

Physics Education

Department Information

- **Department Location:**
Katherine Kilbourne Burgum Family Life, 4-H Center
- **Department Phone:**
701-231-7921
- **Department Web Site:**
www.231-7921 (<http://www.231-7921>)
- **Degrees Offered:**
B.S.; B.A.
- **Plan Of Study Sample:**
bulletin.ndsu.edu/programs-study/undergraduate/physics-education/#planofstudytext

Major Requirements

Major: Physics Education

Degree Type: B.A. or B.S.

Required Degree Credits to Graduate: 148

University Degree Requirements

1. Satisfactory completion of all requirements of the curriculum in which one is enrolled.
2. Earn a minimum total of 120 credits in approved coursework. Some academic programs exceed this minimum.
3. Satisfactory completion of the general education requirements as specific by the university.
4. A minimum institutional GPA of 2.00 based on work taken at NDSU.
5. At least 36 credits presented for graduation must be in courses number 300 or higher.
6. Transfer Students: Must earn a minimum of 60 credits from a baccalaureate-degree granting or professional institution.
 - a. Of these 60, at least 36 must be NDSU residence credits as defined in #7.
 - b. Within the 36 resident credits, a minimum of 15 must be in courses numbered 300 or higher and 15 credits in the major field of study.
7. At least 36 credits must be NDSU resident credits. Residence credits include credits registered and paid for at NDSU.

For complete information, please refer to the Degree and Graduation Requirements (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/degree-and-graduation>) section of this Bulletin.

University General Education Requirements

Code	Title	Credits
Communication (C)		12
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing [†]		
Quantitative Reasoning (R) [†]		3
Science and Technology (S) [†]		10
Humanities and Fine Arts (A) [†]		6
Social and Behavioral Sciences (B) [†]		6
Wellness (W) [†]		2
Cultural Diversity (D) ^{*†}		
Global Perspectives (G) ^{*†}		
Total Credits		39

* May be satisfied by completing courses in another General Education category.

† General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review major requirements to determine if specific courses can also satisfy these general education categories.

- A list of university approved general education courses and administrative policies are available here (<http://bulletin.ndsu.edu/past-bulletin-archive/2018-19/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).

Major Requirements

Code	Title	Credits
Physics Education Requirements		
BIOL 124 & 124L	Environmental Science and Environmental Science Laboratory (May satisfy general education category S)	4
ENGL 324	Writing in the Sciences (May satisfy general education category C)	3
STAT 330	Introductory Statistics (May satisfy general education category R)	3
Teaching Specialty Requirements		
Select One Course Pair:		4
CHEM 150 & CHEM 160	Principles of Chemistry I and Principles of Chemistry Laboratory I	
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	
Select One Course Pair:		4
CHEM 151 & CHEM 161	Principles of Chemistry II and Principles of Chemistry Laboratory II	
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	
CHEM Elective	300/400-Level Elective Course & Lab	4
CSCI 114	Microcomputer Packages	3-4
or CSCI 116	Business Use of Computers	
or CSCI 160	Computer Science I	
GEOL 105 & 105L	Physical Geology and Physical Geology Lab (May satisfy general education category G)	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
MATH 129	Basic Linear Algebra *	3
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 266	Introduction to Differential Equations	3
PHYS 110	Introductory Astronomy	3
PHYS 171	Introductory Projects in Physics	1
PHYS 215	Research For Undergraduates	1
PHYS 251 & 251L	University Physics I and University Physics I Laboratory	5
PHYS 251R	University Physics I Recitation	1
PHYS 252 & 252L	University Physics II and University Physics II Laboratory	5
PHYS 252R	University Physics II Recitation	1
PHYS Elective	300/400-Level Elective Course	3
PHYS 350	Modern Physics	3
PHYS 355	Classical Mechanics	3-4
or PHYS 330: Intermediate Mechar		
PHYS 360	Modern Physics II	3
PHYS 361	Electromagnetic Theory	3-4
or PHYS 370: Electromagnetic The		
PHYS 411 & 411L	Optics for Scientists & Engineers and Optics for Scientists and Engineers Lab	4
PHYS 462	Thermal and Statistical Physics	3
PHYS 485	Quantum Mechanics I	3

PHYS 491	Seminar	1
Professional Education Requirements		
EDUC 321	Introduction to Teaching	3
EDUC 322	Educational Psychology	3
EDUC 451	Instructional Planning, Methods and Assessment	3
EDUC 481	Classroom Practice Methods of Teaching I: (Science)	3
EDUC 485	Student Teaching Seminar	1
EDUC 486	Classroom Management for Diverse Learners	3
EDUC 487	Student Teaching	9
EDUC 488	Applied Student Teaching	3
EDUC 489	Teaching Students of Diverse Backgrounds	3
Total Credits		125-128

* MATH 429 Topics in Linear Algebra may substitute for MATH 129 Basic Linear Algebra.

Degree Requirements and Notes

- A GPA of 2.75 or better in the teaching specialty is required for placement in student teaching and exit from the program.
- A GPA of 2.75 or better in the professional education requirements as well as passing the appropriate Praxis II exam are required to exit the program. A grade of 'C' or better is required in all Professional Education Requirement courses.
- Courses taken *Pass/Fail* will not be used to satisfy any requirements other than total credits.
- See School of Education (<https://www.ndsu.edu/education>) for admission requirements.

Bachelor of Arts (BA) Degree – An additional 6 credits of Humanities and Social Sciences and proficiency at the second year in a modern foreign language are required.