Comprehensive Science Education

Department Information

- **Department Web Site:**
  www.ndsu.edu/education/ (http://www.ndsu.edu/education/)
- **Credential Offered:**
  B.S.; B.A.
- **Sample Program Guide:**
  catalog.ndsu.edu/programs-study/undergraduate/comprehensive-science-education/#planofstudytext (http://catalog.ndsu.edu/programs-study/undergraduate/comprehensive-science-education/#planofstudytext)

Major Requirements

Major: Comprehensive Science Education

Degree Type: B.A. or B.S.
Minimum Degree Credits to Graduate: 120

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 30 credits must be NDSU resident credits. Resident credits include credits registered and paid for at NDSU.
6. At least 36 credits presented for graduation must be in courses numbered 300 or higher.
7. Students presenting transfer credit must meet the NDSU residence credits and the minimum upper level credit. Of the 30 credits earned in residence, a minimum of 15 semester credits must be in courses numbered 300 or above, and 15 semester credits must be in the student's curricula for their declared major.

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

Major Requirements

Code	Title	Credits
Comprehensive Science Education Requirements		
ENGL 324	Writing in the Sciences	3
Teaching Specialty Requirements		
Primary Concentration - Select one primary concentration from biology, chemistry, earth science, physics. Concentrations listed below.		24-25
Secondary Concentration - Two secondary concentrations from the science area not selected for the primary concentration.		24-28
Teritary Concentration - One teritary concentration from the science area not selected for the primary or secondary areas.		8
Math Requirements		
Select the math requirement based on choice of primary concentration. See math requirement section below.		6-18
Professional Education Requirements		
EDUC 321	Introduction to Teaching	3
EDUC 322	Educational Psychology	3
EDUC 451	Instructional Planning, Methods and Assessment	3
EDUC 475	Reading in the Content Area	2
EDUC 481	Classroom Practice Methods of Teaching I:	2-3
EDUC 482	Classroom Practice/Methods of Teaching II:	2-3
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		**99-118**

Code	Title	Credits
Primary Concentration		
Select one primary concentration from biology, chemistry, earth science, or physics.		
Biology (24 credits)		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 315 & 315L	Genetics and Genetics Laboratory	4
BIOL 359	Evolution	3
BIOL 364	General Ecology	3
BIOL 370	Cell Biology	3
MICR 202 & 202L	Introductory Microbiology and Introductory Microbiology Lab	3
Chemistry (25 credits)		
Select one 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	

CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
CHEM 342 & 342L	Organic Chemistry II and Organic Chemistry II Laboratory	4
CHEM 431 & 431L	Analytical Chemistry I and Analytical Chemistry I Laboratory	5
BIOC 260	Elements of Biochemistry	4
Earth Science (25 credits)		
GEOL 105 & 105L	Physical Geology and Physical Geology Lab	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
GEOL 350	Invertebrate Paleontology	3
GEOL 303	Paleontology Field Course	1
GEOL 412	Geomorphology	3
GEOL 420 & GEOL 421	Mineralogy and Mineralogy Laboratory	4
PHYS 110	Introductory Astronomy	3
SOIL 217	Introduction to Meteorology & Climatology	3
Physics (24 credits)		
PHYS 171	Introductory Projects in Physics	1
PHYS 215	Research For Undergraduates	1-3
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	3
PHYS 361	Electromagnetic Theory	3

Code	Title	Credits
Secondary Concetration		
Select two secondary concentrations not selected as the primary.		
Biology (14 credits)		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
BIOL 315	Genetics	3
BIOL 359	Evolution	3
Chemistry (12 credits)		
Select one 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	

CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	4
Earth Science (14 credits)		
GEOL 105 & 105L	Physical Geology and Physical Geology Lab	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
PHYS 110	Introductory Astronomy	3
SOIL 217	Introduction to Meteorology & Climatology	3
Physics (12 credits)		
PHYS 110 & 110L	Introductory Astronomy and Introductory Astronomy Lab	4
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
PHYS 212 & 212L	College Physics II and College Physics II Laboratory	4

Code	Title	Credits
Teritary Concentration		
Select one tertiary concentration not selected as the primary or secondary concentrations.		
Biology (8 credits)		
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 151 & 151L	General Biology II and General Biology II Laboratory	4
Chemistry (8 credits)		
Select one 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	
Earth Science (8 credits)		
GEOL 105 & 105L	Physical Geology and Physical Geology Lab	4
GEOL 106 & 106L	The Earth Through Time and The Earth Through Time Lab	4
Physics (8 credits)		
PHYS 211 & 211L	College Physics I and College Physics I Laboratory	4
PHYS 212 & 212L	College Physics II and College Physics II Laboratory	4

Code	Title	Credits
Math Requirements		
Select the math requirement based on the choice of primary concentration.		
Biology or Earth Science (6-7 credits)		
MATH 105	Trigonometry	3 or 4
or MATH 146	Applied Calculus I	
STAT 330	Introductory Statistics	3

Chemistry (11 credits)		
MATH 165	Calculus I	4
MATH 166	Calculus II	4
STAT 330	Introductory Statistics	3
Physics (18 credits)		
MATH 165	Calculus I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 266	Introduction to Differential Equations	3
MATH 129	Basic Linear Algebra	3
or MATH 329	Intermediate Linear Algebra	

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.
- Students who select Physics as their Primary Concentration can add Mathematics as an additional teacher licensure area with 6 additional credits. See your academic advisor for details.