

# MAJOR MAP FOR BACHELOR OF SCIENCE IN PHYSICS CONCENTRATION IN OPTICS(PHYSBS-OPTC) 2018-19 THROUGH 2026-27 CATALOG YEARS

Name: \_\_\_\_\_ ID Number: \_\_\_\_\_ Date: \_\_\_\_\_ Anticipated Graduation Semester: \_\_\_\_\_

## PHYSBS-OPTC Degree Snapshot

### Advising Notes

### University or College Requirements

#### Overall Academic Progress (120 total Hrs required):

\_\_\_\_\_ Eligible Units in Progress (In Progress Unused Registrations: \_\_\_\_\_)  
\_\_\_\_\_ Units Satisfying + \_\_\_\_\_ Units Remaining = 120 Units Minimum (Does not include In Progress or Ineligible units)  
[Additional courses may be required to complete chosen major(s)/minor(s).]

\_\_\_\_\_ Cumulative GPA- UofA courses only, 2.0 minimum

\_\_\_\_\_ Upper-Level Enrollment Requirement- 30-hrs 30000+ at UofA. (Units remaining after in-progress)

\_\_\_\_\_ Major Residency Rule- 19 hrs PHYS courses in residence. (Units remaining after in-progress)

\_\_\_\_\_ Fulbright College 40-hour rule- 40-hrs 30000+ or 20000+ w/ prereq (Units remaining after in-progress)

### State Minimum Core Requirements

#### University Core in English Composition I (0-3 hrs)

\_\_\_\_\_ ENGL 10103/101H3 Composition I or exemption \_\_\_\_\_

#### University Core in English Composition II (0-3 hrs)

\_\_\_\_\_ ENGL 10203/102H3 Composition II or exemption \_\_\_\_\_

#### University Core in Mathematics (3 hrs possible overlap with **Calculus I**)

\_\_\_\_\_ MATH 11003 College Algebra or MATH 11103 Quantitative Reasoning (or higher MATH) \_\_\_\_\_

#### University Core in Science (8 hrs possible overlap with multiple classes in the major. Requirements that can overlap with this requirement are marked with \*\*)

\_\_\_\_\_ Science w/ lab \_\_\_\_\_

\_\_\_\_\_ Science w/ lab \_\_\_\_\_

#### University Core in US History or Government (3 hrs)

\_\_\_\_\_ US HIST/PLSC \_\_\_\_\_

#### University Core in Fine Arts (3 hrs)

\_\_\_\_\_ Fine Art \_\_\_\_\_

#### University Core in Humanities (3 hrs)

\_\_\_\_\_ Humanities \_\_\_\_\_

#### University Core in Social Sciences (9 hrs)

\_\_\_\_\_ Social Science \_\_\_\_\_

\_\_\_\_\_ Social Science \_\_\_\_\_

\_\_\_\_\_ Social Science \_\_\_\_\_

**Degree Requirements continued on Page 2 with Major Requirements**

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## Major Requirements

### University Physics I (4 hrs)\*\*

\_\_\_\_\_ PHYS 20304 University Physics I

### University Physics II (4 hrs)\*\*

\_\_\_\_\_ PHYS 20404 University Physics II

### University Physics III (4 hrs)

\_\_\_\_\_ PHYS 20504 University Physics III

### Electromagnetic Theory I (3 hrs)

\_\_\_\_\_ PHYS 34503 Electromagnetic Theory I

### Modern Physics (3 hrs)

\_\_\_\_\_ PHYS 36103 Modern Physics

### Introduction to Quantum Mechanics (3 hrs)

\_\_\_\_\_ PHYS 40703 Introduction to Quantum Mechanics

### Physics Senior Seminar (1 hr)

\_\_\_\_\_ PHYS 49901 Physics Seminar

### Calculus I (4 hrs)

\_\_\_\_\_ MATH 24004 Calculus I

### Calculus II (4 hrs)

\_\_\_\_\_ MATH 25004 Calculus II

### Calculus III (4 hrs)

\_\_\_\_\_ MATH 26004 Calculus III

### Elementary Differential Equations (4 hrs)

\_\_\_\_\_ MATH 25804 Elementary Differential Equations

### Linear Algebra (3 hrs)

\_\_\_\_\_ MATH 30803 Linear Algebra

### Additional Science for PHYSBS (8 hrs)\*\*

Choose 2 courses from the list below:

