DIFFERENCE MAKERS
Become One at VCSU

MAJOR
The Biology major is designed to give you a broad preparation and experience for a variety of biology related fields. We also have an emphasis in preparing you for professional schools and graduate work.

STUDENT TEACHING
As a Biology Education major you are placed into schools for a series of field experiences including Introduction to Education (40 hours); Practicum (80 hours); Culturally Diverse Practicum (25 hours involving 3 consecutive full days in a classroom), and a twelve-week student teaching field experience completed in a location that works well for the student and university. Student teaching is the culminating experience of the program and the opportunity for students to apply all they have learned regarding their classroom preparation and field experience opportunities.

FACILITIES AND RESOURCES
The Rhoades Science Center includes a greenhouse for work in biology and botany, a planetarium and laboratories for biology, chemistry, earth science, physics, computer science, and photography studies. Students have access to:
- A fully equipped Aquatic Macro invertebrate Laboratory and Biomedical Research laboratory
- Weather stations
- River gauge station
- Fish hatchery
- The dam and reservoir at Lake Ashtabula
- The Soil Conservation Service
- North Dakota State Extension Service.
- Biology faculty have ongoing connections with North Dakota Department of Health, ND Parks and Recreation, Northern Prairie
- Wildlife Research Center, and the US Army Corps of engineers and with faculty involved in graduate programs at UND and NDSU.

QUOTE: “My favorite memory at VCSU was when my Intro to Fisheries and Wildlife class traveled to South Dakota to band ducks. VCSU does a great job using these kinds of real-life, hands-on activities to take education beyond the classroom and into the real world.”
~Candace Kraft, Jamestown ND

WHAT 5 THINGS MAKE US DIFFERENT?
#1. Classes involve field study in local areas such as the Fish Hatchery, Lake Ashtabula, and the Sheyenne River Valley.
#2. There are well equipped research labs and you are encouraged to be involved in research.
#3. VCSU prepares you by educating you with hands on opportunities that are usually reserved for graduate students. Our students run the planetarium, conduct research, and gather samples.
#4. Students travel to regional and national scientific meetings to present on their current research.
#5. All faculty members in the program have earned their Ph.D. Several have research grants and research labs which they run with the assistance of VCSU students.

TEACHER EDUCATION REQUIREMENTS
You are typically admitted into Teacher Education during your sophomore year or beginning of your junior year of college. Criteria for Admission to Teacher Education can be found at the following website: www.vcsu.edu/undergrad_ed/

DR. DONALD C. AND MARJORIE MEREDITH SCHOLARSHIP
- Total $12,000 available
- Designed to award Math or Science majors

TECHNOLOGY
- Notebook computers with DVD burners and multimedia capabilities
- Digital cameras, video cameras, and other peripherals
- Blackboard online learning environments
- Hydrostatic body composition Lactate Analysis
- Global Positioning Systems (GPS) training

CAREER SERVICES PROVIDES
- Career, job search, placement services free to all students
- Field trips, employer on-campus visits
- Information, networking opportunities and skill development
- Visit www.vcsu.edu/careerservices/
**Biology Education**

**MAJOR**

The Biology Education major is designed to prepare you for teaching in junior and senior high schools. A Bachelor of Science in Education with a Biology major plus 12 semester hours in each of the other sciences (chemistry, earth science, and/ or physics) will qualify you to teach those secondary science courses.

**LEARNING OUTCOMES**

1. Demonstrate a fundamental knowledge of the major concepts in biology.
2. Exhibit critical thinking skills by applying the scientific method to solve problems.
3. Exhibit the ability to read and communicate in a scientific style.
4. Analyze the consequences of activities on themselves and their environment.

**ABILITIES**

**Problem Solving**

Obtain, organize, and interpret information to provide creative, critical solutions

**Collaboration**

Ability to work with others

**Global Awareness**

Recognize relationships

**Communication**

Ability to convey information and knowledge

**Technology**

Use, understand, and implement to provide solutions in an information society.

