

MAJORS AND OPPORTUNITIES IN
ENGINEERING
& SCIENCE

SCIENCE OR ENGINEERING?

CHOOSE WHAT MOVES YOU.

ENGINEERING

For the doers, the tinkers and the out-of-the-box thinkers, engineering is more of a calling than a career.

Get creative: Solve problems. Change the world. Engineers use their unique skill set to accomplish what no one else has and to understand and improve upon the way human beings live.

Job security: Nearly 140,000 new engineering jobs are expected to become available this decade, according to the U.S. Bureau of Labor Statistics (BLS).

A comfortable living: The median annual wage for engineers in 2021 was \$93,000, and the median hourly wage is more than twice that of all workers, according to the BLS.

SCIENCE

On the journey toward total understanding of the universe, we are only beginning. Scientists are pioneering the frontier.

Relentlessly curious? Make a career out of finding answers to your questions and applying your life's work for the betterment of humanity.

Prepare for the future: Science degrees teach students to think critically, solve problems and adapt to new situations—all pivotal career skills no matter the job or industry.

Get hired: STEM graduates are more likely to find jobs immediately after graduation and have higher starting salaries than non-STEM graduates.

UNDERGRADUATE DEGREE PROGRAMS

Aerospace Engineering, B.S.

- » Design aircraft, or be part of the team for space exploration.
- » Develop and build a new aerospace system, then present it to potential employers.
- » Specialize in systems engineering, nanotechnology, sustainability, flight test engineering or control of space systems.

Astrobiology, B.S.

- » Study the theory of abiogenesis at the only undergraduate astrobiology program in the country.
- » Discover past or present microbial life on Mars, or help develop ways to sustain life on the moon.
- » Get hands-on experience with space science technologies.

Astronomy and Astrophysics, B.S.

- » Study black holes, examine the behavior of stars or determine the origins of the universe.
- » Observe dwarf stars and extrasolar planets with our Ortega 0.8-m telescope, one of the largest in the Southeast.
- » Take part in research projects at NASA, JPL, SpaceX or other industry leaders.

Biochemistry, B.S.


- » Explore the mysteries of DNA, or aid in the development of innovative biotechnologies.
- » Study the biochemical processes that occur in plants, animals and single-celled organisms.
- » Present papers at prestigious academic meetings and conferences.

Biology, General, B.S.

- » Examine human evolution, study the complexities of living systems or become a leader in public health advocacy.
- » Specialize in genetics and physiology, conservation, agriculture, marine biology or tropical ecology.
- » Get hands-on training in our state-of-the-art facilities.

Biomathematics, B.S.

- » Garner a wealth of data tools through hands-on, modeling-based learning, studying concepts in modern molecular biology.
- » Research applied statistics, mathematical programming and combinatorial optimization.
- » Undertake both lab and field experiments involving operations research and queuing theory.



We relentlessly push the boundaries of knowledge to better understand our world.

Biomedical Engineering, B.S.

- » Prepare for a career in medicine, public health or the rapidly growing biotechnology industry.
- » Do research in lasers, medical and neural imaging, physiology, biomaterials and biomechanics.
- » Work alongside physicians in a clinical setting to help solve biomedical engineering problems.

Biomedical Science (Premedical), B.S.

- » Take specialized courses in anatomy, microbiology, genetics, physiology, developmental biology and immunology.
- » Fulfill admission requirements for medical school while training in the biological sciences.
- » Do cutting-edge research in our state-of-the-art labs.

Chemical Engineering, B.S.

- » Discover alternative sources of energy, develop new methods of food production or engineer the next medical breakthrough.
- » Gain a strong background in modern chemical dynamics, biochemical engineering and nuclear technology.
- » Participate in the national Chem-E Car Competition by designing a small car powered by a chemical reaction.

Chemistry— General Chemistry, B.S.

- » Analyze the complexities of Alzheimer's disease, aid in the development of life-sustaining medications or discover new applications of nanotechnology.
- » Prepare for a career in materials science, research and development, forensics, consumer products, government policy or food chemistry.
- » Get published in scientific journals—before you graduate!

Civil Engineering, B.S.

- » Engage in land development or design bridges, water distribution systems, water treatment plants or highways.
- » Specialize in construction management, water resource management or environmental, geotechnical, structural or transportation engineering.
- » Learn from an internationally recognized faculty of professional engineers.

Computer Engineering, B.S.

- » Focus on the design and analysis of computer hardware, software, operating systems and networks.
- » Design, build and test your own complex computer systems.
- » Develop new methods of automation, design high-performance software or engineer new robotic technologies.