\_\_\_\_\_  
\_\_\_\_\_

## OPTC Concentration

### Optics (4 hrs)

\_\_\_\_\_ PHYS 35404 Optics

### PHYSBS-OPTC Electives check 1 (3-4 hrs)

Choose 1:

\_\_\_\_\_ PHYS 47304 Intro to Laser Physics

\_\_\_\_\_ PHYS 47703 Intro to Optical Properties of Materials

### PHYSBS-OPTC Electives check 2: 12 hrs ASTR or PHYS

30000+ (12 hrs)

Take 12 credit hours of ASTR or PHYS courses numbered 30000 level or higher. Hours for individual classes vary

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**General Electives** (23-37 hrs. Hours vary based on how much overlap students choose between major and core requirements. If required UNIV 10051 University Perspectives counts here.)

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## Graduation Plan

Use the following additional resources in addition to this major map to complete your graduation plan ([Catalog](#) and your [Academic Progress Tab](#) in Workday Student). Many students have more than one major minor or pre-professional goal that has additional required classes. This tool allows you to combine all your educational goals into one plan.

| High School credit | List all Advanced Placement International Baccalaureate Dual or Concurrent credit |        |        |                                                                 |
|--------------------|-----------------------------------------------------------------------------------|--------|--------|-----------------------------------------------------------------|
| Year               | Fall                                                                              | Spring | Summer | Total                                                           |
| Year 1             |                                                                                   |        |        | Total 1 <sup>st</sup> year credit hours (aim for 30):           |
| Year 2             |                                                                                   |        |        | Total 2 <sup>nd</sup> year credit hours (aim for 60):           |
| Year 3             |                                                                                   |        |        | Total 3 <sup>rd</sup> year credit hours (aim for 90):           |
| Year 4             |                                                                                   |        |        | Total 4 <sup>th</sup> year credit hours (Must be at least 120): |

Please visit <https://catalog.uark.edu/undergraduatecatalog> for an extensive list of core major graduation and pre-requisite requirements. To read more about individual classes visit the [courses of instruction](#) page for course descriptions.

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## Degree Requirement Breakdown by Category

The following information is designed to help you navigate your experience in your degree and answer common questions that may come up for each requirement. All requirements for graduation are documented on the [Catalog of Studies](#).

