

ATTACHMENT 1V

ADD, CHANGE OR DELETE UNIT, PROGRAM REQUIREMENTS, OR ACADEMIC POLICIES

Complete this form consistent with the instructions in Academic Policy 1622.20. Use the form to add, change, or delete a program or unit or to change program policies. Proposed additions and changes must be consistent with Academic Policies 1100.40 and 1621.10 and any other policies which apply.

SECTION I: Approvals

Department / Program Chair Date Submitted

College Dean Date

Honors College Dean Date

Core Curriculum Committee Date

University Course and Programs Committee Date

Vice Provost for Distance Education Date
(for on-line programs)

Graduate Council Chair Date

Faculty Senate Chair Date

Provost Date

Board of Trustees Approval/Notification Date

Arkansas Higher Education Coordinating Board Approval/Notification Date

SECTION II: Profile Data - Required Information and Name Change Information

Academic Unit: Major/Field of Study Minor Other Unit _____ Policy

Level: Undergraduate Graduate Law Effective Catalog Year 2014

Program changes are effective with the next available catalog. See Academic Policy Series 1622.20

Current Name **Physics, Bachelor of Science**

College, School, Division **ARSC** Department Code **PHYS**

Current Code (6 digit Alpha) **PHYSBS** Proposed Code (6 digit Alpha) _____

Prior approval from the Office of the Registrar is required.

Interdisciplinary Program

CIP Code **40.0801**

Prior assignment from Office of Institutional Research is required.

Proposed Name _____

When a program name is changed, enrollment of current students reflects the new name.

SECTION III: Add a New Program/Unit

For new program proposals, complete Sections II and VII and use as a cover sheet for a full program proposal as described in 'Criteria and Procedures for Preparing Proposals for New Programs in Arkansas.' ADHE

<http://www.adhe.edu/divisions/academicaffairs/Pages/academicaffairs.aspx>

Program proposal uses courses offered by another academic college, and that college dean’s office has been notified. The signature of the dean of that academic college is required here: _____

SECTION IV: Eliminate an Existing Program/Unit

Code/Name _____ Effective Catalog Year _____

No new students admitted to program after Term: ___ Year: _____

Allow students in program to complete under this program until Term: ___ Year: _____

SECTION V: Proposed Changes to an Existing Program or Program Policies

Insert here a statement of the exact changes to be made: We propose to change the PHYSBS core course PHYS 3614 Modern Physics to PHYS 3613 Modern Physics, thus reducing the required core courses from 40 to 39 hours. An extra hour of Elective courses is added to keep the total load for the degree at 120 hours.

Some other minor shifting of coursework in the 8-semester plans is also being done.

Check if either of these boxes apply and provide the necessary signature:

- Program change proposal adds courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: _____
- Program change proposal deletes courses offered by another academic college, and that college dean's office has been notified. The signature of the dean of that academic college is required here: _____

Check all the boxes that apply and complete the required sections of the form:

- Change of Name and Code (Complete only sections I, II, V and VII.)
- Change Course Requirements: (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Delivery Site/Method (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change Total Hours (Complete all sections of the form except "Proposed Name" in II, section III, and section IV.)
- Change in Program Policies

SECTION VI: Justification

Justify this change and state its likely effect on any other degree program (including those outside the school or college). Identify any program or program components (other than courses) to be eliminated if this program is implemented. (Program and course change forms must also be submitted for such related changes.)

After review by the Physics Department faculty, it was found that some of the material in PHYS 3614 Modern Physics dealing with nuclear and particle physics was not required by several of the PHYSBS concentrations, and that a new elective course, PHYS 4653 Subatomic Physics, contains that material and that course could be taken by the students needing it for their career objectives. Also, 2 courses more useful for students entering the Biophysics Concentration were substituted for existing ones in the first year of studies.

SECTION VII: Catalog Text and Format

In the box below, insert the current catalog text which is to be changed, with changes highlighted with the color yellow. Include all proposed changes identified in Section V. Only changes explicitly stated in Section V will be considered for approval by the University Course and Programs Committee, the Graduate Council and the Faculty Senate. If you are proposing a new program, give proposed text with all of the elements listed below. If you are proposing modified text, include these elements as appropriate.

