



BLACK HILLS
STATE UNIVERSITY

EST. 1883

CHEMISTRY

BACHELOR OF SCIENCE (B.S.)
BACHELOR OF SCIENCE IN EDUCATION (B.S.ED.)



NAVEEN MALIK

FIND YOUR CAREER

Employment opportunities exist in a variety of sectors:

- » Pharmaceutical Research Scientist
- » Environmental Chemist
- » Analytical Chemist
- » Formulation Chemist
- » Organic Spectroscopist
- » Quality Control Analyst
- » Teacher - Elementary/Secondary Ed
- » Instrument Technician
- » Laboratory Technician
- » Research Assistant
- » Forensic Analyst

FORM YOUR BOND WITH CHEMISTRY

Make a permanent bond as you delve into the expanding world of chemistry at Black Hills State University. The foundation of knowledge built through BHSU's chemistry curriculum is valuable to all disciplines, giving students the ability to adjust to ever-changing job possibilities.

- » **STUDENTS RECEIVE HANDS-ON TRAINING** using cutting-edge instrumentation in state-of-the-art laboratories.
- » **CLASSES FEATURE A STUDENT-CENTERED LEARNING ENVIRONMENT** with course instruction exclusively by faculty, not graduate assistants, and highlighted by a low student-to-faculty ratio.
- » **NUMEROUS OPPORTUNITIES TO PARTICIPATE** in undergraduate research and collaborate with faculty and other students on diverse research projects overlapping into biology and physics.
- » **THE BIOCHEMISTRY EMPHASIS** is a great way to prepare for medical professions.



MICHAEL HURST
CLASS OF '17

- » Accepted into 5 Ph.D. Programs
- » University Honors Scholar
- » Writing Assistance Center Mentor
- » Campus Radio Show Producer
- » Chemistry Researcher
- » Presented at National Conferences
- » Presidential Student Ambassador



BHSU.Natural.
Sciences



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MICHAEL ZEHFUS

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UNIQUE CLASS EXPERIENCES

Students have the opportunity to go beyond the books and classrooms and become an active participant in the development of new science while working one-on-one with professors and experts in your field. Here are some of the courses designed into the curriculum to put you on the cutting edge of scientific discovery and help you gain valuable hands-on experience:

- **RESR 498 RESEARCH:** Perform research in your field
- **SCI 492 SPECIAL TOPICS:** Explore cutting edge topics in your area of interest
- **SCI 494 INTERNSHIP:** Gain practical experience in your field
- **INDEPENDENT STUDY:** Design unique courses with your professors
- **CHEM 464 & 465 BIOCHEMISTRY I & II:** A pair of courses designed to meet and even exceed the Biochemistry entrance requirements for most medical, dental, or veterinarian programs.

UNDERGRADUATE RESEARCH

BHSU Chemistry faculty have ongoing research in high impact areas of nanomaterial synthesis, renewable energy, medicinal chemistry, natural products, antibiotics, catalyst design, and biochemistry. Earn a stipend to work full-time during the summer.

- **DR. DAN ASUNSKIS, ASSOCIATE PROFESSOR**
Students in my lab gain experience synthesizing different types of semiconducting nanomaterials. Students also have the opportunity to culture mammalian cells which are used for testing toxicity of the nanomaterials. These main application of these materials is the conversion of light to electrical charge in solar cells.
- **DR. KATRINA JENSEN, ASSOCIATE PROFESSOR**
We are working to develop catalysts that use light to form new chemical bonds (similar to the process that takes place during photosynthesis). Our group is focused on finding catalyst that use earth abundant elements (like copper) in place of rare and expensive elements (like ruthenium or iridium). Undergraduate students working on this project have presented their research at local, regional, and national meetings, including National Meetings of the American Chemical Society in San Diego, San Francisco, and Denver, and the National Conference on Undergraduate Research in Ashville, Spokane, Lexington, and Memphis.
- **DR. DAN DURBEN, PROFESSOR**
Primary areas of research are aquaculture methods and techniques to improve fish hatchery production; underground science including radon characterization, neutrino studies, and the search for dark matter; and sport science focused on optimizing athlete performance.
- **DR. JOHN DIXSON, ASSOCIATE PROFESSOR**
Two research projects are underway in my laboratory involving infectious diseases. In collaboration with Dr. Dave Bergmann we are investigating Lipid A inhibitors which are targeted towards Gram negative bacteria, i.e. *Pseudomonas aeruginosa*. The second project is exploring N-Methylfluoxetine derivatives and is directed towards malaria, as well as involving a collaboration with Dr. Cyndi Anderson who is investigating the antifungal properties for this area of chemistry. Students gain experience in both testing of compounds against these various pathogens but also with synthetic organic chemistry.
- **DR. MICHAEL ZEHFUS, PROFESSOR**
In the past few years my research has focused on two very different area. In fisheries research I have been analyzing thiamine levels (vitamin B1) in different fish species, like salmon taken from Lake Oahe or sturgeon taken from many different lakes across the mid-west, trying to see if there is a correlation between low thiamine levels and low reproductive success. In environmental research my students have been taking water samples from several different underground levels in the former Homestake gold mine to try to get a better picture of the hydrology within that mine.



STUDENT ORGANIZATIONS

HEALTH SCIENCE STUDENT ORG. (HSSO)

Dedicated to students interested in pursuing careers in medicine and healthcare, HSSO provides educational information, internship opportunities, social programs, community service projects, and guest speakers.

ENVIRONMENTAL SUSTAINABILITY STUDENT ORG. (ESSO)

The purpose of the ESSO is to protect and conserve while generating involvement surrounding environmental issues. Our members will gain experience in leadership and volunteering through community engagement, education, and expansion of our social networks.

PHYSICAL SCIENCE CLUB

Develop professional and leadership skills, network in your field, and have some fun through community and campus outreach, educational programs, social events, and outdoor adventures throughout the Black Hills.

WOMEN IN STEM

Women in Science, Technology, Engineering and Mathematics empowers women at BHSU to pursue and succeed in STEM careers by providing a support system, community, and mentorship for future leaders. Become involved in local and national outreach activities and work with area youth to help develop the next generation of successful women in STEM fields.

Where
Anything
is Possible