| <a href="#">University or College Requirements</a>                       |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| Academic Requirement Name                                                | Catalog Requirement                                                                                                                                                                    | Additional Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Overall Academic Progress</b>                                         | <ul style="list-style-type: none"> <li>Overall Academic Progress: 120 graduation eligible hours required</li> </ul>                                                                    | <ul style="list-style-type: none"> <li><a href="#">Overall Academic Progress</a>: Students must earn a minimum of 120 credit hours. The total number of hours required to complete specific major and minor combinations may vary beyond 120 hours.</li> <li>Graduation Eligible Hours: The following classes are not eligible for degree credit- ENGL 00001 ENGL 00101 MATH 00101 MATH 00202 MATH 01101 any duplicate credit where a course is not listed as repeatable in the catalog. These classes may show up in Workday Student as in-progress hours, but they will not post as units satisfying Overall Academic Progress when grades post.</li> </ul> |
| <b>Cumulative GPA</b>                                                    | <ul style="list-style-type: none"> <li>GPA: must be 2.0 or higher</li> </ul>                                                                                                           | <ul style="list-style-type: none"> <li><a href="#">GPA</a>: Students must maintain a 2.0 Grade Point Average (GPA) to remain in good standing and be eligible for graduation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Upper-Level Enrollment Requirement</b>                                | <ul style="list-style-type: none"> <li>Upper-Level Enrollment Requirement: minimum 30 hours 30000+ taken in residence</li> </ul>                                                       | <ul style="list-style-type: none"> <li><a href="#">Upper-Level Enrollment Requirement</a> (30-hr rule): Students are required to take at least 30 credit hours of upper-level (30000+) courses in residence. This includes UA faculty-led study abroad classes online/on-campus classes and courses offered through the Global Campus; and all other courses paid toward Fayetteville campus tuition and fees.</li> </ul>                                                                                                                                                                                                                                     |
| <b>PHYSBS Residency Rule</b>                                             | <ul style="list-style-type: none"> <li>PHYSBS Residency Rule: minimum 19 hours PHYS courses taken in residence</li> </ul>                                                              | <ul style="list-style-type: none"> <li><a href="#">Residency Rule</a>: Students must take at least 50% of their program (i.e. major or minor) requirements in residence. For programs that require classes from other departments this rule is defined only by required classes from the program's home department.</li> </ul>                                                                                                                                                                                                                                                                                                                                |
| <b>Fulbright College 40-Hour Rule</b>                                    | <ul style="list-style-type: none"> <li>Fulbright College 40-hour rule: minimum 40 hours upper-level. Includes all 30000+ courses and 20000+ if the course has prerequisite.</li> </ul> | <ul style="list-style-type: none"> <li><a href="#">Fulbright College 40-hour rule</a>: Students must take at least 40 credit hours of upper-level courses. This includes courses numbered 30000 level or above or 20000 level courses if the course has a prerequisite. It is not limited to courses taken in residence.</li> </ul>                                                                                                                                                                                                                                                                                                                           |
| <a href="#">State Minimum Core Requirements</a>                          |                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <a href="#">University Core in English Composition I</a><br><br>0-3 hrs  | <ul style="list-style-type: none"> <li>ENGL 10103/101H3 Composition I or SAT/ACT exemption</li> </ul>                                                                                  | See <a href="#">Catalog</a> for information about placement and/or exemption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <a href="#">University Core in English Composition II</a><br><br>0-3 hrs | ENGL 10203/102H3 Composition II or SAT/ACT exemption                                                                                                                                   | See <a href="#">Catalog</a> for information about placement and/or exemption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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| <p><u>University Core in Mathematics</u></p> <p><b>3 hrs</b></p> | <p>Choose 1:</p> <ul style="list-style-type: none"> <li>• MATH 11003 College Algebra</li> <li>• MATH 11103 Quantitative Reasoning</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p>Based on ACT/SAT or other math placement scores students may need to enroll in additional remediation related courses. See <a href="#">catalog</a> or <a href="#">math placement</a> website for additional information.</p> |
| <p><u>University Core in Science</u></p> <p><b>8 hrs</b></p>     | <p>Choose 2: (each class will have a required lecture and lab component):</p> <ul style="list-style-type: none"> <li>• ANTH 10143/ANTH 10141 Intro to Biological Anthropology (or ANTH 101H3/101H1)</li> <li>• ASTR 20003/20001 Survey of the Universe (or ASTR 200H3/200H1)</li> <li>• BIOL 10004 Biological Principles</li> <li>• BIOL 10103/10101 Principles of Biology (or BIOL 154H3/154H1)</li> <li>• BIOL 10104 Biology for Majors</li> <li>• BIOL 10303/10301 Plant Biology</li> <li>• BIOL 10503/10501 Principles of Zoology</li> <li>• BIOL 24003/24001 Human Anatomy</li> <li>• BIOL 24103/24101 Human Physiology</li> <li>• CHEM 10003/10001 Chemistry in the Modern World</li> <li>• CHEM 12103/12101 Fundamentals of Chemistry</li> <li>• CHEM 12073/12071 Chemistry for Majors I</li> <li>• CHEM 12283/12281 Chemistry for Majors II</li> <li>• CHEM 14103/14101 University Chemistry I</li> <li>• CHEM 14203/14201 University Chemistry II (or CHEM 142H3/142H1)</li> <li>• ENSC 10003/10001 Environmental Science (or ENSC 100H3/100H1)</li> <li>• ENTO 10203/10201 Insects Science and Society</li> <li>• GEOL 11103/11101 Physical Geology (or GEOL 111H3/111H1)</li> <li>• GEOL 11203/11201 Earth Science</li> <li>• GEOS 11504 Introduction to Geology for Science Majors</li> <li>• PHYS 10243/10241 Physics and Human Affairs (or PHYS 102H3/102H1)</li> <li>• PHYS 10304 Physics for Elementary Education Majors</li> <li>• PHYS 10404 Physics for Architects I</li> <li>• PHYS 10504 Physics for Architects II</li> <li>• PHYS 20103/20101 College Physics I</li> <li>• PHYS 20203/20201 College Physics II</li> </ul> | <p>Some classes will have pre-requisites</p>                                                                                                                                                                                    |

