

# Physics Education

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## Department Information

- **Department Location:**  
Katherine Kilbourne Burgum Family Life, 4-H Center
- **Department Phone:**  
701-231-7921
- **Credential Offered:**  
B.S.; B.A.
- **Plan Of Study Sample:**  
[bulletin.ndsu.edu/programs-study/undergraduate/physics-education/#planofstudytext](http://bulletin.ndsu.edu/programs-study/undergraduate/physics-education/#planofstudytext) (<http://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:** 122

### 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 specified 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 numbered 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 resident 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. Resident credits include credits registered and paid for at NDSU.

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

### University General Education Requirements

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

\* 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://catalog.ndsu.edu/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).

## Major Requirements

Code	Title	Credits
<b>Teaching Specialty Requirements</b>		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
Pick an introductory chemistry sequence (A or B):		8
Sequence A:		
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	
Sequence B:		
CHEM 150 & CHEM 160	Principles of Chemistry I and Principles of Chemistry Laboratory I	
CHEM 151 & CHEM 161	Principles of Chemistry II and Principles of Chemistry Laboratory II	
ENGL 324	Writing in the Sciences (May satisfy general education category C)	3
Pick one of the following:		4
GEOL 105 & 105L	Physical Geology and Physical Geology Lab (May satisfy general education category G)	
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab (May satisfy general education category G)	
Select one of the following two Algebra Courses:		3
MATH 129	Basic Linear Algebra	
MATH 329	Intermediate Linear Algebra	
MATH 165	Calculus I (May satisfy general education category R)	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 251 & 251L & 251R	University Physics I and University Physics I Laboratory and University Physics I Recitation	6
PHYS 252 & 252L & 252R	University Physics II and University Physics II Laboratory and University Physics II Recitation	6
PHYS 350	Modern Physics	3
PHYS 355	Classical Mechanics (or PHYS 330: Intermediate Mechanics (MSUM))	3
PHYS 361	Electromagnetic Theory (or PHYS370: Electromagnetic Theory (MSUM))	3
PHYS 411 & 411L	Optics for Scientists & Engineers and Optics for Scientists and Engineers Lab	4
PHYS 462	Thermal and Statistical Physics	3
<b>Professional Education Requirements</b>		
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 482	Classroom Practice/Methods of Teaching II: (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
<b>Total Credits</b>		<b>103</b>

### Degree Requirements and Notes

- See School of Education (<https://www.ndsu.edu/education/>) for admission requirements.
- Courses taken P/F may not be used to satisfy any requirements.
- A grade of 'C' or better is required in all professional education courses.
- To be placed in student teaching, a 2.75 cumulative GPA and a 2.75 GPA in professional education coursework is required.
- To exit the program, a 2.75 cumulative GPA and a 2.75 GPA in professional education coursework is required as well as completing the Praxis Subject test and the Principles of Learning and Teaching test.
- Adding Mathematics as an additional teacher licensure area can be accomplished with 6 additional credit hours. See your academic advisor for details.