Computer Science, B.S.

- » Learn algorithmic thinking and how to design, develop and test software and information systems.
- » Develop new methods of human-computer interaction, design artificial intelligence systems or become a computer security pioneer.
- » Build hands-on experience with tools and techniques for investigating, analyzing and responding to cyberattacks through our cyber operations concentration.

Construction Management, B.S.

- » Combine practical business and project planning skills with vital engineering expertise.
- » Study entrepreneurial contracting, architectural engineering and landscape architecture.
- » Conceptualize, design and present construction projects that fulfill real-world needs.

Electrical Engineering, B.S.

- » Invent and patent new technologies, design laser scanning systems or engineer electronic solutions to modern problems.
- » Specialize in unique career-track subfields, such as electromagnetics, physical electronics and wireless systems.
- » Get hands-on experience in software simulation and analysis.

Environmental Science, B.S.

- » Immerse yourself in the study and application of ecology, physics, chemistry, geology, geography, oceanography and natural resource management.
- » Specialize in coastal engineering, hydrographic engineering, naval architecture and corrosion and underwater technology.
- » Work to solve local, regional and global environmental issues, such as offshore oil spills, sea-level rise and natural resource management.

Genomics and Molecular Genetics, B.S.

- » Discover the DNA blueprints of organisms and how their construction, regulation and mutation contribute to human diseases.
- » Learn how genomics and molecular genetics are transforming biology, oncology, pharmacology and infectious disease research.
- » Get recruited for careers in health care, forensic science, biotechnology, genetics, food science and bioengineering.

Interdisciplinary Science, B.S.

- » Learn science through many different electives in science, engineering, the arts, humanities and business.
- » Prepare yourself for a variety of medical, engineering, industrial, scientific and academic careers.
- » Specialize in virtually any scientific field, with options in military science and aeronautics.

Marine Biology, B.S.

- » Delve into the study of deep-sea organisms, marine habitats and aquaculture firsthand.
- » Perform research in the most diverse estuary in North America, just five minutes from campus, or along miles of Atlantic coast, about 10 minutes away.
- » Travel to the Galapagos Islands or the Great Barrier Reef on one of our field research trips.

Marine Conservation, B.S.

- » Learn how to mitigate the pressures from development and climate change on natural ecosystems.
- » Preserve biological diversity and sustainability, and protect rare, threatened and endangered marine life.
- » Study in nearby natural laboratories, including the largest sea turtle nesting beaches in the U.S.

Mathematical Sciences, B.S.

- » Build a strong background in calculus, numerical analysis and modeling, as well as in science and engineering.
- » Undertake interdisciplinary research in applied statistics, mathematical programming, neural networks and queuing theory.
- » Participate in internships at a variety of businesses and government agencies, including NASA, Northrop Grumman Corp. and L3Harris Technologies Inc.

Mathematical Sciences— Applied Mathematics, B.S.

- » Solve important problems such as underground water pollution, traffic jams, inflation, unemployment and climate change.
- » Study the theory and application of mathematics to other disciplines such as engineering and the sciences.
- » Explore the intricacies of discrete mathematics, design neural networks or develop a better web search algorithm.

Mechanical Engineering, B.S.

- » Design a more efficient power generator, develop new methods of automation or engineer the latest machine system.
- » Analyze, design and fabricate systems that effect a conversion between mechanical, electrical and thermal energies.
- » Specialize in unique career-track subfields, such as systems engineering, nuclear technology and energy engineering.

Meteorology, B.S.

- » Become an atmospheric scientist, aviation meteorologist, broadcast meteorologist, storm tracker or world weather expert.
- » Get in-depth exposure to oceanography, geology, space science, environmental science, climate science and atmospheric chemistry.
- » Study in a dedicated meteorology lab, and have access to a professional-caliber meteorological data stream.

Ocean Engineering, B.S.

- » Study fluid and wave dynamics, underwater technology and instrumentation and electronics in our high-tech labs.
- » Immerse yourself in an interdisciplinary program that combines aspects of civil, mechanical and electrical engineering with applied oceanography.
- » Become a naval architect, develop a new way to prevent coastal erosion or design jetties and seawalls.

Oceanography, B.S.

- » Use biology, chemistry, geology, meteorology, engineering and technology to unlock the mysteries of the oceans.
- » Develop ways to restore wetlands and shorelines, design and manage parks and sanctuaries or solve the mystery of red tide.
- » Gain a better understanding of marine ecosystems and geophysical fluid dynamics.

Physics, B.S.

