# Program Change Request

Date Submitted: 09/23/16 1:02 pm

## Viewing: PHYSBS-OPTC : Physics Optics Concentration

Last approved: 05/17/16 3:43 pm

Last edit: 09/28/16 3:59 pm

**Changes proposed by: ddraper**

### 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. 09/24/16 2:23 pm jdurdik: Approved for ARSC Dean Initial
2. 09/29/16 8:40 am agriffin: Approved for Director of Program Assessment and Review
3. 10/03/16 6:26 pm lkulcza: Approved for Registrar Initial
4. 10/04/16 1:46 pm jgeabana: Approved for PHYS Chair
5. 10/10/16 5:03 pm fspiegel: Approved for ARSC Curriculum Committee
6. 10/10/16 6:45 pm jdurdik: Approved for

ARSC Dean
7. 10/11/16 4:41 pm pritchey: Approved for Global Campus
8. 10/13/16 5:15 pm tmartin: Approved for Provost Review

## History

1. Aug 27, 2014 by crsleaf1
2. Aug 27, 2014 by crsleaf1
3. Jun 9, 2015 by lkulcza
4. May 17, 2016 by lkulcza

| | |
|---|---|
| Catalog Pages Using this Program | Physics B.S. with Optics Concentration<br>Physics (PHYS) |

| | |
|---|---|
| Submitter: | User ID: crsleaf1<br>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** ~~2016~~ |
| College, School, Division | Fulbright College of Arts and Sciences (ARSC) |

| | |
|---|---|
| Department Code | Department of Physics (PHYS) |
| Program Code | PHYSBS-OPTC |
| Degree | Bachelor of Science |
| CIP Code | 40.0801 - Physics, General. |
| Program Title | Physics Optics Concentration |
| 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

### Optics Concentration

| | | |
|---|---|---|
| PHYS 3544 | Optics (Fa) | 4 |
| PHYS 4734 | Introduction to Laser Physics (Sp) | 3-4 |
| or PHYS 4773 | Introduction to Optical Properties of Materials (Even years, Sp) | |
| ~~8 semester hours numbered 3000 and above in physics or astronomy.~~ | | ~~8~~ |
| **8-9 semester hours (to total 16 hours total for the concentration) numbered 3000 and above in physics or astronomy.** | | **8-9** |
| Total Hours | | 16 |

### Physics B.S. with Optics 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.

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. Students should consult their advisers.

| **First Year** | **Units** |
|---|---|

| | Fall | Spring |
|---|---|---|
| ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa) | 3 | |
| MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Sp, Su, Fa)[1] | 4 | |
| PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa)[1] | 4 | |
| University/State Core US History requirement | 3 | |
| General Elective | 1 | |
| ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa) | | 3 |
| MATH 2564 Calculus II (ACTS Equivalency = MATH 2505) (Sp, Su, Fa)[1] | | 4 |
| PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa)[1] | | 4 |
| University/State Core Fine Arts or Humanities requirement | | 3 |
| General Electives | | 2 |
| Year Total: | 15 | 16 |

| **Second Year** | **Units** | |
|---|---|---|
| | **Fall** | **Spring** |
| PHYS 2094 University Physics III (Fa)[1] | 4 | |
| **Select one of the following four-hour lecture/lab combinations** | **4** | |
| CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) (Su, Fa)<br>& CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab) (Sp, Su, Fa) | | |
| **CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) (Sp, Su, Fa)<br>& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) (Sp, Su, Fa)** | | |
| **CSCE 2004 Programming Foundations I (Sp, Fa)** | | |
| **CSCE 2014 Programming Foundations II (Sp, Fa)** | | |
| **BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) (Sp, Su, Fa)<br>& BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab) (Sp, Su, Fa)<br>or BIOL 1584 Biology for Majors (Sp, Fa)** | | |
| **GEOS 1113 General Geology (ACTS Equivalency = GEOL 1114 Lecture) (Sp, Su, Fa)<br>& GEOS 1111L General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab) (Sp, Su, Fa)** | | |
| **GEOS 1133 Earth Science (ACTS Equivalency = GEOL 1124 Lecture) (Sp, Fa)<br>& GEOS 1131L Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab) (Sp, Fa)** | | |
| MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa)[1] | 4 | |
| University/State Core Humanities or Fine Arts requirement (as needed) | 3 | |
| General Elective | 1 | |
| PHYS 3613 Modern Physics (Sp, Su, Fa)[1,2] | | 3 |
| PHYS 3213 Electronics in Experimental Physics (Odd years, Sp) (Recommended; else, 3000+ level PHYS or ASTR course)[1,2] | | 3 |
| MATH 2584 Elementary Differential Equations (Sp, Su, Fa)[1,2] | | 4 |
| **Select one of the following four-hour lecture/lab combinations** | | **4** |
| **CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) (Su, Fa)<br>& CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab) (Sp, Su, Fa)** | | |
| CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) (Sp, Su, Fa)<br>& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab) (Sp, Su, Fa) | | |
| **CSCE 2004 Programming Foundations I (Sp, Fa)** | | |
| **CSCE 2014 Programming Foundations II (Sp, Fa)** | | |

**BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture) (Sp, Su, Fa)**
**& BIOL 1541L Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab) (Sp, Su, Fa)**
**or BIOL 1584 Biology for Majors (Sp, Fa)**

**GEOS 1113 General Geology (ACTS Equivalency = GEOL 1114 Lecture) (Sp, Su, Fa)**
**& GEOS 1111L General Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab) (Sp, Su, Fa)**

**GEOS 1133 Earth Science (ACTS Equivalency = GEOL 1124 Lecture) (Sp, Fa)**
**& GEOS 1131L Earth Science Laboratory (ACTS Equivalency = GEOL 1124 Lab) (Sp, Fa)**

| | | |
|---|---|---|
| Year Total: | 16 | 14 |

| **Third Year** | **Units** | |
|---|---|---|
| | **Fall** | **Spring** |
| PHYS/ASTR Group A[1,2] | 4 | |
| ~~MATH 4423 Introduction to Partial Differential Equations (Sp, Su, Fa)[1,2]~~ | ~~3~~ | - |
| PHYS/ASTR Group A or General Elective | 4 | |
| **MATH 3083 Linear Algebra (Sp, Su, Fa)** | **3** | |
| University/State Core Social Science requirement | 3 | |
| PHYS 3414 Electromagnetic Theory (Sp)[1,2] | | 4 |
| University/State Core Social Science requirement | | 3 |
| University/State Core Social Science requirement | | 3 |
| General Elective or PHYS/ASTR Group A (as needed)[1,2] | | 3-4 |
| General Elective | | 3 |
| Year Total: | 14 | 16 |

| **Fourth Year** | **Units** | |
|---|---|---|
| | **Fall** | **Spring** |
| PHYS 4073 Introduction to Quantum Mechanics (Fa)[1,2] | 3 | |
| PHYS 3544 Optics (Fa)[1,2] | 4 | |
| General Electives | 9 | |
| PHYS 4991 Physics Senior Seminar (Sp, Su, Fa)[1,2] | | 1 |
| PHYS 4734 Introduction to Laser Physics (Sp)[1,2]<br>or PHYS 4773 Introduction to Optical Properties of Materials (Even years, Sp) | | 4 |
| General Electives | | 8 |
| Year Total: | 16 | 13 |

| | |
|---|---|
| Total Units in Sequence: | 120 |

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.

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

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 |
| Description and justification of the request: | Changing MATH 4423 to MATH 3083 in 8-semester plans to align our program with new math minor requirements. MATH 3083 is needed for an upper level physics course - Intro to Quantum Mechanics (PHYS 4073). |
| Program reviewer comments | **ddraper (09/22/16 11:34 am):** Incorporated the additional science requirement change to the 2nd year of the 8-semester plan that allows students several options of science classes instead of just University Chemistry I and II. Also made a slight correction to the concentration hours to show the range of credits needed if PHYS 4773 is selected (3 hours) in place of PHYS 4734 (4 hours) so that the student still completes a minimum of 16 hours of coursework for the concentration.<br>**agriffin (09/23/16 12:57 pm):** Rollback: Please adjust reason for change to a minor change.<br>**ddraper (09/28/16 3:59 pm):** Added comment in Spring Year 2 to indicate PHYS 3213 is recommended, and if not selected, another upper-level PHYS or ASTR course should be taken. |
| Uploaded attachments: | |

Key: 539