

# COLLEGE OF NATURAL AND SOCIAL SCIENCES

# BIOLOGY



## MOLECULAR BIOLOGY COMPREHENSIVE Bachelor of Science

The Molecular Biology Comprehensive major option is designed to meet the needs of students desiring a strong background in the ever-growing field of molecular biology and its related areas. The most exciting things happening in biology right now are at the molecular (DNA, RNA, protein) level.



Through molecular research insights into various diseases such as cancer, heart disease and genetic disorders is possible. Sequencing of a large number of genomes has clarified the evolutionary relationships among organisms. In the current medical field, a new emphasis is placed on molecular biology, and incoming students will become well versed in the information and techniques that constitute this very exciting field.

In addition to the medical and healthcare fields, most fields of biological research are converging on molecular biology and the techniques employed to answer questions and test hypotheses.

### Career opportunities:

- Biotechnology
- Forensic scientist
- Genetic Counselor
- Research/academia
- Genetic engineering
- Health career preparation  
(Medicine, pharmacy, clinical lab science)



## Alumni profile

Kirsten Lipps, a May 2014 UNK graduate from Algona, Iowa, says her experience as a molecular biology comprehensive major prepared her for medical school.



**KIRSTEN LIPPS**

“The rigor of the molecular biology curriculum at UNK developed my ability to not only acquire a wealth of knowledge but more importantly, it provided me with the foundations necessary to think critically and apply my understanding to novel and/or real-world issues.”

Lipps was able to interact with biology professors early in her college career, which provided her with invaluable opportunities for mentoring relationships and independent research projects.

“I was engaged in undergraduate research for three years at UNK,” Lipps said. “The time that I spent in the research lab not only supplemented and reinforced the knowledge that I acquired through the traditional curriculum but also developed my ability to critically analyze scientific problems.”

Lipps is now a medical student at Northwestern University Feinberg School of Medicine in Chicago, Ill.

## Reasons to choose biology at UNK

- Faculty in the UNK Biology department have a belief that biology is “doing,” not seeing.
- Hands-on learning is incorporated into the coursework.
- Students have options to conduct independent research projects with faculty guidance.
- Students have opportunity for admittance into the NE-INBRE scholars program.

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### FOUR YEAR CLASS SCHEDULE

The schedule is a guideline for progress toward a degree. Consult with your academic advisor.

<p><b>Semester 1 (14 credits)</b></p> <p>BIOL 105 Biology I CHEM 160 General Chemistry I ENG 101 English Composition Portal 188 (your choice)</p>	<p><b>Semester 2 (14 credits)</b></p> <p>BIOL 106 Biology II CHEM 161 General Chemistry II ENG 102 Writing &amp; Research MATH By placement</p>
<p><b>Semester 3 (16 credits)</b></p> <p>BIOL 201 Biology Tools BIOL 290 Evolution CHEM 360 Organic Chem I + Lab SPCH Speech Aesthetics General Studies</p>	<p><b>Semester 4 (15 credits)</b></p> <p>BIOL 305 Biological Statistics BIOL 360 Genetics CHEM 361 Organic Chemistry II CHEM 361L Organic Chemistry II Lab Democracy General Studies</p>
<p><b>Semester 5 (17 credits)</b></p> <p>BIOL 309 Cellular Biology BIOL 375 Scientific Communications PHYS 205 General Physics I Social Sciences General Studies Humanities General Studies</p>	<p><b>Semester 6 (16-18 credits)</b></p> <p>BIOL Molecular elective BIOL Molecular elective CHEM 351 Biochemistry &amp; Lab Social Sciences General Studies Elective</p>
<p><b>Semester 7 (14-16 credits)</b></p> <p>BIOL 420 Biology Research BIOL 450 Molecular Biology BIOL 482 Molecular Seminar BIOL Molecular elective BIOL Molecular elective Capstone 388 (your choice)</p>	<p><b>Semester 8 (14-16 credits)</b></p> <p>BIOL 420 Biology Research BIOL 452 Molecular Biol. Techniques BIOL 482 Molecular Seminar BIOL Molecular elective Humanities General Studies Elective</p>

## Student profile

**Madelyn Warren**, who was very interested in the molecular biology program, toured the campus prior to college. "As soon as I visited, UNK was the place I wanted to go. The atmosphere was one where it felt like the professors would do their best to help students succeed."



As a freshman Warren entered college with a natural love for science, but was unaware of the massive scope that science covered. "As a senior, I've been able to see how cohesive and intricate biology and chemistry are, and how even a single cell is comprised of many different components and processes that make life possible," she said.

The Omaha native says she has gained a new appreciation and understanding for small things that govern life in all forms. Warren will graduate from UNK in spring 2015.

## Did you know...

Strong student-faculty relationships are a focal point of the UNK experience.

Faculty interact on a personalized basis with students as teachers, advisors, mentors and friends both inside and outside the classroom, and from your freshman year to graduation and beyond.

The biology department is located in Bruner Hall and occupies over 20,000 square feet on two floors.

In addition to classroom laboratories, there are several others designed to facilitate undergraduate and graduate research projects. A 1,500-square-foot greenhouse, herbarium, mammal collection, and a Mobile Environmental Laboratory (MEL) are all maintained for teaching and research.

UNK Biology recently received the university-wide departmental teaching award.

This award recognizes excellence in teaching among all NU campuses. Dedicated to challenging and motivating students, the teaching staff models what it means to be a life-long learner, and inspires students to do as well.

### Scholarships available:

- Rex Carr Endowed Scholarship
- Laddie and Iris Bicak Family Scholarship
- Amanda Bosak Memorial Scholarship
- Harvey E. Cole Memorial Scholarship
- DeeAnna Delaet Endowed Scholarship
- Mildred Bensen Hansen Scholarship
- David J. Keen Jr. Memorial Scholarship
- John C. W. Bliese Endowment for Biology

### Personal traits for success:

- Pays attention to details
- Works independently or on a team
- Communicates effectively
- Thinks critically
- Asks questions
- Solves problems analytically
- Observes patiently

### For more information, contact:

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