Include the following elements, in order, in the catalog text for proposed undergraduate program(s) or program changes:

- State complete major/program name
- Briefly define or describe the major/program or discipline.
- Identify typical career goals or paths for graduates. (Optional)
- State admission requirements (if any) for entry or entry into upper/advanced level of major/program.
- Identify location in catalog of university, college/school, and department/program requirements which the student must meet in addition to hours in the major, but do not restate these requirements.
- State course requirements in the major and any allied areas, giving number of hours and specific courses; specify electives or elective areas and give numbers of hours and courses in elective pools or categories; identify any other course requirements.
- State any other requirements (required GPA, internship, exit exam, project, thesis, etc.).
- Identify name and requirements for each concentration (if any).
- Specify whether a minor or other program component is allowed or required and provide details.
- State eight-semester plan requirements

For minors, state requirements in terms of hours, required courses, electives, etc.

For graduate program/units, include elements (as needed) parallel to those listed for undergraduate programs above.

For Law School program/units, prepare text consistent with current catalog style.

For centers, prepare text consistent with current catalog style.

PHYSICS (PHYS)

Requirement for B.S. Degree with a Major in Physics: In addition to the university/state core requirements (see page 41) and the Fulbright College of Arts and Sciences Graduation Requirements (see page 134 under Fulbright College Academic Regulations and Degree Completion Program Policy), the following course requirements must be met. Bolded courses from the list below may be applied to portions of the University/state minimum core requirements.

The student must present a minimum of ~~40~~**39** semester hours in physics including **PHYS 2054, PHYS 2074**, PHYS 2094, PHYS 3414, **PHYS 3614-3613**, PHYS 4073, PHYS 4991 and courses in one of six concentrations:

Astronomy: PHYS 3544 plus 6 semester hours of ASTR courses numbered 3000 or above (3033, 4013, 4073).

Biophysics: PHYS 3113 and 13 semester hours including courses numbered 3000 and above in physics, astronomy, biology, and chemistry chosen with the adviser's permission.

Computational: PHYS 3113 and 13 semester hours including courses numbered 3000 and above in physics, astronomy, advanced computer science, or mathematics chosen with the adviser's permission.

Electronics: PHYS 3213, PHYS 4333, and 6 semester hours numbered 3000 and above in physics or astronomy.

[Insert Geophysics concentration—see separate proposal]

Optics: PHYS 3544, any 1 course selected from PHYS 4734 or PHYS 4774, and 8 semester hours numbered 3000 and above in physics or astronomy.

Professional: PHYS 3113, PHYS 4333, and 10 semester hours numbered 3000 and above in physics or astronomy.

For all six of the possible concentrations the following mathematics courses are required: MATH 2554, MATH 2564, MATH 2574, MATH 2584, and MATH 3423. CSCE 3513, CSCE 4423, or MEEG 2703 can be substituted for MATH 3423 with the adviser's approval. In addition, **CHEM 1103/1101L** and **CHEM 1123/1121L**, or an approved 8 hours of laboratory-based courses in CSCE 2004 and CSCE 2014 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)

Physics B.S. with Astronomy 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. ~~Well-prepared students may skip BIOL 1543/BIOL 1541L, and go immediately into the biology core courses.~~ Students should consult their advisers.

	First Year		Units	
	Fall	Spring	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	
University/State Core US History requirement			3	
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa) ¹			4	
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
University/State Core Fine Arts or Humanities requirement				3
General Electives			-	4
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa) ¹				4
Year Total:			15	14
	Second Year		Units	
			Fall	Spring
PHYS 2094 University Physics III (Fa) ¹			4	
CHEM 1103 University Chemistry I (Su, Fa)			4	
& CHEM 1101L University of Chemistry I Laboratory (Sp, Su, Fa)				4
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) ¹			4	
University/State Core Humanities or Fine Arts requirement (as needed)				3
PHYS 3614 PHYS 3613 Modern Physics (Sp, Su, Fa) ^{1,2}				4

University/State Core Social Science requirement	3
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}	4
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)	4
Year Total:	15 +5 <u>14</u>

