

Supporting, inspiring, and **preparing** students through **STEM**

Are you ready to expand your curiosity, critical and creative thinking skills, and passion for knowledge?

Our STEM programs are designed to help you become prepared for an ever-changing global STEM community.

Our small classes mean you'll get personalized attention from our faculty, opening the door to unique mentorship and undergraduate opportunities to help you reach your career goals.

Whether those career goals are professional school or research endeavors, let Northwestern State's School of STEM provide you with the classes, laboratories, and research experiences you need.

Find out how **YOU** can grow with **STEM**.

CONTACT US

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School of STEM

III | NORTHWESTERN STATE











MISSION STATEMENT

The School of Science, Technology, Engineering, and Math (STEM) at Northwestern State University serves to create a collaborative environment for natural and applied science education that inspires students and faculty to engage in an interdisciplinary approach to developing strong analytical skills in interpersonal communication, critical and creative thinking, research, and data literacy as they become lifelong learners who are prepared for an ever-changing, global STEM community.

VISION STATEMENT

We envision a school where every student is **supported, inspired, and prepared** to accelerate STEM-related fields for the benefit of society.



THE FLAME INITIATIVE INCLUDES:

- SUPPLEMENTAL INSTRUCTION
 Faculty dedicate two hours of their weekly office/student hours each week to assisting students.
- IN-PERSON AND VIRTUAL to help students with
 - completing homework assignments
 - understanding material covered in classes
 - preparing/studying for exams
- FLAME complements existing student support services with the ULTIMATE GOAL OF ENHANCING STUDENT SUCCESS.



Veterinary Technology

DO YOU:

- Enjoy working with animals?
- Care about people, pets, and livestock?
- Like multitasking and problem solving?
- Enjoy healthcare and teamwork?

THEN A CAREER IN VETERINARY MEDICINE MAY BE FOR YOU.

A veterinary technician is an integral member of the veterinary health care team. They are trained to:

- Obtain and record patient histories
- Care and restrain patients
- Collect specimens and perform laboratory procedures
- Provide specialized, compassionate nursing care
- Prepare animals and instruments for surgery
- Assist in medical and surgical procedures
- Perform radiographs and assist with advanced diagnostic imaging
- Perform dental prophylaxis
- Supervise and train veterinary practice personnel
- Advise and educate animal owners

AT NORTHWESTERN STATE, WE HAVE OPTIONS TO MATCH YOUR EDUCATIONAL GOALS:

- Associate Degree in Veterinary Technology
 - Veterinary Technician
- Baccalaureate Degree in Biology with Vet Tech concentration
 - Veterinary Technologist
- Pre-Veterinary Medicine
 - Prepare to attend professional school to become a veterinarian

CAREER OPTIONS

Veterinary technicians and technologists find employment in:

- Veterinary hospitals (including private, corporate, and specialty practices)
- Biomedical research facilities
- Colleges or universities
- Zoos
- Wildlife facilities
- Diagnostic laboratories
- Pharmaceutical or pet nutrition companies
- Food safety inspection
- Humane societies











NSU's Veterinary
Technology Program is **FULLY ACCREDITED**by the American Veterinary
Medical Association.

of our graduates
SUCCESSFULLY PASSED
the VTNE Licensure Exam.

Associate Degree in Veterinary Technology (725)

For the same Value Fall Comments
Freshman Year-Fall Semester
Biology 1010-10114
English 10103
Mathematics 10203
Orientation/University 10001
VTEC 1010-1011 (Intro 1)
VTEC 1020 (Medical Terms)2
16
Sophomore Year-Fall Semester
Humanities3
VTEC 2090-2091 (Anatomy & Physiology)4
VTEC 3100-3101 (Parasitology)
VTEC 3190-3191 (Hospital Tech 1 - Clin. Path.) 4
VTEC 4090 Pharmacology3
18
Sophomore Year-Summer Semester
VTEC 2900 (Internship)12
Social Science
15

