

**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 _____	Graduate Council Chair _____	Date _____
College Dean _____	Date _____	Faculty Senate Chair _____	Date _____
Honors College Dean _____	Date _____	Provost _____	Date _____
Core Curriculum Committee _____	Date _____	Board of Trustees Approval/Notification Date _____	
University Course and Programs Committee _____	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 Geophysics Conc  Policy

Level:  Undergraduate  Graduate  Law Effective Catalog Year \_\_\_\_\_

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

Current Name Physics, BS (Geophysics Conc)

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/aa\\_academicproposals.aspx](http://www.adhe.edu/divisions/academicaffairs/Pages/aa_academicproposals.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: Adding Physics BS with Geophysics Concentration

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.)*

**A variety of subdisciplines of the geological sciences rely increasingly on quantitative, physics-based understanding of earth materials and geological and hydrological processes. Preparation for work within these fields requires a combination of geology, physics, and mathematics skills that is not typically obtained from a traditional degree program within geology or physics. The proposed degree program will use existing faculty, courses, and resources to prepare students that are competitive for the top geophysics graduate programs in the country and will also act as a recruiting tool to bring physics majors into a double major in geology. The final aim can be energy or environmental industry (MS terminal degree) or research careers within geophysics broadly-defined (PhD terminal).**

## 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.**

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

In addition to the [university/state core requirements](#) and the [Fulbright College of Arts and Sciences Graduation Requirements](#) (see 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:

<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 36143</a>	Modern Physics (Sp, Su, Fa)	<del>4</del> <u>3</u>
<a href="#">PHYS 4073</a>	Introduction to Quantum Mechanics (Fa)	3
<a href="#">PHYS 4991</a>	Physics Senior Seminar (Sp, Su, Fa)	1

Select one of the following concentrations:

Astronomy (~~16~~24 hours)

[PHYS 3544](#) Optics (Fa)

6 semester hours of ASTR courses numbered 3000 or above ([ASTR 3033](#), [ASTR 4013](#), [ASTR 4073](#)).  
plus 6 additional hours numbered 3000 and above in physics or astronomy

Biophysics (~~16~~24 hours)

[PHYS 3113](#) Analytical Mechanics (Fa)

13 semester hours numbered 3000 and above in physics, astronomy, biology, and chemistry chosen with the adviser's permission.

Computational (~~16~~24 hours)

[PHYS 3113](#) Analytical Mechanics (Fa)

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

Geophysics (24 hours)

[PHYS 3113](#) Analytical Mechanics (Fa)

General Geology (ACTS Equivalency = GEOL 1114 Lecture) (Sp, Su, Fa)

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

GEOL 2313 Mineralogy and Petrology (Fa)

GEOL 3413 Sedimentary Rocks & Fossils (Sp)

GEOL 3514 Structural Geology (Sp)

GEOL 4223 Stratigraphy and Sedimentation (Fa)

GEOL 4924 Earth System History (ACTS Equivalency = PHSC 1104) (Sp)

Completion of GEOG 3383 Principles of Landscape Evolution and GEOL 4666 Geology Field Camp in addition to the stated requirements for a physics--geophysics major will enable a student to complete the requirements for a double major in physics and geology.

Electronics (~~16~~24 hours)

[PHYS 3213](#) Electronics in Experimental Physics (Odd years, Sp)

[PHYS 4333](#) Thermal Physics (Sp)

10 semester hours numbered 3000 and above in physics or astronomy.

Optics (~~16~~24 hours)

[PHYS 3544](#) Optics (Fa)

[PHYS 4734](#) Introduction to Laser Physics (Sp)  
 or [PHYS 4774](#) Introduction to Optical Properties of Materials (Odd years, Sp)  
 8 semester hours numbered 3000 and above in physics or astronomy.

Professional [\(16 hours\)](#)

[PHYS 3113](#) Analytical Mechanics (Fa)

[PHYS 4333](#) Thermal Physics (Sp)

10 semester hours numbered 3000 and above in physics or astronomy.

For all ~~six~~ [seven](#) of the possible concentrations the following mathematics courses are required:

[MATH 2554](#) Calculus I (ACTS Equivalency = MATH 2405) (Sp, Su, Fa) 4

[MATH 2564](#) Calculus II (ACTS Equivalency = MATH 2505) (Sp, Su, Fa) 4

[MATH 2574](#) Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) 4

[MATH 2584](#) Differential Equations and Laplace Transform (Sp, Su, Fa) 4

[MATH 3423](#) Advanced Applied Mathematics (Sp, Su, Fa) <sup>1</sup> 3

[CHEM 1103](#) University Chemistry I (Su, Fa)  
 and University of Chemistry I Laboratory (Sp, Su, Fa)

& [CHEM 1101L](#) and University Chemistry II (ACTS Equivalency = CHEM 1004  
 & [CHEM 1123](#) Lecture) (Sp, Su, Fa) 8

& [CHEM 1121L](#) and University Chemistry II Laboratory (ACTS Equivalency = CHEM  
 1004 Lab) (Sp, Su, Fa) <sup>2</sup>

Total Hours 67-  
75

\* Note: astronomy, biology, chemistry, ~~and~~ computer science, ~~and~~ geosciences courses as specified within the concentration requirements listed below can be applied to this ~~40-39~~ hours.