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|                                                                                        | <ul style="list-style-type: none"> <li>• PHYS 20304 University Physics I (or PHYS 203H4)</li> <li>• PHYS 20404 University Physics II (or PHYS 204H4)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |
| <a href="#"><u>University Core in US History or Government</u></a><br><br><b>3 hrs</b> | Choose 1: * <ul style="list-style-type: none"> <li>• HIST 20003 History of the American People to 1877</li> <li>• HIST 20103 History of the American People 1877 to Present</li> <li>• PLSC 20003 American National Government (or PLSC 200H3)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | *Some courses may appear as options in multiple areas of the State Minimum Core. You can only count each course one time in State Minimum Core categories. |
| <a href="#"><u>University Core in Fine Arts</u></a><br><br><b>3 hrs</b>                | Choose 1: * <ul style="list-style-type: none"> <li>• ARCH 10003 Architecture Lecture (or ARCH 100H3)</li> <li>• ARHS 10003 Art Lecture (or ARHS 100H3)</li> <li>• COMM 10003 Film Lecture (or COMM 100H3)</li> <li>• DANC 10003 Dance Appreciation</li> <li>• ENGL 20103 Creative Writing 1</li> <li>• HUMN 211H4 Honors Birth of Modern Culture 1600-1900 (honors only)</li> <li>• LARC 10003 The American Landscape (or LARC 100H3)</li> <li>• MUSC 10003 Experiencing Music (or MUSC 100H3)</li> <li>• MLIT 10103 Music and Society (music majors only. Or MLIT 101H3)</li> <li>• MLIT 13303 Popular Music</li> <li>• THTR 10003 Theatre Appreciation (or THTR 100H3)</li> <li>• THTR 10103 Musical Theatre Appreciation (or THTR 101H3)</li> <li>• THTR 16803 Acting I</li> <li>• THTR 18803 Acting 1 for Theatre majors</li> </ul> | *Some courses may appear as options in multiple areas of the State Minimum Core. You can only count each course one time in State Minimum Core categories. |
| <a href="#"><u>University Core in Humanities</u></a><br><br><b>3 hrs</b>               | Choose 1: * <ul style="list-style-type: none"> <li>• AAST 20203 The African American Experience</li> <li>• ANTH 10303 Introduction to Archeology</li> <li>• ARCH 10103 Diversity and Design (or ARCH 101H3)</li> <li>• CLST 10003 Introduction to Classical Studies: Greece (or CLST 100H3)</li> <li>• CLST 10103 Introduction to Classical Studies: Rome (or CLST 101H3)</li> <li>• COMM 12303 Media Community and Citizenship (or COMM 123H3)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                              | *Some courses may appear as options in multiple areas of the State Minimum Core. You can only count each course one time in State Minimum Core categories. |