Freshman Year-Spring Semester
Biology 1020-10214
English 10203
VTEC 1030-1031 (Intro 2)
VTEC 2060 (Pharmacological Calculations) 1
Psychology 1010
Biology 2060-20614
18
Sophomore Year-Spring Semester
VTEC 2600 (Animal Care/Health)2
VTEC 3010 (Diseases)
VTEC 3200-3201 (Hospital Tech 2-Anes/Surgery) 4
VTEC 3700-3701 (Radiology)3
Fine Arts 1040
15

Total Hours: 82









Baccalaureate Degree in Biology Veterinary Technology concentration

Curriculum for biology (618V)

First	Yea	ar
Riolo	αv	10

Biology 1010-1011, 1020-1021	8
English 1010, 1020	6
Concentration-dependent courses	9
Mathematics	6
Orientation/University 1000	1
	30

30
Second Year
Biology 2060-20614
Chemistry 1030-1031, 1040-10418
Concentration-dependent courses
Humanities3
Mathematics
Social/Behavioral Sciences
30

Third Year English 2110
Social/Behavioral Sciences
30
Fourth Year
VTEC 2900 - General Internship12
Humanity3
VTEC 4900 - Specialty Internship6
General Electives9

Total Hours: 120

*Veterinary Technology (618V): Take VTEC 1010-1011, 1020, 1030-1031, 2060, 2090-2091, 2600, 2900, 3010, 3100-3101, 3190-3191, 3200-3201, 3700-3701, 4090, 4200, and 4900.

▶ Pre-Veterinary Medicine Non-degree program

Curriculum for pre-veterinary medicine

First Year

Biology 1010-1011, 1020-10218
Chemistry 1030-1031, 1040-10418
Communication 1010
Elective
English 1010, 10206
Mathematics 1020, 10906
Orientation/University 10001

35
Second Year
Biology 2060-2061
Chemistry 3010-3011, 4040
Electives13
Humanities
Physics 2030-2031, 2040-2041
Veterinary Technology 1020

Total Hours: 70

Veterinarians and Veterinary Technicians who follow national accreditation guidelines teach all VTEC courses. Students are required to attain a grade of C or better in these courses.

Students are able to arrange course schedules to meet individual needs.

Upon graduation, many states require technicians to be registered, licensed or certified. Specific registration provisions vary according to the needs and laws of each state, but most require a certification examination.



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DEPARTMENT OF Biology & Microbiology

DO YOU:

- Want to be a medical or osteopathic doctor, veterinarian, dentist, or pharmacist?
- Enjoy studying the human body, animal forms, or nature?
- Envision yourself working in a laboratory or having a career in environmental science?

A BACHELOR OF SCIENCE IN BIOLOGY OR MICROBIOLOGY MAY BE FOR YOU.



A DEGREE IN BIOLOGY OR MICROBIOLOGY from

Northwestern State is a key to a growing field of careers and employment opportunities. According to federal government statistics, employment of biological and physical scientists is expected to increase much faster than the national average for all occupations. A science-based degree from Northwestern State can be a springboard for a wide range of opportunities.

CAREER OPTIONS

A B.S. in Biology or Microbiology is a gateway to some of the most stable, well-paying and highly demanded jobs.

- Medical or Osteopathic Doctor
- Veterinarian
- Pharmacist
- Dentist
- Physician Assistant
- Physical or Occupational Therapy
- Respiratory Therapist
- Optometrist
- Clinical Laboratory Technician
- Forensic Investigator
- Biomedical Researcher
- Microbiologist
- Natural Resource Specialist
- Wildlife & Fisheries Biologist
- Forestry Technician
- GIS Specialist
- Botanist
- Wildlife Ecologist
- Wildlife Law Enforcement Officer







Why join the Department of Biology and Microbiology at NSU?