Third Year

	Units	
	Fall	Spring
PHYS/ASTR Group A ^{1,2}	4	
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ^{1,2}	3	
PHYS/ASTR Group A or General Elective	4	
PHYS 3213 Electronics in Experimental Physics (Odd years, Sp) ^{1,2}	3	
PHYS 3414 Electromagnetic Theory (Sp) ^{1,2}		4
University/State Core Social Science requirement		3
General Elective or PHYS/ASTR Group A (as needed)		3
General Elective		3
University/State Core Social Science requirement		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	
ASTR 4073 Cosmology (Even years, Fa)	3	
General Electives	6	
PHYS 4991 Physics Senior Seminar (Sp, Su, Fa) ^{1,2}		1
PHYS 4734 Introduction to Laser Physics (Sp) ^{1,2} or PHYS 4774 Introduction to Optical Properties of Materials (Odd years, Sp)		4
ASTR 4013 Astrophysics (Even years, Sp) ^{1,2}		3
General Electives		6 <u>8</u>
Year Total:	16	4 <u>16</u>

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.

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.

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. Well prepared students may skip [BIOL 1543/BIOL 1541L](#), and go immediately into the biology core courses. Students should consult their advisers.

		Units	
		Fall	Spring
First Year			
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa)		3	
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)	BIOL 2533 Cell Biology & BIOL 2531L Cell Biology Lab	4	
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	
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
BIOL 2533 Cell Biology (Sp, Fa)³ BIOL 2323 Genetics (Sp, Fa)			3
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa) ¹			4
University/State Core Fine Arts or Humanities			3
Year Total:		15	17
Second Year			
PHYS 2094 University Physics III (Fa) ¹		4	
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) ¹		4	
CHEM 1103 University Chemistry I (Su, Fa) & CHEM 1101L University of Chemistry I Laboratory (Sp, Su, Fa)		4	
University/State Core Humanities or Fine Arts requirement (as needed)		3	
PHYS 3614 PHYS 3613 Modern Physics (Sp, Su, Fa) ^{1,2}			<u>4</u> 3
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)			4
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}			4
BIOL 2013 General Microbiology (ACTS Equivalency = BIOL 2004 Lecture) (Sp, Su, Fa) & BIOL 2011L General Microbiology Laboratory (ACTS Equivalency = BIOL 2004 Lab) (Sp, Su, Fa) ^{1,3}			4
Year Total:		15	<u>43</u> 41
Third Year			
PHYS 3113 Analytical Mechanics (Fa) ^{1,2}		3	
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ^{1,2}		3	
University/State Core Social Science requirement		3	
CHEM 3603 Organic Chemistry I (Su, Fa) & CHEM 3601L Organic Chemistry I Laboratory (Su, Fa) ^{1,2}		4	
University/State Core US History Requirement		3	-
PHYS 3414 Electromagnetic Theory (Sp) ^{1,2}			4
CHEM 3613 Organic Chemistry II (Sp, Su) & CHEM 3611L Organic Chemistry II Laboratory (Sp, Su) ²			4
University/State Core Social Science requirement			3
University/State Core U.S. History requirement General Elective			3
Year Total:		<u>46</u> 43	14
Fourth Year			
PHYS 4073 Introduction to Quantum Mechanics (Fa) ^{1,2}		3	
BIOL 4003 Laboratory in Prokaryote Biology (Sp) ^{1,2,3}		3	
University/State Core Social Science requirement		3	
General Electives		6	
BIOL 2323 General Genetics (Sp, Fa)			3

BIOL 3023 Evolutionary Biology (Fa) ²	3
PHYS 4991 Physics Senior Seminar (Sp, Su, Fa) ^{1,2}	1
General Electives as needed to total 120 degree credit hours	5-69
Year Total:	15 12 <u>1316</u>
Total Units in Sequence:	120- 121

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 Or another chemistry, biology, astronomy or physics elective from PHYS/ASTR Group A (below).

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

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.

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. Well prepared students may skip [BIOL 1543/BIOL 1541L](#), and go immediately into the biology core courses. Students should consult their advisers.

