Welcome to our WORLDS...
Florida Institute of Technology

www.fit.edu

biochemistry • biological sciences • chemistry • environmental science
interdisciplinary science • meteorology • oceanography
pre-med studies • physics • science education • space sciences
Do you have a passion for scientific study?

Florida Institute of Technology certainly does. That’s why we attract a world-class faculty and conduct in-depth research with global relevance. Florida Tech is one of the nation’s most respected scientific and technological universities, offering degrees in a variety of fields.

Our main campus is located in Brevard County, along the Atlantic coastline of Central Florida. Better known as the “Space Coast,” it is home to NASA, Kennedy Space Center, United Space Alliance and many other government agencies and technology companies.

From Space Exploration to Sea Turtles

The area’s attractive business climate is matched only by its natural resources, many of them ideal for scientific study and research: the estuarine habitats of the Indian River Lagoon; the Atlantic Ocean marine ecosystem; area beaches, marshes and wetlands; thousands of acres of protected wildlife habitats; and a variety of Gulf Stream weather phenomena to observe.

And that’s just in our backyard. Research and field projects spearheaded by Florida Tech professors often take students to exotic locations all over the world—from Peru to the Alaskan Arctic, Hungary to Australia. In fact, our most valuable resource is our outstanding faculty, who continually challenge and motivate their students to make the learning experience a dynamic, hands-on adventure!
Science degrees at Florida Tech...

There are so many areas of specialization within the realm of scientific study—all of them full of possibilities for exciting and rewarding lifelong careers. Following are some of the scientific fields you may choose to pursue at Florida Tech:

**BIOCHEMISTRY**
Like molecular detectives, biochemists are the scientific sleuths who continually look for clues that will unravel the mystery of the organic life processes linking chemistry with living organisms. Often defined as the “chemistry of life,” biochemistry underlies and includes such fields as molecular biology and bioengineering.

**BIOLOGICAL SCIENCES**
If it looks like a duck and walks like a duck, then it’s probably a duck, but what family and genus? The answers can be found in the biological sciences, which examine every aspect of living organisms, from the biochemical reactions involved in supporting cellular processes to the interaction of organisms and their environments. Florida Tech offers program options in various specializations:
- Aquaculture
- Ecology
- General Biology
- Marine Biology
- Molecular Biology/Genetic Engineering
- Preprofessional Biology

**CHEMISTRY**
If you get a charge out of subatomic particles, you’ll be in your element studying chemistry. Some knowledge of chemistry is essential for almost every area of scientific study and chemistry grads traditionally find work in many fields, from food to pharmacology; ecology to consumer product testing. Advances in technology have created a growing number of career opportunities in forensic science, biotechnology and DNA analysis.

Florida Tech’s chemistry department offers four program options:
- Research Chemistry
- General Chemistry
- Chemical Management
- Premedical Chemistry

**ENVIRONMENTAL SCIENCE**
Expand your spheres of influence—from the lithosphere to the biosphere, hydrosphere and atmosphere. Environmental science is concerned with the interaction of all the “spheres” as well as the relationship and effects of human activities on the environment.

**INTERDISCIPLINARY SCIENCE**
Already have a plan? If you know what you want, we’ll help you get what you need. Florida Tech offers a bachelor’s degree in interdisciplinary science for students who begin their freshman year knowing they will be doing graduate study in a specific professional field.

**METEOROLOGY**
If you are fascinated by the complex interactions between earth, sea and sky and excited by the “winds of change” you should consider the study of meteorology. Identifying, tracking and analyzing the powerful forces behind weather and climate patterns are part of the meteorology curriculum as well as the observation of severe weather and its causes.

**OCEANOGRAPHY**
A deeper understanding of the oceans may be the wave of the future, especially when you consider how much of our earth is covered by ocean waters. Florida Tech’s oceanography instruction and research activities occur at specially equipped labs and aboard the university’s own research vessel R/V Delphinus.

**PHYSICS**

**PREPROFESSIONAL PHYSICS**
Physicists specialize in getting to the heart of the matter. Why do things move the way they do? Why do they stay put? The physicist observes matter and energy and their interaction and formulates theories, principles and laws that provide the answers.

**PRE-MED STUDIES**
For centuries, the application of scientific methods within the field of medicine has brought about life-enhancing discoveries. If you’re exploring a career in medicine, Florida Tech’s preprofessional options provide you with the specific interdisciplinary curriculum necessary for meeting the entrance requirements of essentially all schools of medicine, dentistry, osteopathic medicine, podiatry, and optometry, as well as the nonagricultural courses for veterinary medicine. Pre-med studies include:
- Biochemistry
- Molecular Biology
- Premedical Chemistry
- Preprofessional Biology
- Preprofessional Physics

**SCIENCE EDUCATION**
Great teachers can inspire a lifelong love of learning and make a positive difference in the lives of many. Our Science Education programs are designed for individuals who have the calling to be first-rate educators, teaching middle and high school level students. Curriculum options include: Computer Science, Mathematics, Biology, Chemistry, Earth-Space, General Science and Physics.

**SPACE SCIENCES, ASTRONOMY, ASTROPHYSICS**
If you’re determined to reach for the stars, you may have the right stuff for a career in the space sciences. With NASA, Cape Canaveral and Kennedy Space Center less than an hour away, Florida Tech has been educating future engineers, astrophysicists and scientists since the earliest days of the space program. Florida Tech offers concentrations in the closely related disciplines of Astronomy and Astrophysics.