COMPREHENSIVE EDUCATIONAL PROGRAM:

Bachelor of Science in Biology concentrations:

- Biomedical
- Wildlife Biology and Conservation
- Forensic Investigation
- Clinical Laboratory Sciences
- Veterinary Technology
- Agribusiness
- General Biology (fully online)

3 Minors

- Microbiology
- Biology
- Wildlife Management



Bachelor of Science in Applied Microbiology concentrations

- Environmental & Applied Microbiology
- Medical & Health Professions

Pre-Professional Programs

- Pre-Cardiopulmonary Science
- Pre-Medicine and Pre-Dentistry
- Pre-Optometry
- Pre-Pharmacy
- Pre-Physician Assistant
- Pre-Veterinary Medicine
- Pre-Occupational Therapy
- Pre-Physical Therapy





Active Research

involving undergraduate students (JOVE program). Students present their research at regional and national conferences.



Advanced Equipment

Over \$1.3 million spent on lab equipment in recent years.





PROVEN TRACK RECORD

- 100% acceptance rate
 to Louisiana medical and
 osteopathic schools with a
 3.8 and 500+ MCAT
- Approximately 30% of students graduate with honors
- Excellent record of placing students into graduate and professional programs
- Career placement opportunities



DEPARTMENT OF

Biology and Microbiology

318-357-5323 | bio_sci@nsula.edu www.nsula.edu/sciences/





Mathematics

DO YOU:

- Want to be a mathematician, statistician, university professor, actuary, data scientist, or operations research analyst?
- Enjoy working with numbers and problem solving?
- Have an interest in using math to drive innovation or a passion for developing new mathematical theories?

THEN A BACHELOR OF SCIENCE IN MATHEMATICS MAY BE FOR YOU.

What are the prospects for finding a job in mathematics?

Math Occupations

employment is expected to grow

29%

from 2021 to 2031.

FUTURE EMPLOYMENT GROWTH EXPECTATIONS

220/ Actuaries

33/0 Mathematicians and Statisticians 2/0 Operations Research Analysts

EMPLOYMENT OF MATHEMATICIANS

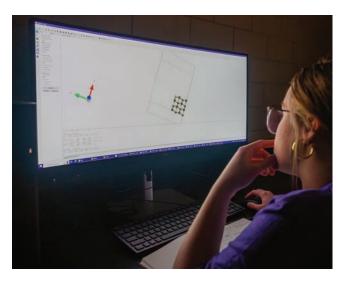
is expected to **INCREASE BY** during the 2016–2026 decade as compared to a 7% growth overall.



Occupational Outlook Handbook, Bureau of Labor Statistics

CAREER OPTIONS

- Mathematician
- Economist
- Algorithm engineer
- Software engineer
- Actuary
- Data scientist
- Meteorologist
- Mathematics teacher
- Accountant
- Research analyst
- Financial analyst
- Financial planner
- Information security analyst
- Auditor
- Statistician





NATIONAL AVERAGE ANNUAL SALARIES for Math-related Careers:

DATA SCIENTIST \$144.303

ACTUARY \$118,842

MATHEMATICIAN \$111,138

\$75,362

\$60,962

According to Indeed.com

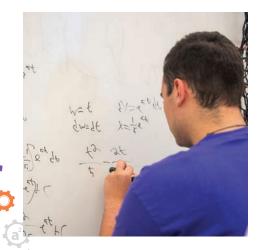
SCHOLARSHIPS for Mathematics Majors

Unparalleled scholarships available to math majors allowing students to graduate DEBT FREE.

Why study mathematics at NSU?

Mathematics is the gateway to scientific exploration and exciting careers. Whether your interests are in national security or sports analytics; finance or medicine; engineering or computer programming, a math degree from Northwestern State is the perfect start to your journey.

- Unparalleled scholarships available to math majors allowing students to graduate debt free.
- Small upper-level courses all taught by highly qualified and engaged faculty
- Integration of technology in classes
- Dedicated student spaces for mathematics majors
- Travel opportunities to professional meetings and student competition events



FOUR CONCENTRATIONS OFFERED:

Pure Math

Pure Math is "the study of math for the sake of math." In this curriculum, students will discover the beauty, mystery, and power of mathematics as they gain a deeper understanding and greater breadth of knowledge in algebra, analysis, and logic.

