

# PHYSICS, BACHELOR OF ARTS

To obtain a B.A. with a major in Physics, a student must fulfill university, college, and departmental requirements. Hour requirements follow:

- 46 hours of University General Education courses  
Most commonly, Physics majors do not complete 46 hours of coursework solely for the purpose of meeting University General Education requirements. Instead, they often test out of at least three hours of fundamental academic skills, take courses that meet both the six hours of diversity requirements and six hours of distribution requirements, and meet four hours of the natural sciences distribution requirement through completing major courses. In such cases, the number of credit hours taken solely to meet General Education requirements is reduced to 33 or fewer.
- 16 hours of a foreign language
- 12-19 hours college breadth requirement
- 49 hours of major courses
- 0-9 hours of electives

TOTAL HOURS: 120

## Requirements

Code	Title	Credits
<b>Introductory Physics and Math Courses</b>		
PHYS 1950	PHYSICS GATEWAY COURSE	1
PHYS 2110 & PHYS 1154	GENERAL PHYSICS I - CALCULUS LEVEL and GENERAL PHYSICS LABORATORY I	5
PHYS 2120 & PHYS 1164	GENERAL PHYSICS-CALCULUS LEVEL and GENERAL PHYSICS LABORATORY II	5
PHYS 2130	MODERN PHYSICS	4
PHYS 3250	MATHEMATICAL METHODS OF PHYSICS 1	3
MATH 1950	CALCULUS I	5
MATH 1960	CALCULUS II	4
MATH 1970	CALCULUS III	4
<b>Physics Core Courses</b>		
PHYS 3450	CLASSICAL MECHANICS	3
PHYS 3600	THERMODYNAMICS AND STATISTICAL PHYSICS	3
PHYS 3750	ELECTRICITY AND MAGNETISM I	3
PHYS 3800	OPTICS	3
PHYS 4200	INTRODUCTION TO QUANTUM MECHANICS	3
<b>Advanced Laboratory</b>		
PHYS 3504	EXPERIMENTAL PHYSICS I	1
Select one of the following:		1
PHYS 3524	EXPERIMENTAL MATERIALS SCIENCE	
PHYS 3544	EXPERIMENTAL PHYSICS III	
PHYS 3564	EXPERIMENTAL PHYSICS IV	
<b>Senior Project</b>		
In addition to the above requirements, a senior project is required, for which students must register for PHYS 4950 or PHYS 4960. <sup>2</sup>		
PHYS 4950	PROBLEMS IN PHYSICS	1

or PHYS 4960	PROBLEMS IN PHYSICS	
<b>Total Credits</b>		<b>49</b>

- <sup>1</sup> Students taking a number of 2000-level mathematics courses may be permitted to waive PHYS 3250 or PHYS 3260.
- <sup>2</sup> Please see more details about the senior project in the "Other Information" portion of the physics section.

## For the B.A. degree, foreign language is required through the intermediate level.

<b>Freshman</b>		<b>Credits</b>
<b>Fall</b>		
ENGL 1150	ENGLISH COMPOSITION I (*)	3
MATH 1950	CALCULUS I (**)	5
PHYS 1950	PHYSICS GATEWAY COURSE	1
Foreign Language Course 1110***		5

\*ENGL 1150: Requires appropriate placement.

\*\*MATH 1950: Requires placement through the Accuplacer or ALEKS Exam or ACT or SAT scores OR grades of C- or better within the past 2 years in both Math 1320 and 1330 or Math 1340.

\*\*\*Level 1110 foreign language courses count as a Humanity/Fine Arts course, Global Diversity, and toward the student's BA requirement. If student is fulfilling the BA requirement via alternative methods, then 16 additional credits including a HFA and Global Diversity will need to be factored in to this degree plan.

<b>Spring</b>		<b>Credits</b>	<b>14</b>
MATH 1960	CALCULUS II	4	
PHYS 2110 & PHYS 1154	GENERAL PHYSICS I - CALCULUS LEVEL and GENERAL PHYSICS LABORATORY I (*)	5	
Foreign Language Course 1120		5	
*PHYS 2110: Requires MATH 1950.			

<b>Sophomore</b>		<b>Credits</b>	<b>14</b>
<b>Fall</b>			
MATH 1970	CALCULUS III	4	
CMST 1110 or CMST 2120	PUBLIC SPEAKING FUNDS or ARGUMENTATION AND DEBATE	3	
PHYS 2120 & PHYS 1164	GENERAL PHYSICS-CALCULUS LEVEL and GENERAL PHYSICS LABORATORY II (*, **)	5	
Foreign Language Course 2110		3	
*PHYS 2120: Requires PHYS 2110-1154 and MATH 1960.			
**PHYS 2120-1164 counts as the A&S Additional Gen Ed Natural Science with Lab.			

