ with the adviser's approval.

~~<sup>2</sup> Or CSCE 2004 and CSCE 2014, or an approved 8 hours of laboratory-based courses in CSCE are required.~~

Majors must propose participation in a research experience project no later than the end of their junior year of study. A written report of the results must be submitted during Senior Seminar ([PHYS 4991](#)).

Are Similar Programs available in the area? No

Estimated Student Demand for Program: na

Scheduled Program Review Date: na

Program Goals and Objectives: na

Learning Outcomes: na

1.) Changing requirement from CHEM 1103/1101L & CHEM 1123/1121L to 8 hours selected from the following: CHEM 1103/1101L, CHEM 1123/1121L, CSCE 2004, CSCE 2014, BIOL 1543/1541L (or BIOL 1584), GEOS 1113/1111L, or GEOS 1133/1131L or approved 8 hours of other laboratory-based courses from these departments.

Justification: Over the last few years, as students join our computational, biophysics, or geophysics tracks, the Physics department has been willing to substitute other science courses for the CHEM sequence. Now that our automated degree audit system is in place, we wish to make these substitutions official so that individual substitutions are not required for every single student. It will also allow students to see their options more clearly within the course catalog.

Description and justification of the request: 2.) Replacing the required math course MATH 3423 (now 4423) Introduction to Partial Differential Equations with MATH 3083 Linear Algebra.

Justification: Linear Algebra is really necessary for students taking our required PHYS 4073 Intro to Quantum class. In fact, during the last few semesters, the instructor for the course has had

to break a few weeks in and give an introduction to linear algebra before proceeding with the physics material.

We do realize that physics students would benefit from taking MATH 4423 Introduction to Partial Differential Equations, so we are going to strongly recommend that students take it as an elective. This would also allow them to minor in mathematics given our proposed requirements.

**ddraper (04/12/16 9:48 am):** Changed to Fall 2017, as this program proposal will not be reviewed by the ARSC Curriculum Committee until fall 2016 at the earliest.

**agriffin (04/13/16 1:10 pm):** Added description of changes to justification.

**ddraper (08/31/16 9:12 am):** On behalf of the Physics department, added requested change to replace MATH 3423 with MATH 3083 and modified description/justification section.

**ddraper (09/01/16 3:02 pm):** Added department-provided justification for changing the math requirement MATH 4423 Intro to Partial Differential Equations to MATH 3083 Linear Algebra.

**ddraper (09/22/16 9:24 am):** Added headings for the required math courses, and the additional science requirement, and placed the reference to the required concentration at the end of the list of general physics BS requirements.

Program reviewer  
comments

Uploaded  
attachments:

Key: 502