Actuarial Mathematics

Actuarial Mathematics is the integration of mathematics, finance, accounting, and economics. In this concentration, students will learn how to apply statistical probabilities, mathematical techniques, and quantitative tools to manage and mitigate the financial risk of uncertain future events.

Healthcare Informatics

Healthcare Informatics is the integration of mathematics and computer information systems as they apply to healthcare information. In this concentration, students will learn how information technology can be used to positively impact human health through the collection, safeguarding, and understanding of biomedical data.

Applied Math

Applied mathematics is the application of mathematics to real-world problems in areas such as physics, chemistry, biology, engineering, and computer science. Students in this concentration will learn to improve and/or create methods for solving new and current problems.

NSU MATH GRADUATES HAVE GONE ON TO STUDY OR WORK AT:

Bellsouth ExxonMobil Farm Bureau Insurance **General Dynamics** Global Risk Solutions Hewlett-Packard Johns Hopkins University Kansas State University Louisiana State University NASA Houston Space Flight Center **National Security Agency** Pacific Life Primerica Rice University **Texas Instruments United States Army** University of Nebraska University of North Carolina







DIVISION OF Mathematics

318-357-4308 | mathematics@nsula.edu www.nsula.edu/mathematics/





Physical Science

DO YOU:

- Want to be a pharmacist, medical or osteopathic doctor, forensic scientist, chemist or physicist?
- Enjoy understanding how the human body and natural environment work?
- Enjoy creating/synthesizing things?
- Want a career in government agencies or the private sector?

THEN A DEGREE IN PHYSICAL SCIENCE MAY BE FOR YOU.

What can I do with a physical science degree?

CAREER OPTIONS

With a B.S. in physical science, there are many possible career options. Graduates typically follow one of three paths:

- Work with government agencies including, USDA, FDA, EPA, North Louisiana Crime Lab, NASA
- Careers in the private sector
 - Quality Control and Quality Assurance
 - Pharmaceutical Industry
 - Research and Development
 - Petrochemical Industry
 - Energy and Conservation
- Pursue a graduate education M.S., Ph.D in science, Pharm. D, Medicine

PROFESSIONAL TECHNOLOGY

The Department of Physical Science operates with all the equipment necessary to provide our students with the education necessary to become attractive candidates for industry or graduate school. Some of our research/training equipment includes:

- Ultraviolet-Visible spectrometer (UV-Vis)
- Fourier-Transform Infrared spectrometer (FTIR)
- Luminescence spectrometer
- Scanning Tunneling Microscope
- Ion Chromatography (IC)
- Computational Simulation Lab
- Inductive Coupled Plasma mass spectrometer (ICP)
- Gas Chromatography mass spectrometer (GC)
- 3D-printer
- Nuclear Magnetic Resonance spectroscopy (NMR)
- ▶ Liquid Chromatography (LC)



- Programs designed to PREPARE OUR STUDENTS for the competitive job market, both at the bachelor level and professional school/graduate level.
- Work closely with other departments to ensure the availability of courses that are TAILORED TO MEET THE NEEDS of our students.
- Full-time faculty members who SPECIALIZE in a wide array of topics, from theoretical physics to biochemistry!



Why join the Department of Physical Science at NSU?

Our Department offers a curriculum designed to prepare students for a competitive job market. Students may choose to follow the physical science curriculum alone or supplemented with one of our four concentrations.

Bachelor of Science in Physical Science with 4 concentrations:

- Chemistry
- Biochemistry
- Physics
- Forensic Laboratory Science

Minors

- Chemistry
- Physical Science



Check out some of the courses that we offer!