	Units	
	Fall	Spring
First Year		
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	
University/State Core Fine Arts or Humanities requirement	3	
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa) ¹	4	
General Electives (as desired)	12 -3	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa)		3
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa) ¹		4
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505) (Sp, Su, Fa) ¹		4
University/State Core Humanities or Fine Arts requirement (as needed)	-	3
University/State Core US History requirement or General Elective		3
Year Total:	1516 -17	1714

	Units	
	Fall	Spring
Second Year		
PHYS 2094 University Physics III (Fa) ¹	4	
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) ¹	4	
General Elective or University/State Core US History requirement (as needed)	3	
CSCE 2004 Programming Foundations I (Sp, Fa)	4	
PHYS 3614 - PHYS 3613 Modern Physics (Sp, Su, Fa) ^{1,2}		4 43
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}		4
CSCE 2014 Programming Foundations II (Sp, Fa)		4

University/State Core Social Science requirement		3
Year Total:	15	14

Third Year

	Units	
	Fall	Spring
PHYS 3113 Analytical Mechanics (Fa) ²	3	
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ²	3	
Advanced Level Elective	3	
University/State Core Social Science requirement	3	
General Electives	3	
PHYS 3414 Electromagnetic Theory (Sp) ^{1,2}		4
Select one of the following:		3
CSCE course (CSCE 3143 Data Structures recommended)		
Advanced Level Electives		
PHYS/ASTR Group A ³		
PHYS/ASTR Group A or Advanced Level Electives ^{1,2,3}		3
University/State Core Social Science requirement		3
General Elective		3
Year Total:	15	16

Fourth Year

	Units	
	Fall	Spring
Select one of the following:	3	
CSCE 3313 Algorithms (Fa) (recommended) ^{1,2}		
PHYS/ASTR Group A or Advanced Level Electives ³		
PHYS/ASTR Group A or Advanced Level Electives ^{1,2}	4	
PHYS 4073 Introduction to Quantum Mechanics (Fa) ^{1,2,3}	3	
University/state core humanities or fine arts requirement (as needed)	<u>3</u>	
General Electives	3	
Select one of the following:		4
PHYS/ASTR Group A ^{1,2,3}		
3000+ Level Fulbright College Elective (if needed) ^{1,2,3}		
Advanced Level Electives ³		
PHYS 4991 Physics Senior Seminar (Sp, Su, Fa) ^{1,2,3}		1
Advanced Level Electives ¹		7
Year Total:	16	14

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.

³ Nine hours of upper division computer science or mathematics courses can count toward the physics major.

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

Physics B.S. with Electronics 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. Well prepared students may skip [BIOL 1543/BIOL 1541L](#), and go immediately into the biology core courses. 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	
University/State Core Social Science requirement		3	
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa) ¹		4	
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 Social Science requirement		3	
General Elective		1	
Year Total:		15	15

Second Year		Units	
		Fall	Spring
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) ¹		4	
PHYS 2094 University Physics III (Fa) ¹		4	
CHEM 1103 University Chemistry I (Su, Fa) & CHEM 1101L University of Chemistry I Laboratory (Sp, Su, Fa)		4	
University/State Core Fine Arts or Humanities requirement		3	
General Elective		<u>1</u>	
PHYS 36143 Modern Physics (Sp, Su, Fa) ^{1,2}			<u>43</u>
PHYS 3213 Electronics in Experimental Physics (Odd years, Sp) ^{1,2}		3	
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}		4	
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)		4	
General Elective		<u>1</u>	
Year Total:		15 <u>16</u>	15

Third Year		Units	
		Fall	Spring
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ²		3	
University/State Core Social Science requirement		3	
University/State Core Humanities or Fine Arts requirement (as needed)		3	
General Elective		6	
PHYS 3414 Electromagnetic Theory (Sp) ^{1,2}			4
PHYS 4333 Thermal Physics (Sp) ^{1,2}			3
University/State Core Social Science requirement		3	
General Elective		3	
General Elective or PHYS/ASTR Group A ^{1,2}		3	
Year Total:		15	16

Fourth Year		Units	
		Fall	Spring

PHYS 4073 Introduction to Quantum Mechanics (Fa) ^{1,2}	3
PHYS/ASTR Group A ^{1,2}	3
PHYS/ASTR Group A or General Elective (as needed) ^{1,2}	3
General Electives	6
PHYS 4713 Solid State Physics (Even years, Sp) ^{1,2}	3
PHYS/ASTR Group A (as needed) or General Elective	3
PHYS 4991 Physics Senior Seminar (Sp, Su, Fa) ^{1,2}	1
General Electives	7 6
Year Total:	15 14 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.

