

Physics Education

Department Information

- **Department Location:**
Katherine Kilbourne Burgum Family Life, 4-H Center
- **Department Phone:**
701-231-7921
- **Department Web Site:**
www.ndsu.edu/education/ (<http://www.ndsu.edu/education/>)
- **Credential Offered:**
B.S.; B.A.
- **Official Program Curriculum:**
catalog.ndsu.edu/undergraduate/program-curriculum/physics-education/ (<http://catalog.ndsu.edu/undergraduate/program-curriculum/physics-education/>)

Physics is the most fundamental and exact of the physical sciences. Its laws are basic to deep understanding in all of technology, and in many fields of study, such as astronomy, chemistry, engineering, materials science, photonics, biology, medicine, geology, and environmental science. Teaching physics in secondary schools requires deep knowledge of (a) science content, (b) current theories of adolescent development, and (c) current best practices in instruction. Accordingly, the physics education major combines coursework in physics and related sciences with professional education courses on teaching and learning.

The Program

Candidates in physics education are prepared to teach students in grades 5-12 with skill and confidence. The program is designed to develop science content knowledge as well as proficiency in a range of science-related skills and laboratory practices. Our professional education courses prepare teacher candidates to incorporate active learning strategies, create effective methods for assessment, and adjust instruction to accommodate diverse learners. Teacher candidates also apply their knowledge and build their teaching skills during multiple clinical experiences in local schools.

Professional Education Courses

Teacher candidates may enroll in the 300-level professional education courses before being formally admitted to the School of Education (SOE). Prior to enrolling in the 400-level courses, teacher candidates must complete the application for admission to the SOE; attain a minimum of a 2.75 grade point average overall in their course work and education courses; and pass the Praxis Core Academic Skills test or meet minimum scores on the ACT+. Requirements for admission can be found on the School of Education website (<https://www.ndsu.edu/education/>).

Student Teaching

Student teaching (clinical practice) is the culmination of the teacher preparation program. During the clinical practice, teacher candidates apply the knowledge and skills acquired in their college courses to real-world classrooms under the supervision of experienced science teachers in middle or high schools. Faculty members from NDSU conduct regular on-site visits to support, encourage, and evaluate student teachers so that they gain the confidence and ability to join the teaching profession after graduation.

Student Advisement

Physics education teacher candidates are assigned to academic advisors who work closely with them to plan their programs of study and to advise and assist them as they progress to degree completion. Students are encouraged to meet with their advisor at least once every semester, as well as whenever needed. Appointments with advisors can be scheduled through the Navigate online system found on the Student Affairs web page.

Licensure

Upon completing this program, teacher candidates are eligible for teacher licensure in physics in most states. Teacher candidates who take the Praxis Subject Assessment exam for Physics will be licensed to teach Physics and related courses, as well as middle school sciences. Teacher candidates who choose to take the Praxis Subject Assessment exam for General Science will be licensed to teach all areas of middle school and high school science. Our program is accredited by the Council for the Accreditation of Educator Preparation (CAEP) and approved by the North Dakota Education Standards and Practices Board (ESPB).

Career Opportunities

Science teachers are in high demand across the country, so our graduates usually obtain full-time employment in school districts shortly after graduation. Notably, by completing 6 additional credit hours, physics education majors can become licensed to teach mathematics as well. See your academic advisor for specific course requirements.

Sample Program Guide

Please note this is a sample program guide and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Once admitted, students are encouraged to work with their assigned academic advisor on a regular basis to review degree progress.

First Year			
Fall	Credits	Spring	Credits
ENGL 110 or 120 (or College Composition II based on placement)**		3 CHEM 122 & 122L	4
CHEM 121 & 121L		4 MATH 129 or 329	3
COMM 110		3 MATH 166	4
MATH 165		4 PHYS 251 & 251L	5
PHYS 171		1 PHYS 251R	1
		15	17
Second Year			
Fall	Credits	Spring	Credits
EDUC 321		3 EDUC 322	3
GEOL 105 & 105L (Meets Global Perspectives Gen Ed requirement)		4 MATH 266	3
MATH 265		4 PHYS 110	3
PHYS 252 & 252L		5 PHYS 350	3
PHYS 252R		1 Social & Behavioral Science Gen Ed*	3
Complete Core Academic Skills Exam or access your ACT+ scores		Apply to the School of Education	
		17	15
Third Year			
Fall	Credits	Spring	Credits
BIOL 124 & BIOL 100L		4 BIOL 150 & 150L	4
EDUC 451		3 EDUC 481	3
ENGL 324		3 EDUC 486	3
PHYS 355		3 PHYS 361	3
Humanities & Fine Arts Gen Ed*		3 Social & Behavioral Science Gen Ed*	3
		Wellness Gen Ed	2
		16	18
Fourth Year			
Fall	Credits	Spring	Credits
EDUC 482		3 EDUC 485	1
EDUC 489		3 EDUC 487	9
PHYS 411 & 411L		4 EDUC 488	3
PHYS 462		3	
Humanities & Fine Arts Gen Ed*		3	
Apply for Student Teaching			

Complete PLT (grades 7-12) Exam

Complete Subject Area Assessment
Exam

16

13

Total Credits: 127

- * One of these General Education courses needs to be selected from Category D - Cultural Diversity.
- ** If placed into ENGL 110 in Fall of Freshman year, then ENGL 120 (3 credits) needs to be added to the plan in a different semester.