Students seeking a degree in physical science will take lectures and laboratory courses in:

Chemistry Courses:

- » General Chemistry I & II
- » Organic Chemistry I & II
- » Inorganic Chemistry
- » Quantitative Analysis
- » Instrumental Analysis
- » Physical Chemistry I & II
- » Biochemistry I & II
- » Special Topics in Chemistry
- » Research Problems in Chemistry

Physics Courses:

- » General Analytical
- » Electronics/Optics
- » Thermodynamics
- » Quantum Mechanics
- » Numeric Simulations
- » Computational Condensed Matter
- Project-based Research



The **DemonSats** is a cross-disciplinary student team who design and build sounding balloon payloads to go to space.

Realistic Training for NASA Projects













Engineering Technology

DO YOU:

- Enjoy solving problems, making decisions, and communicating technical ideas?
- Enjoy projects and working with or leading a team?
- Enjoy the challenge of working with electronics and/or the everadvancing medical technology field?
- Want a career in government agencies or the private sector?

THEN A DEGREE IN ENGINEERING TECHNOLOGY MAY BE FOR YOU.

Engineering Technology (ET) graduates are in great demand by employers

ET GRADUATES GET JOBS! Graduates of the ET programs at NSU are sought after by employers. Regional employers routinely contact the department and schedule interviews for internship and full-time jobs. Many of our graduates are also accepted in nationally recognized graduate schools.

Developing engineering technology talent enables the state of Louisiana to attract and retain high-paying manufacturing companies, which promotes economic

development for the state. The Department of Engineering Technology is a designated University of Louisiana Area of Excellence.

Where do ET graduates fit in the workplace?

CAREER OPTIONS

- Installation, operations, and maintenance of technology
- Bridging the gap between design and operations
- Oil and gas production
- Traditional manufacturing
- Manufacture production, maintenance, and operations
- Sales
- Medical technology

All ET disciplines prepare our students to lead project teams, and possess strong organizational, leadership, and supervisory skills.

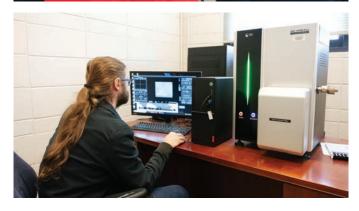


SCHOLARSHIPS for Engineering Technology

Scholarships are offered to qualified students based on need and academic qualifications.

Northwestern State's B.S. Industrial Engineering Technology and B.S. Electronic Engineering Technology programs are accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.





Why join the Department of Engineering Technology at NSU?

ET DEGREE PROGRAMS OFFERED:

Bachelors of Science in Electronics Engineering Technology with two concentrations:

- Electronics
- Biomedical

Bachelors of Science in Industrial Engineering Technology

Associates of Science in Engineering Technology with three concentrations:

- Electronics
- Industrial
- Advanced Manufacturing

Pre-Professional Programs

• Pre-Engineering

Post Baccalaureate Certificate Programs

- Quality Control
- Project Management

Whether doing a 4-year Bachelor of Science or a 2-year Associates of Science Engineering Technology students gather practical experience and are job-ready upon graduation. These students demonstrate their ability to solve real-world problems through projects provided by local and regional partner industries.

INTERN AND WORK EXPERIENCE OPPORTUNITIES PROVIDED BY OUR INDUSTRIAL PARTNERS:

Frymaster
Crest Operations
Boise Cascade
Roy-O-Martin
Alliance Compressors
International Paper
Cleco Power

Weyerhaeuser

WK Medical Systems
Cabrini Hospital
Schlumberger
Natchitoches Regional
Medical Center
AFCO Industries

Stella-Jones

Industrial Engineering Technology (IET) is unique in Louisiana

The NSU Industrial Engineering Technology program is the only one of its kind in Louisiana. IET students learn to develop, implement, and improve industrial systems and processes. Graduates also learn how to efficiently use personnel, materials, machinery, and facilities. The IET degree curriculum also provides a strong foundation in operations and production management, material handling, quality control, continuous improvement, and safety.