<b>Spring</b>		<b>Credits</b>	<b>15</b>
ENGL 1160	ENGLISH COMPOSITION II (*)	3	
HIST 1000 or Course towards Minor/2nd Major**		3	
PHYS 2130	MODERN PHYSICS (***)	4	
PHYS 3250	MATHEMATICAL METHODS OF PHYSICS (^)	3	
Foreign Language Course 2120		3	
*ENGL 1160: Requires ENGL 1150 or placement via AP or EPPE.			
**A&S College Requirement Options			

\*\*\*PHYS 2130: Requires PHYS 2110, PHYS 2120, MATH 1950, and MATH 1960.  
 ^PHYS 3250: Requires MATH 1950, 1960, 1970, and PHYS 2120.

		<b>Credits</b>	<b>16</b>
<b>Junior</b>			
<b>Fall</b>			
ENGL 3980	TECHNICAL WRITING ACROSS THE DISCIPLINES (*)	3	
HIST 1010 or Course towards Minor/2nd Major**		3	
PHYS 3504	EXPERIMENTAL PHYSICS I (***)	1	
PHYS 3750	ELECTRICITY AND MAGNETISM I (^)	3	
Social Science & US Diversity Course		3	
Humanities/Fine Arts Course		3	
*ENGL 3980: Requires ENGL 1160			
**A&S College Requirement Options			
***PHYS 3504: Requires PHYS 2120.			
^PHYS 3750: Requires MATH 1950, 1960, 1970, and PHYS 3250.			

		<b>Credits</b>	<b>16</b>
<b>Spring</b>			
PHYS 3450	CLASSICAL MECHANICS (*)	3	
PHYS 3800	OPTICS (**)	3	
Natural/Physical Science no Lab***		3	
Humanities/Fine Arts course^		3	
Social Science		3	
*PHYS 3450: Requires MATH 1970 and PHYS 3250.			
**PHYS 3800: Requires PHYS 2120 and MATH 1970.			
***NPS Must be in a field other than PHYS.			
^HFA must be in a 2nd discipline.			

		<b>Credits</b>	<b>15</b>
<b>Senior</b>			
<b>Fall</b>			
PHYS 3544 or PHYS 3524 or PHYS 3564	EXPERIMENTAL PHYSICS III (*) or EXPERIMENTAL MATERIALS SCIENCE or EXPERIMENTAL PHYSICS IV	1	
PHYS 3600	THERMODYNAMICS AND STATISTICAL PHYSICS (**)	3	
PHYS 4200	INTRODUCTION TO QUANTUM MECHANICS (***)	3	
Humanities and Fine Arts for A&S or Course towards Minor/2nd Major^		3	
Social Science#		3	
*PHYS 3544: Requires PHYS 2120.			
**PHYS 3600: Requires PHYS 2120 and MATH 1970.			
***PHYS 4200: Requires PHYS 3250.			
^A&S College Requirement Options. HFA Must be in a 3rd discipline.			
#SS Must be in a 2nd discipline.			

		<b>Credits</b>	<b>13</b>
<b>Spring</b>			
PHYS 4950 or PHYS 4960	PROBLEMS IN PHYSICS (*) or PROBLEMS IN PHYSICS	1-3	
Social Science Gen Ed for A&S or Course towards Minor/2nd Major**		3	
Elective or Course towards Minor/2nd Major		3	
Elective or Course towards Minor/2nd Major		3	
Elective***, ^		3	

		<b>Credits</b>	<b>16-18</b>
<b>Elective***, ^</b>			
*PHYS 4950 and 4960: Requires PHYS 2120 and permission of instructor. See "Graduation Requirements" below for more information.			
**A&S College Requirement Options. SS Must be in a 3rd discipline			
***27 upper level credits throughout the entire degree are required. Electives may need to be taken at the 3000-4000 level to reach this minimum.			
^120 total credits required for degree. Electives are used to reach that minimum amount.			
		<b>Credits</b>	<b>16-18</b>
		<b>Total Credits</b>	<b>119-121</b>

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

This plan is not a contract and curriculum is subject to change

**Additional Information About this Plan:**

**University Degree Requirements:**

The minimum number of hours for a UNO undergraduate degree is 120 credit hours. Please review the requirements for your specific program to determine all requirements for the program. In order to graduate on-time (four years for an undergraduate degree), you need to take 30 hours each year.

**Placement Exams:**

For Math, English, Foreign Language, a placement exam may be required. More information on these exams can be found at <https://www.unomaha.edu/enrollment-management/testing-center/placement-exams/information.php>

\*\*Transfer credit or placement exam scores may change suggested plan of study

**GPA Requirements: 2.0**

**Graduation Requirements:** Physics majors must also take the two assessment tests (Major Field Test and Local test) and complete the exit interview.

The senior project must be approved and the department chair notified at least eight months prior to graduation as a Physics major and the student must register for either PHYS 4950 (<https://catalog.unomaha.edu/search/?P=PHYS%204950>) or PHYS 4960 (<https://catalog.unomaha.edu/search/?P=PHYS%204960>).