We know it’s a major decision. If you are interested in multiple areas of science and undecided as to which branch you would like to earn your degree in, Florida Tech enables you to enroll in a General Science curriculum for two semesters before you must make the final decision on your major.

For more information log onto www.fit.edu

*Christina Pelzer
Senior, Space Sciences*

“There are a million opportunities for students to become involved at Florida Tech. Students can take work-study positions assisting in research projects with professors, come up with their own through undergraduate research classes, or they will be supported if they want to pursue other research, like the project I am proposing with NASA on the KC-135.

“Florida Tech is a really fun environment to be in. Everyone here is excited about what they are studying. Everywhere you go there is something neat to study or research. I love it!”
“My research focuses on the Tropical Andes of Peru and Bolivia and the vegetation and climatic history of the cloud forests during the last 40,000 years.

“During my time at Florida Tech I have had the opportunity to participate in exciting field projects directly related to my field of study. I chose Florida Tech because in my area of concentration there is no better school—the paleoecology lab here is one of the best!”
We search for research...

With a strong philosophy of hands-on study, Florida Tech supports and encourages faculty and undergraduate students to participate in research projects. From the discovery of hydrothermal vents in the Atlantic Ocean by Dr. John Trefry and team, to Dr. Joseph Dwyer’s research disproving the conventional theory that lightning is produced by large electric fields—Florida Tech faculty and students are continually involved in redefining our perceptions and enhancing our knowledge of the world through scientific research. Following are just a handful of current research projects originated and led by Florida Tech faculty members.

**PROJECT: Organics-Related Water Pollution Research**  
Faculty Lead: Virender Sharma, associate professor of chemistry  
Professor Sharma is working with scientists and students at Florida Tech and Eotvos Lorand University in Budapest to investigate reactions of chemical compounds and advance understanding of inorganic chemistry, physical chemistry and environmental chemistry. The project is funded through a grant from the National Science Foundation.

**PROJECT: High Energy Physics Research**  
Faculty Lead: Dr. Marc Baarmand, associate professor of physics  
Conducting research with the Compact Muon Solenoid (CMS, a large, general-purpose particle detector under construction at the Large Hadron Collider accelerator at the European Center for Particle Physics (CERN) in Geneva, Switzerland. More than 1,850 scientists from 150 universities and research institutions in 34 countries collaborate on this experiment, studying high-energy proton-proton collisions to answer some of the most fundamental questions of nature, such as the origin of mass and dominance of matter over antimatter in our universe. Funded by a grant from the U.S. Department of Energy, Division of High Energy Physics.

**PROJECT: Aquaculture - the Survival of Marine Ornamental Fish**  
Faculty Lead: Dr. Ralph Turningan, associate professor of biological sciences  
Using state-of-the-art, high-speed digital videography, the research focuses on the period of first feeding—a critical bottleneck for the aquaculture industry. Professor Turningan and his group are using the video along with traditional experimentation techniques to evaluate the development of feeding performances. The project is funded through a Florida Sea Grant.

**PROJECT: Ecological Research in the High Andes Mountains**  
Faculty Lead: Dr. Mark Bush, associate professor of biological sciences  
Research involves the extraction of sediment cores from Lake Titicaca, located within Peru and Bolivia. The lake is the highest in the world and the largest in South America. Bush’s team will examine an estimated 800 pollen and charcoal samples on each core, which is believed to trace a continuous sedimentary sequence spanning the last 140,000 years. Funding is from the National Science Foundation.

**PROJECT: Solar Flare Hazard Research**  
Faculty Lead: Dr. Ming Zhang, associate professor of physics and space sciences  
Zhang and his team are taking measurements obtained by several interplanetary spacecraft, such as Ulysses, ACE and Voyager. They will then investigate how the energetic particles thrown off by the sun’s corona during solar flares accelerate from the sun and how they propagate through interplanetary magnetic fields to the Earth. This research project is funded by NASA.

Andrew Condon  
Senior, Meteorology

“I wanted to study meteorology at a small school in a place with active weather and the location of the school is great. We get tropical weather, plenty of thunderstorms, an occasional tornado and even frost on those cool winter mornings. The proximity to the beach also slightly influenced my decision.

“Outside of school I love to surf and I spend a lot of my free time at the beach. I am also a believer in being mentally and physically fit, so I take advantage of the nice fitness facilities on campus.

“The program is small enough that you really get to know your teachers well. It makes for a great learning environment, where you have no problem asking for extra help and the teachers are more than willing to give it.”
Why in the WORLD
would you go anywhere else?

- The only independent, scientific and technological university in the Southeastern United States
- Located in Florida's High Tech Corridor, home to more than 5,000 high-tech companies and the nation's 5th largest high-tech workforce
- Classified by the Carnegie Foundation as a Doctoral Research Intensive University, a classification separating it from institutions that only offer degrees at the bachelor's or master's level
- Listed as a Barron's Guide “Best Buy” in college education and named as one of the top 14 technical institutions for engineering in the Fiske Guide to Colleges 2002
- For the 14th consecutive year, U.S. News and World Report has ranked Florida Tech among the nation's best national doctoral universities. The listing also places Florida Tech among the top 7% of America’s colleges and universities
- According to the latest survey of Florida Tech graduates, 96% are working in their major or in graduate school within 6 months of graduation
- Ranked 4th in the nation for ocean engineering and ranked 7th in the nation for marine biology by the Gourman Report
- Ranked among the top 5% of all U.S. institutions awarding B.S. degrees to women in physics

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