<sup>1</sup> [CSCE 3513](#), [CSCE 4423](#), ~~or~~ [MEEG 2703](#), ~~or~~ [GEOL 4223](#) can be substituted for [MATH 3423](#) 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 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 Geophysics 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.

	Units	
	Fall	Spring
<a href="#">ENGL 1013</a> Composition I (ACTS Equivalency = ENGL 1013) (Sp, Su, Fa)	3	
<a href="#">MATH 2554</a> Calculus I (ACTS Equivalency = MATH 2405) (Sp, Su, Fa) <sup>1</sup>	4	
<a href="#">PHYS 2054</a> University Physics I (ACTS Equivalency = PHYS 2034) (Sp, Su, Fa) <sup>1</sup>	4	
CHEM 1103 University Chemistry I (Su, Fa) & CHEM 1101L University Chemistry I Laboratory	4	
<a href="#">ENGL 1023</a> Composition II (ACTS Equivalency = ENGL 1023) (Sp, Su, Fa)		3
<a href="#">PHYS 2074</a> University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Sp, Su, Fa) <sup>1</sup>		4

<a href="#">MATH 2564</a> Calculus II (ACTS Equivalency = MATH 2505) (Sp, Su, Fa) <sup>1</sup>	4	
GEOL 1113 General Geology & GEOL 1111L General Geology Lab	4	
Year Total:	15	15
<b>Second Year</b>		
	<b>Units</b>	
	<b>Fall</b>	<b>Spring</b>
<a href="#">PHYS 2094</a> University Physics III (Fa) <sup>1</sup>	4	
<a href="#">MATH 2584</a> Differential Equations and Laplace Transform (Sp, Su, Fa) <sup>1,2</sup>	4	
<a href="#">CHEM 1123</a> University Chemistry II (ACTS Equivalency = CHEM 1004 Lecture) (Sp, Su, Fa) & <a href="#">CHEM 1121L</a> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1004 Lab) (Sp, Su, Fa)	4	
GEOL 2313 Mineralogy and Petrology	3	
<a href="#">PHYS 3613</a> Modern Physics (Sp, Su, Fa) <sup>1,2</sup>		3
<a href="#">MATH 2574</a> Calculus III (ACTS Equivalency = MATH 2603) (Sp, Su, Fa) <sup>1</sup>		4
GEOL 3413 Sedimentary Rocks and Fossils		3
University/State Core Social Science Requirement		3
General Elective		1
Year Total:	15	13
<b>Third Year</b>		
	<b>Units</b>	
	<b>Fall</b>	<b>Spring</b>
PHYS 3113 Analytical Mechanics (Fa) <sup>2</sup>	3	
GEOL 4223 Stratigraphy and Sedimentation Lab	3	
GEOG 3383 Principles of Landscape Evolution/Lab (recommended) or Group G <sup>2</sup>	3	
University/State Core Social Science requirement	3	
University/State Core History requirement	3	
GEOL 3514 Structural Geology <sup>2</sup>		4
University/State Core Social Science requirement		3
Group G <sup>2</sup> (recommended) or Elective		3
Group G <sup>2</sup> (recommended) or Elective		3
Group G <sup>2</sup> (recommended) or Electives, if GEOL 4666 will not be taken in summer		0-3
Year Total:	15	13-16
<b>Summer Semester Third Year</b>		
(required only for students pursuing double-major in Physics and Geology)	<b>Units</b>	
	<b>Summer</b>	
GEOL 4666 Geology Field Camp <sup>2</sup>	0-6	
<b>Fourth Year</b>		
	<b>Units</b>	
	<b>Fall</b>	<b>Spring</b>
<a href="#">PHYS 4073</a> Introduction to Quantum Mechanics (Fa) <sup>2,3</sup>	3	
Group G <sup>2</sup> (recommended) or Elective	3	
Group G <sup>2</sup> (recommended) or Elective	3	
University/State Core Humanities or Fine Arts requirement (as needed)	3	
Group G <sup>2</sup> (recommended) or Electives, if GEOL 4666 not taken in prior summer term	0-3	
<a href="#">PHYS 3414</a> Electromagnetic Theory (Sp) <sup>2</sup>		4
<a href="#">PHYS 4991</a> Physics Senior Seminar (Sp, Su, Fa) <sup>2</sup>		1
Group G <sup>2</sup> (recommended) or Elective		3
GEOL 4924 Earth Systems History <sup>2</sup>		4
University/State Core Finer Arts or Humanities requirement (as needed)		3
Year Total:	12-15	15
Total Units in Sequence:	120	

<sup>1</sup> Meets 40-hour advanced credit hour requirement. See College Academic Regulations.

<sup>2</sup> 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 G: Any PHYS, GEOL or GEOS classes 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

5/12/08