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|                                                                               | <ul style="list-style-type: none"> <li>• DANC 10003 Dance Appreciation</li> <li>• DASC 21303 Data Privacy &amp; Ethics</li> <li>• ENGL 11103 World Literature: Beginnings to 1650 CE (or ENGL 111H3)</li> <li>• ENGL 11203 World Literature: 1650 CE to Present (or ENGL 112H3)</li> <li>• ENGL 12103 Introduction to Literature (or ENGL 121H3)</li> <li>• ENGL 20103 Creative Writing I</li> <li>• GNST 20003 Introduction to Gender Studies (or GNST 200H3)</li> <li>• HUMN 112H4 Honors Equilibrium of Cultures 500-1600 (Honors only)</li> <li>• HUMN 22103 Introduction to World Religions</li> <li>• LALS 20103 Introduction to Latin American and Latino Studies</li> <li>• MRST 20103 Introduction to Medieval and Renaissance Studies</li> <li>• MUSY 20003 Music in World Cultures (or MUSY 200H3)</li> <li>• PHIL 20003 Introduction to Philosophy (or PHIL 200H3)</li> <li>• PHIL 21003 Introduction to Ethics</li> <li>• PHIL 22003 Logic</li> <li>• PHIL 23003 Human Nature and the Meaning of Life</li> <li>• PHIL 31003 Ethics and the Professions</li> <li>• THTR 10003 Theatre Appreciation (or THTR 100H3)</li> <li>• THTR 10103 Musical Theatre Appreciation (or THTR 101H3)</li> <li>• Any Intermediate level world language numbered at the 20000 level</li> </ul> |                                                                                                                                                                                                                             |
| <a href="#"><u>University Core in Social Sciences</u></a><br><br><b>9 hrs</b> | Choose 3: * <ul style="list-style-type: none"> <li>• AGECE 11003 Principles of Agriculture Microeconomics (or AGECE 110H3)</li> <li>• AGECE 21003 Principles of Agriculture Macroeconomics (or AGECE 210H3)</li> <li>• ANTH 10203 Intro to Cultural Anthropology (or ANTH 102H3)</li> <li>• COMM 10203 Communication in a Diverse World (or ANTH 102H3)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Students must take classes from at least two departments.<br><br>*Some courses may appear as options in multiple areas of the State Minimum Core. You can only count each course one time in State Minimum Core categories. |

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- ECON 21003 Principles of Macroeconomics (or ECON 210H3)
- ECON 22003 Principles of Microeconomics (or ECON 220H3)
- ECON 21403 Basic Economics: Theory and Practice (or ECON 214H3)
- GEOG 11103 Human Geography (or GEOG 111H3)
- GEOG 21003 World Regional Geography (or GEOG 210H3)
- HDFS 14003 Life Span Development (HDFS 140H3)
- HDFS 24103 Family Relations (or HDFS 241H3)
- HDFS 26003 Rural Families & Communities (HDFS 260H3)
- HIST 11193 Institutions and Ideas of World Civilizations I (or HIST 111H3)
- HIST 11293 Institutions and Ideas of World Civilizations II (or HIST 112H3)
- HIST 20003 History of the American People to 1877
- HIST 20103 History of the American People 1877 to Present
- HIST 20903 Animals in World History
- HUMN 111H4 Honors Roots of Culture to 500 C.E. (Honors only)
- HUMN 211H4 Honors Birth of Modern Culture 1600-1900 (honors only)
- INST 20103 Introduction to International and Global Studies
- INST 211H4 Honors Pathways to Global and Social Change
- JOUR 10203 Media and Society
- PLSC 20003 American National Government (or PLSC 200H3)
- PLSC 20103 Intro to Comparative Politics
- PLSC 21003 State and Local Government
- PLSC 28103 Intro to International Relations (or PLSC 281H3)
- PSYC 20003 General Psychology (or PSYC 200H3)
- RESM 28503 Leisure and Society (or RESM 285H3)