**General Education Requirements** 39 Hours

**Communication & Collaboration** 9 Hours

- ENGL 110 College Composition I
- ENGL 120 College Composition II
- or ENGL 125 Intro to Professional Writing
- COMM 110 Fund of Public Speaking
- or COMM 212 Interpersonal Comm
- or COMM 216 Intercultural Comm

**Problem Solving** 12-13 Hrs

- Mathematics - 3 crs (Select one course)
  - MATH 107 Precalculus*
- Lab Science - 9-10 crs (Select two courses)
  - CHEM 116 Intro to Organic & Biochem* 5
  - CHEM 121 General Chemistry* 5

**Technology (Select one course)** 3 Hrs

- CIS 170 Intro to Computer Info Systems 3
- CSCI 127 Intro to Programming in Java 3
- CSCI 160 Intro to Structured Programming I 3

**Wellness** 2 Hrs

- HPER 100 Concepts Fitness & Wellness

**Aesthetic Engagement** 6 Hrs

- Literacies - 3 crs (Select one course)
  - ENGL 220, 225, 241, 242, 261, 262
  - HUM 201 Civil, Thought, & Lit Heritage
  - SPAN 201 2nd Yr I; SPAN 202 2nd Yr II
  - THEA 110 Intro Theatre; THEA 161 Acting I
- Art & Music - 3 crs (Select one course)
  - ART 110 Introduction to Visual Arts
  - HUM 202 Fine Arts & Aesthetics
  - MUS 100 Music Appreciation
  - MUS 101 Music Fundamentals
  - MUS 207 History of Rock’n’Roll

**Global Awareness & Effective Citizen** 6 Hrs

- COMM 112 Under Media; COMM 114 Human;
  - ECON 201 Prin Micro; ECON 202 Prin Macro
  - GEOG 151 Human Geog
  - HIST 103, 104, 211, 212, 260, 267, 270
  - POLS 115 Amer Gov; POLS 116 State Gov
  - PSYC 111 Intro Psy
  - SOC 110 Intro to Soc; SOC 111 Intro Anthro

**Additional General Education** 2 Hrs

Select one additional course from the area of Aesthetic Engagement or Global Awareness or ART 112 (3), ART 231 (3), ART 281 (3), GEOG 111 (2), MUS 104 (1), MUS 105 (1), MUS 131 (1), MUS 141 (1), PHYS 275 (1), THEA 201 (1-5)

*Required

For degree and graduation requirements see pages 39-40.

**Required Courses** 39-41 Hours

- BIOL 150 General Biology 4
- BIOL 151 General Biology 4
- BIOL 170 General Zoology 4
- BIOL 310 MicroBiology 4
- BIOL 311 Botany 4
- BIOL 395 Lab Preparation & Mgmt 1
- BIOL 410 Field Ecology 4
- BIOL 440 Biostatistics and Exp. Design 4
- or MATH 321 Statistics 3
- BIOL 490 Sec Science Methods & Tech 3
- GEOL 100 Intro to Earth Science 4
- PHYS 161 Intro College Physics I 4
- or PHYS 251/L Univ Physic/Lab 4/1

**Directed Electives** 16 Hrs

- BIOL 220 Human Anatomy & Physiology I 4
- BIOL 221 Human Anatomy & Physiology II 4
- BIOL 267 Environmental History 3
- BIOL 312 Botany 4
- BIOL 315 Genetics 4
- BIOL 330 North Dakota Flora 3
- BIOL 343 Ornithology 4
- BIOL 347 Aquatic Entomology 4
- BIOL 355 Mammalogy 4
- BIOL 367 Ichthyology 4
- BIOL 380 Human Sexuality 3
- BIOL 395 Lab Preparation & Mgmt 1
- BIOL 441 Cell Biology 4
- BIOL 470 Limnology 4
- BIOL x99 Special Topics 1-4
- PHYS 275 Planetarium Science 1

A total of 4 credits from BIOL x99 may be applied as directed electives.

To become a “highly qualified” teacher in other areas of science (Chemistry, Physics or Earth Science) a student must take a minimum of 12 credits in each of the other science areas in which they intend to teach. This conforms to the No Child Left Behind Policy.

**Professional Education Sequence** 31-32 Hrs

- EDUC 240 Educating Exceptional Stdnts 2
- EDUC 250 Introduction to Education 3
- EDUC 283 Understing Cult Div in Educ 3
- EDUC 300 Educational Technology 2
- EDUC 351 Sec Practicum & Clsrm Mngt 1
- EDUC 352 Culturally Diverse Practicum 1
- or EDUC 464 Pract in ELL Classroom 2
- EDUC 375 Tchg Rdg in Content Areas 2
- EDUC 400 Educational Psychology 2
- EDUC 450 Trends in Assess & Educ Issues- 2
- EDUC 480 Student Teaching (Sec) 2
- EDUC 250 Developmental Psychology 3

**Total General Education** 39 Hrs

**Total Major Requirement** 51-53 Hrs

**Total Professional Ed Sequence** 31-32 Hrs

**Total Credits Needed to Graduate** 120 Hrs

**Department Chair**

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