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. Well prepared students may skip [BIOL 1543/BIOL 1541L](#), and go immediately into the biology core courses. 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			1 2
Year Total:			15 15 16

	Second Year		Units
	Fall	Spring	
PHYS 2094 University Physics III (Fa) ¹			4
CHEM 1103 University Chemistry I (Su, Fa)			4
& CHEM 1101L University of Chemistry I Laboratory (Sp, Su, Fa)			4
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	<u>1</u>	-
PHYS 36143 Modern Physics (Sp, Su, Fa) ^{1,2}		<u>43</u>
PHYS 3213 Electronics in Experimental Physics (Odd years, Sp) ^{1,2}		3
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}		4
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa)		4
& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)		
Year Total:	15 <u>16</u>	15 <u>14</u>

Third Year

	Units	
	Fall	Spring
PHYS/ASTR Group A ^{1,2}	4	
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ^{1,2}	3	
PHYS/ASTR Group A or General Elective	4	
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
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}		4
or PHYS 4774 Introduction to Optical Properties of Materials (Odd years, Sp)		
General Electives		<u>98</u>
Year Total:	16	<u>14</u> <u>13</u>

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.

Physics B.S. with Professional 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. Well prepared students may skip [BIOL 1543/BIOL 1541L](#), and go immediately into the biology core courses. 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 U.S. 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) ²			4
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa) ¹			4
University/State Core Social Science requirement			3
General Elective			1
Year Total:		15	15
Second Year		Units	
		Fall	Spring
PHYS 2094 University Physics III (Fa) ¹		4	
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) ¹		4	
CHEM 1103 University Chemistry I (Su, Fa) (Or Core from areas a, b, c or e; as needed)		3	
University/State Core Social Science requirement		3	
General Elective		2	
PHYS 3614 PHYS 3613 Modern Physics (Sp, Su, Fa) ^{1,2}			4 43
PHYS 3213 Electronics in Experimental Physics (Odd years, Sp) ^{1,2}			3
MATH 2584 Differential Equations and Laplace Transform (Sp, Su, Fa) ^{1,2}			4
CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa)			4
& CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)			4
Year Total:		16	14 14
Third Year		Units	
		Fall	Spring
PHYS 3113 Analytical Mechanics (Fa) ^{1,2}		3	
MATH 3423 Advanced Applied Mathematics (Sp, Su, Fa) ^{1,2}		3	
Advanced Level Elective ¹		3	
University/State Core Fine Arts or Humanities requirement		3	
University/State Core Social Science requirement		3	
PHYS 3414 Electromagnetic Theory (Sp) ^{1,2}			4
PHYS 4333 Thermal Physics (Sp) ^{1,2}			3
University/State Core Humanities or Fine Arts requirement			3
General Electives			6
Year Total:		15	16
Fourth Year		Units	
		Fall	Spring
PHYS 4073 Introduction to Quantum Mechanics (Fa) ²		3	
PHYS/ASTR Group A ²		3	
PHYS 462VL Modern Physics Laboratory (Sp)		1 3	
General Elective (as needed for a minimum of 14 hours)		7 9	
PHYS/ASTR Group A ^{1,2}			3
PHYS/ASTR Group A (as needed) or General Electives			3
PHYS 4991 Physics Senior Seminar (Sp, Su, Fa) ^{1,2}			1
General Electives (as needed to total 120 hours)			7 6

Year Total:

~~14~~16 ~~14~~13

Total Units in Sequence:

120~~122~~

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.

PHYS/ASTR
Group A Any PHYS or ASTR courses numbered 3000 or above.

SECTION VIII: Action Recorded by Registrar's Office

PROGRAM INVENTORY/DARS

PGRM _____ SUBJ _____ CIP _____ CRTS _____
DGRE _____ PGCT _____ OFFC&CRTY VALID _____

REPORTING CODES

PROG. DEF. _____ REQ. DEF. _____
Initials _____ Date _____

Distribution

Notification to:

- (1) College
- (2) Department
- (3) Admissions
- (4) Institutional Research
- (5) Continuing Education
- (6) Graduate School
- (7) Treasurer
- (8) Undergraduate Program Committee

8/19/13