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|                                                              | <ul style="list-style-type: none"> <li>• SOCI 10103 General Sociology (or SOCI 201H3)</li> <li>• SOCI 20103 Social Problems</li> <li>• STEM 20003 The Art of STEM Communication</li> </ul> |                                                                                                                                                                                                                               |
| <b><u>Major Requirements</u></b>                             |                                                                                                                                                                                            |                                                                                                                                                                                                                               |
| <b><u>University Physics I</u></b><br><br>4 hrs              | PHYS 20304 University Physics I<br>(Co-req: MATH 24004 Calculus I)                                                                                                                         | Prerequisites for MATH and STAT courses may vary based on math placement. See <a href="#">catalog</a> and <a href="#">placement chart</a> for more information.                                                               |
| <b><u>University Physics II</u></b><br><br>4 hrs             | PHYS 20404 University Physics II<br>(Pre-req: PHYS 20304 University Physics I.<br>Co-req: MATH 25004 Calculus II.)                                                                         |                                                                                                                                                                                                                               |
| <b><u>University Physics III</u></b><br><br>4 hrs            | PHYS 20504 University Physics III<br>(Pre-req: PHYS 20404 University Physics III.<br>Co-req: MATH 26004 Calculus III)                                                                      | Students may take MEEG 24003 and MEEG 35003 in lieu of PHYS 20504. Students will need to ask their department advisor to get this substitution once they are done with both courses.                                          |
| <b><u>Electromagnetic Theory I</u></b><br><br>3 hrs          | PHYS 34503 Electromagnetic Theory I<br>(Pre-rq: MATH 26004 Calculus III and PHYS 20404 Calculus II.<br>Co-Req: MATH 25804 Elementary Differential Equations)                               |                                                                                                                                                                                                                               |
| <b><u>Modern Physics</u></b><br><br>3 hrs                    | PHYS 36103 Modern Physics<br>(Pre-req: PHYS 20404 University Physics II)                                                                                                                   |                                                                                                                                                                                                                               |
| <b><u>Introduction to Quantum Mechanics</u></b><br><br>3 hrs | PHYS 40703 Introduction to Quantum Mechanics<br>(Pre-req: PHYS 36103 Modern Physics, MATH 26003 Calculus III, and MATH 25804 Elementary Differential Equations)                            |                                                                                                                                                                                                                               |
| <b><u>Physics Senior Seminar</u></b><br><br>1 hr             | PHYS 49901 Physics Seminar                                                                                                                                                                 | A written report of a physics or astronomy research project must be submitted during Senior Seminar.                                                                                                                          |
| <b><u>Calculus I</u></b><br><br>4 hrs                        | MATH 24004 Calculus 1<br>(Possible Pre-req: MATH 11003 with a C or higher and MATH 12003 or 13004 with a C or higher or Math placement)                                                    | MATH 24005 Calculus I with Review may also count here.<br><br>Prerequisites for MATH and STAT courses may vary based on math placement. See <a href="#">catalog</a> and <a href="#">placement chart</a> for more information. |
| <b><u>Calculus II</u></b><br><br>4 hrs                       | MATH 25004 Calculus II<br>(Pre-req: MATH 24004 Calculus I with a grade of C or better)                                                                                                     | Students must earn a C or higher to use a class as a pre-requisite.                                                                                                                                                           |
| <b><u>Calculus III</u></b><br><br>4 hrs                      | MATH 26004 Calculus III<br>(Pre-req: MATH 25004 Calculus II with a grade of C or better)                                                                                                   | Students must earn a C or higher to use a class as a pre-requisite.                                                                                                                                                           |
| <b><u>Elementary Differential Equations</u></b><br><br>4 hrs | MATH 25804 Elementary Differential Equations<br>(Pre-req: MATH 25004 Calculus II with a grade of C or better)                                                                              | Students must earn a C or higher to use a class as a pre-requisite.                                                                                                                                                           |