ADVANCED MANUFACTURING



- Workforce-oriented and designed to cultivate specialized proficiency in cutting-edge manufacturing processes.
- Students attend class 2 times a week and work with an industry partner 3 days a week.
- Uniquely integrates classroom learning with hands-on experience.
- Students receive a competitive wage from our industry partners while taking classes!













Check out our annual events!

Open to high school and middle school students.



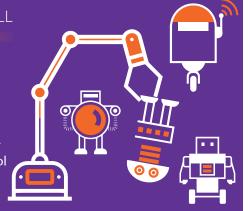
STEM Day - FALL AND SPRING

NSU's School of STEM hosts STEM Day each fall and spring. All students in 9th-12th grades are invited to explore career opportunities, meet with faculty, and learn about degree programs in several diverse fields, including biomedical/microbiology, natural science and ecology, veterinary science, chemistry and physics, mathematics, and engineering.



ET Robotics and Smart Structures Show - FALL

Northwestern State University's Department of Engineering Technology hosts its Fall Robotics Competition and Smart Structures Show (RC&S3) each fall. All middle schools within a 200-mile radius of Natchitoches are welcome to participate. Events include robotics competition and a smart structure show to provide opportunities for high schools and other organizations that are involved in robotics-related projects to show their creativity at the event. Come test your computer programming skills and compete with other Louisiana students for cool prizes! A fun day is planned at Northwestern State University with educational experiences, and social activities. Parents are welcome too!



Demon Math Classic - SPRING

Demon Mathematics Classic, a "quiz-bowl" style competition for high school students is an annual event each spring hosted the Department of Mathematics at NSU. Students compete as a team or as individuals. Winners of the Individual competition each receive prizes and scholarships. More information can be found at:

https://www.nsula.edu/mathematics/demonmath/





Find more information about upcoming events on our website.

www.nsula.edu/stem/

follow us on social media

Northwestern State University does not discriminate on the basis of race, color, gender, religion, sexual orientation, national origin, disability, genetic information, age, pregnancy or parenting status, and veteran or retirement status in its programs and activities and provides equal access to the Boy Scouts and other designated youth groups. The following individuals have been designated to handle inquiries regarding non-discrimination policies (i.e., Title IX): Employees/Potential Employees — Veronica M. Biscoe, EEO Officer (318-357-6359) and Students — Reatha Cox, Dean of Students (318-357-5285). For Americans with Disabilities Act (ADA) concerns, contact the Accessibility and Disability Support Director, Taylor Camidge, at 318-357-5460. Additionally, Northwestern complies with the Jeanne Clery Disclosure of Campus Security Policy & Campus Crime Statistics Act. Information about NSU's campus security and crime statistics can be found at https://www.nsula.edu/universityaffairs/police/. Full disclosure statement: https://www.nsula.edu/iehr/

Northwestern State University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, specialists, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Northwestern State University

SCHOLARSHIPS

for **STEM** Students

Northwestern State offers both full and partial scholarships for students who qualify. An entering freshman, interested in majoring in a STEM subject, who meet the criteria can qualify for a scholarship that covers MOST OR ALL of their college expenses. The criteria would include your ACT score and extracurricular activities in high school and rank in class.





N-SIDE VIEW PREVIEW DAYS

A special day each fall and spring for all future students.

- Campus Tours Submit Applications
- Meet Advisors Browse Organizations
- Informational Sessions
- Complimentary tickets to athletic events

PARENTS ARE WELCOME!



More info at: www.nsula.edu/recruiting/preview-days/

VISIT

Explore everything NSU has to offer, apply for admissions and scholarships, and visit our beautiful campus at your earliest convenience.

Plan your visit today at

participate in visit activities, please advise the Office of Admissions when you schedule your appointment.

We encourage you to apply for admission and financial aid as soon as possible.

To get started, visit

Natchitoches, LA 71497 Give us a call at

Student Services Center Natchitoches, LA 71497 Give us a call at or email

