MAJOR
The Chemistry Education major is designed to prepare you for teaching in junior and senior high schools. A Bachelor of Science in Education with a Chemistry major plus 12 semester hours in each of the other sciences (biology, earth and physics) will qualify you to teach those secondary science courses under the No Child Left Behind (NCLB) requirements. Other opportunities not part of any regular program exist on campus and provide sound practical experience, such as student assistants and participation in the campus-tutoring program.

STUDENT TEACHING
As a Chemistry 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.

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/

QUOTE: “Dr. Stickler has not only shown tremendous knowledge in his content area but has shown a special ability to teach his students with great enthusiasm and passion.”

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.

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
• Infrared spectroscopy
• Molecular spectroscopy
• Refractometry
• Polarimetry
• Organic structure software
• Excel data analysis

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/
Chemistry Education

MAJOR
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LEARNING OUTCOMES
1. Demonstrate a fundamental knowledge of the major concepts in chemistry.
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. Understand the importance of chemistry to themselves and society.

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

Problem Solving 11-13 Hrs
Mathematics - 3 crs (Select one course)
MATH 165 Calculus I* 4
Lab Science - B-10 crs (Select two courses)
PHYS 161 Intro College Physics I &
PHYS 162 Intro College Physics II * 4
-OR- PHYS 251/L University Physics I/Lab * & 4/1
PHYS 252/L University Physics II/Lab * 4/1

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
(Select two courses)
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
POL S 115 Amer Gov; POLS 116 State Gov
PSYC 110 Intro Psych
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 (1-3)

*Required course

Required Courses 47-48 Hours
BIOL 150 General Biology 4
-OR- BIOL 151 General Biology 4
CHEM 121 General Chemistry 5
CHEM 122 General Chemistry 5
CHEM 330 Quantitative Analysis 4
CHEM 341 Organic Chemistry 5
CHEM 342 Organic Chemistry 5
CHEM 360 Elements of Biochemistry 4
CHEM 395 Laboratory Preparation & Mgmt 1
CHEM 411 Physical Chemistry 3
CHEM 421 Physical Chemistry Lab 1
CHEM 440 Biostatistics and Exp. Design 4
or MATH 321 Statistics 3
CHEM 490 Secondary Science Methods & Techniques 3

Directed Electives 4 Hrs
CHEM 331 Quantitative Analysis 4
CHEM 412 Physical Chemistry 3
CHEM 422 Physical Chemistry Lab 1
CHEM 425 Inorganic Chemistry 4
CHEM x94 Ind Study/Undergrad Research 1-4
To become a “highly qualified” teacher in other areas of science (Biology, Physics or Earth Science), a student must take a minimum of 12 hours in each of the other science areas in which they intend to teach.

Professional Education Sequence 31-32 Hrs
EDUC 240 Educating Exceptional Students 2
EDUC 250 Introduction to Education 3
EDUC 283 Understanding Cult
Div in Education 3
EDUC 300 Educational Technology 2
EDUC 351 Sec Practicum & Classroom Mgmt 1
EDUC 352 Culturally Diverse Practicum 1
-OR- EDUC 464 Practicum in the ELL Classroom 2
EDUC 375 Tchg Rdg in the Content Areas 2
EDUC 400 Educational Psychology 2**
EDUC 450 Trends in Assess & Educ Issues 2
EDUC 480 Student Teaching (Secondary) 10**
PSYC 250 Developmental Psychology 3

** Courses to be taken the same semester

Total General Education 38-40 Hrs
Total Major Requirement 47-48 Hrs
Total Professional Ed Sequence 31-32 Hrs
Total Credits Needed to Graduate 120 Hrs

Department Chair
Andre DeLorme, Ph.D.
Rhoades Science Center 203D
(701) 845-7573

For degree and graduation requirements see pages 39-40.