

# Physics B.S. with Optics Concentration

## 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 (<http://catalog.uark.edu/undergraduatecatalog/academicregulations/eightsemesterdegreecompletionpolicy/>) in the Academic Regulations chapter for university requirements of the program as well as Fulbright College requirements.

University/state minimum core requirements may vary by individual, based on placement and previous credit granted. Once all core requirements are met, students may substitute with general electives. Students should consult with their academic advisors.

First Year	Units	
	Fall	Spring
ENGL 1013 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1) <sup>1</sup>	4	
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)	4	
Fine Arts State Minimum Core (Satisfies General Education Outcome 3.1) <sup>2</sup>	3	
General Electives	1	
ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.1)		3
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)		4
PHYS 2074 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Satisfies General Education Outcome 3.4)		4
Humanities State Minimum Core (Select a course which satisfies both General Education Outcomes 3.2 and 5.1) <sup>3</sup>		3
General Electives		1
Year Total:	15	15

Second Year	Units	
	Fall	Spring
MATH 2574 Calculus III (ACTS Equivalency = MATH 2603)	4	
PHYS 2094 University Physics III	4	
Select one of the following four-hour science lecture/lab combinations:	4	

CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)

CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

CSCE 2004 Programming Foundations I

CSCE 2014 Programming Foundations II

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 (ACTS Equivalency = BIOL 1014 Lecture)

GEOS 1113 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) & GEOS 1111L Physical 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.

U.S. History or Government State Minimum Core (Satisfies General Education Outcome 4.2) 3

MATH 2584 Elementary Differential Equations 4

PHYS 3613 Modern Physics 3

Select one of the following four-hour science lecture/lab combinations: 4

CHEM 1103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) & CHEM 1101L University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)

CHEM 1123 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture) & CHEM 1121L University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)

CSCE 2004 Programming Foundations I

CSCE 2014 Programming Foundations II

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 (ACTS Equivalency = BIOL 1014 Lecture)

GEOS 1113 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture) & GEOS 1111L Physical 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 State Minimum Core (Select a course which satisfies both General Education Outcomes 3.3 and 4.1) <sup>4</sup>	3	
General Electives	1	
Year Total:	15	15

Third Year	Units	
	Fall	Spring
MATH 3083 Linear Algebra	3	
PHYS 3544 Optics	4	
Any PHYS or ASTR course numbered 3000 or higher	3	
Social Sciences State Minimum Core (Satisfies General Education Outcome 3.3) <sup>5</sup>	3	
General Electives	2	
PHYS 3453 Electromagnetic Theory I		3
Any PHYS or ASTR course numbered 3000 or higher		3
Social Sciences State Minimum Core (Satisfies General Education Outcome 3.3) <sup>5</sup>		3
General Electives		6
Year Total:	15	15

Fourth Year	Units	
	Fall	Spring
PHYS 4073 Introduction to Quantum Mechanics	3	
Any PHYS or ASTR course numbered 3000 or higher	3	
University Residency Requirement Electives	1	
General Electives	8	
PHYS 4991 Physics Senior Seminar (Satisfies General Education Outcomes 1.2 and 6.1)		1
PHYS 4734 Introduction to Laser Physics or PHYS 4773 Introduction to Optical Properties of Materials		3-4
General Electives		10-11
Year Total:	15	15

**Total Units in Sequence: 120**

HUMN 1124H, PHIL 2003, PHIL 2003C, PHIL 2003H, PHIL 2103, or PHIL 2103C.

<sup>4</sup> The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 1023, COMM 1023, HDFS 1403, HDFS 2413, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2013, INST 2813, INST 2813H, PLSC 2013, PLSC 2813, PLSC 2813H, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033.

<sup>5</sup> The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: AGECE 1103, AGECE 2103, ANTH 1023, COMM 1023, ECON 2013, ECON 2023, ECON 2143, EDST 2003, HDFS 1403, HDFS 2413, HDFS 2603, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2003, HIST 2013, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2013, INST 2813, INST 2813H, PLSC 2003, PLSC 2013, PLSC 2203, PLSC 2813, PLSC 2813H, PSYC 2003, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033.

<sup>1</sup> Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554.

<sup>2</sup> The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: ARCH 1003, ARHS 1003, COMM 1003, DANC 1003, LARC 1003, MLIT 1003, MLIT 1003H, MLIT 1013, MLIT 1013H, MLIT 1333, THTR 1003, THTR 1013, or THTR 1013H.

<sup>3</sup> The Humanities Elective courses which satisfy General Education Outcomes 3.2 and 5.1 include: CLST 1003, CLST 1003H, CLST 1013,