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| <a href="#">Linear Algebra</a><br><br><b>3 hrs</b>                                              | MATH 30803 Linear Algebra<br>(Pre-req: MATH 24004 Calculus I or MATH 22004 Survey of Calculus with a C or better)                                                                                                                                                                                                                                                                                                                                                        | Students must earn a C or higher to use a class as a pre-requisite.<br>Students may not receive credit for both MATH 30903 and MATH 30803. If students took MATH 30903 instead of MATH 30803 they should seek substitution from the department.<br>MEEG 27003 can be substituted for MATH 30803. Students will need to ask their department advisor to get this substitution.                                                 |
| <a href="#">Additional Science for PHYSBS</a><br><br><b>8 hrs</b>                               | <b>Choose 2 sciences from below:</b> <ul style="list-style-type: none"> <li>• CHEM 14103/14101 University Chemistry I*</li> <li>• CHEM 14203/14101 University Chemistry II</li> <li>• CSCE 20004 Programming Foundations I</li> <li>• CSCE 20104 Programming Foundations II</li> <li>• BIOL 10103/10101 Principles of Biology</li> <li>• BIOL 10104 Biology for Majors</li> <li>• GEOL 11103/11101 Physical Geology</li> <li>• GEOL 11203/11201 Earth Science</li> </ul> | *Students may count GNEG 11101 in lieu of CHEM 14101. Students will need to ask their academic advisor to adjust their degree audit.<br><br>**Student may also count MEEG 32002 and 32102 for 4 hours of non-Physics Sciences. Students will need to ask their academic advisor to adjust their degree audit.<br><br>Some courses may have additional <a href="#">prerequisites</a>                                           |
| <b>OPTC Concentration</b>                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <a href="#">Optics</a><br><br><b>4 hrs</b>                                                      | PHYS 35404 Optics<br>(Pre-req: PHYS 20404 University Physics II and MATH 25004 Calculus II)                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <a href="#">PHYSBS-OPTC Electives check 1</a><br><br><b>3-4 hrs*</b>                            | <b>Choose 1:</b> <ul style="list-style-type: none"> <li>• PHYS 47304 Intro to Laser Physics (Pre-req: PHYS 35404 Optics)</li> <li>• PHYS 47703 Intro to Optical Properties of Materials (Pre-req: PHYS 35404 Optics)</li> </ul>                                                                                                                                                                                                                                          | <b>*This is an overlapping requirement. Courses taken for this requirement will also count in PHYSBS-OPTC Electives check 2: 12 hrs ASTR or PHYS 30000+</b>                                                                                                                                                                                                                                                                   |
| <a href="#">PHYSBS-OPTC Electives check 2: 12 hrs ASTR or PHYS 30000+</a><br><br><b>12 hrs*</b> | Take 12 credit hours of ASTR or PHYS courses numbered 30000 level or higher.                                                                                                                                                                                                                                                                                                                                                                                             | <b>* This is an overlapping requirement. Courses taken for PHYSBS-OPTC Electives check 1 will also count here.</b><br><br>Some courses may have additional <a href="#">prerequisites</a>                                                                                                                                                                                                                                      |
| <a href="#">General Electives</a><br><br><b>23-37 hrs</b>                                       | Hours will vary depending on concentration choice, possible overlap in major, and whether a student is exempt from ENGL 10103, ENGL 10203, and UNIV 10051.*                                                                                                                                                                                                                                                                                                              | Some general electives may need to be upper-level to meet college and university residency requirements.<br><br>* UNIV 10051 (or an equivalent course) is required for all incoming freshmen. Some students may have taken one of the following courses instead: AFLS 102H3, BUSI/WCOB 11101, BUSI/WCOB 111H1, GNEG 11101, GNEG 111H1, HIST 1003(H), HIST 10001, HIST 100H1, PLSC 10003, PLSC 100H3, STEM 12001. Students who |

## MAJOR MAP FOR BACHELOR OF SCIENCE IN PHYSICS CONCENTRATION IN OPTICS(PHYSBS-OPTC) 2018-19 THROUGH 2026-27 CATALOG YEARS

|                        |                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        |                                                                                                                                                                                                                                                                                                                                          | transfer to the University of Arkansas with at least 24 credit hours are not required to take UNIV 10051.                                                                                                                                                                                                                                                                                                                                         |
| <a href="#">Honors</a> | <p><b>Minimum Requirements for Honors:</b></p> <ul style="list-style-type: none"> <li>• Maintain cumulative grade point average of 3.5.</li> <li>• Complete Honors <a href="#">Capstone Project</a></li> <li>• Complete all required Honors Courses</li> </ul> <p>See <a href="#">Catalog</a> for full description of requirements.*</p> | <p><b>Honors Capstone Project Timeline:</b> Honors students should consistently work with their academic advisor and thesis advisor to ensure they stay on track with their honors requirements, but can consult the <a href="#">Fulbright Honors</a> SharePoint for important dates.</p> <p>* Students following honors requirements from a catalog earlier than 2025-26 should consult with their academic advisor to confirm requirements.</p> |