- » Explore the mysteries of antimatter, develop laser technologies or discover new energy sources.
- » Study natural phenomena—from the subatomic scale to the vastness of the universe—in our high-tech labs.
- » Do research with faculty on such topics as lightning, astronomy and astrophysics, experimental high-energy particle physics and space physics.

Physics—Premedical Physics, B.S.

- » Explore the mysteries of antibiotic-resistant bacteria, become a leader in cancer research or enter a prestigious medical, veterinary or dental school.
- » Take specialized courses in mathematics, modern physics, biology, chemistry and quantum mechanics.
- » Choose from a wide range of research topics, including physics, astrophysics, space sciences and atmospheric physics.

Planetary Science, B.S.

- » Study the effects of solar activity, examine our solar system's planetary bodies or unlock the mysteries of planets around other stars.
- » Get hands-on experience in physics and space science technologies.
- » Observe extrasolar planets and other cosmic phenomena on our Ortega 0.8-m telescope, one of the largest research telescopes in the Southeast.

Software Engineering, B.S.

- » Design dynamic internet applications, debug embedded software systems or engineer a new way to protect electronic information.
- » Build a strong background in the design and development of software products.
- » Conceptualize, design and present a novel software application that fulfills a real-world need.

Sustainability Studies, B.S.

- » Develop new sustainable science and engineering innovations, or build sustainability consulting businesses.
- » Research climate change, create technology solutions or embark on careers in industry, governmental policy, agriculture and nonprofits.
- » Build experience through community research projects, and prepare for a career in one of many sustainability initiatives.

General Engineering

- » Explore different engineering fields, and complete coursework while you decide on the particular engineering program for you.
- » Learn from an internationally recognized faculty of professional engineers in a high-tech environment.
- » Choose from such fields as aerospace, biomedical, chemical, civil, computer, electrical, mechanical or ocean engineering.

General Science

- » Delve into a variety of science programs, and complete coursework while you decide on the particular science major for you.
- » Keep on track with coursework in biology, chemistry and calculus (with the option to take physics).
- » Learn about your strengths and interests, whether they are mathematics, chemistry, marine biology, premed studies or astronomy and astrophysics.

OUTSIDE THE CLASSROOM

On campus, there are more than 100 student-run clubs and organizations—both academic and purely recreational. If you like engineering and science, here are a few that might pique your interest:

- » **Astrobiological Research and Education Society**
- » **Ethos Community Garden Club**
- » **Marine Biological Society**
- » **Pre-Med Club**
- » **Society of Physics Students**
- » **Society of Women Engineers**
- » **Student Organization for Sustainability Action**
- » **Student Rocket Society**
- » **Students for the Exploration and Development of Space**



UNDERSTAND THE PRESENT. CREATE THE FUTURE.

EXPLORE, DISCOVER AND INNOVATE

Founded the same year as NASA by a visionary physicist, Florida Tech has always been strong in science, technology, engineering and mathematics. Now offering more than 30 undergraduate STEM degree programs, our College of Engineering and Science (COES) is by far the university's largest academic division.

The COES is made up of six departments:

- » Aerospace, Physics and Space Sciences
- » Biomedical and Chemical Engineering and Sciences
- » Computer Engineering and Sciences
- » Mathematical Sciences
- » Mechanical and Civil Engineering
- » Ocean Engineering and Marine Sciences

These interdisciplinary units align students not only with their major faculty, but also with a network of researchers doing exciting work in related fields. For example, you can major in physics anywhere—but only at Florida Tech will your physics experience connect you with top astronomers, rocket scientists, aerospace engineers and theoretical physicists at the same time.

And those connections don't disappear after graduation. There's a reason that PayScale ranks Florida Tech among the top Florida universities for return on investment: 91% of recent graduates report being placed in jobs or graduate school within six months after graduation.

LOCATION ADVANTAGE: To aspiring engineers and scientists, Florida Tech's location means robust marine research and aquatic fieldwork opportunities, as well as a direct link to a wealth of space and technology industry giants like SpaceX, Blue Origin, Boeing, Lockheed Martin and more. Just by being here, you can connect with a universe of opportunities.



STUDENT DESIGN: Every COES degree program culminates in an immersive, year-long capstone experience we call "student design." For their student design projects, seniors work in teams to conceptualize, pitch, plan, design, fund and present a project of current industry interest. At students' disposal: a wealth of state-of-the-art equipment, high-tech laboratories and industry-caliber makerspaces. Experiences like student design are a primary reason Florida Tech graduates are widely recognized for science and engineering excellence, as well as career readiness and overall employability by top employers.





GORDON L. NELSON HEALTH SCIENCES



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