MASTER OF SCIENCE PROGRAMS
About University of Miami

University of Miami (UM), established in 1925, is a private research university. As one of the top universities in the U.S., UM has been ranked in the top 50 by *U.S. News & World Report* for the past five years. The University has more than 17,000 students from around the world.

- **11** schools and colleges with more than **180** majors and programs
- Ranked **#48** Best College by 2018 *U.S. News & World Report* and **#44** Best College by *Wall Street Journal/Times Higher Education*
- UM’s Bascom Palmer Eye Institute has been ranked as the **#1** ophthalmology program in the U.S. for 14 consecutive years by *U.S. News & World Report*.
Fast Facts

At UM, we transform lives through education, research, innovation and service.

- **11** Schools and Colleges
- **7** Libraries
- **3** Campuses
- **2** Medical Centers
- **133** Bachelor’s Programs
- **140** Master’s Programs
- **68** Doctoral Programs
- **17,000+** Total Students
- **10,800+** Undergraduate
- **6,100+** Postgraduate
- **185,000+** Alumni

**3,000+** Faculty Members

- **13** Research Centers
- **3** High-Tech Labs
- **1** Simulation Hospital
Roadmap to Our New Century

The aspirations that guide us toward our centennial in 2025.

Hemispheric
Our location in Miami gives us a distinct geographic capacity to connect instructions, individuals and ideas across the Americas and throughout the world.

Relevant
From its very origins, the University has served the local and global communities to which it belongs.

Excellent
A drive for excellence permeates every domain of our work — from research to public service, from teaching to athletics, from healthcare to the arts.

Exemplary
Integrity, respect, diversity, tolerance and resilience are qualities at the heart of the University.
High-Tech. Innovative. Creative. Entrepreneurial. These are the attributes of our professional master’s degree programs, which we designed to drive innovation and advance your career in today’s ever-evolving technology landscape. Many courses are taught by industry experts who bridge pragmatic content with the latest high-tech advancements. Our degree programs develop skills in entrepreneurship and innovation, as well as provide hands-on learning and professional multidisciplinary experiences. Come get a boost in your career with our unique professional graduate programs!
In the UM College of Engineering-Johnson & Johnson 3D Printing Center of Excellence Collaborative Laboratory, students and faculty work with Johnson & Johnson scientists and engineers to create innovative personalized healthcare solutions using metal 3D printers.

In collaboration with Magic Leap, students and faculty from every discipline use and experiment with augmented reality content that combines the physical world with the interactive digital worlds, called the “Magicverse.”
Master’s Programs

- Architectural Engineering
- Biomedical Engineering
  ⇒ Medical Physics
- Civil Engineering
  ⇒ Environmental Concentration
- Construction Management
- Electrical and Computer Engineering
  ⇒ Artificial Intelligence
  ⇒ Cybersecurity
- Industrial Engineering
- Mechanical Engineering
  ⇒ Additive Manufacturing
- Ocean Engineering
Master of Science in Architectural Engineering

Program Info
An interdisciplinary program encompassing structural analysis, mechanical and electrical systems, life safety elements and architecture.

Core Curriculum
- Advanced Structural Analysis and Modeling
- Advanced Design of Concrete and Steel Structures
- Building Information Modeling
- Energy-Efficient Building Design
- Indoor Environmental Modeling

Miami, a Prime Location for Urban Sustainability and Resilient Design
Integrated Architectural Design Using Augmented Reality
Innovative Convergence of Engineering, Architecture and Construction
Master of Science in Biomedical Engineering

Program Info

An interdisciplinary program with the University of Miami Leonard M. Miller School of Medicine and world-renowned research and clinical centers, including:

- Bascom Palmer Eye Institute
- Biomedical Nanotechnology Institute (BioNIUM)
- Diabetes Research Institute
- Miami Project to Cure Paralysis
- Miami Veterans Administration Research Service
- Sylvester Comprehensive Cancer Center
- University of Miami Ear Institute

Main fields of study:
- Imaging, Optics and Lasers
- Neural Engineering
- Cell, Tissue and Regenerative Engineering
- Medical Physics

Core Curriculum

- Regulatory Control of Biomedical Devices
- Human Physiology
- Case Study Project

Immersive Experience in a Top-Ranked Medical School

Instructors With Expertise in the Biotech Industry

Emphasis on Regulatory Development of Medical Devices
Master of Science in Civil Engineering

Program Info

A program that accelerates your professional career and leads to professional licensure in the areas of structural engineering and structural materials, environmental engineering and water-resources engineering.

Core Curriculum

- Structural Reliability
- Environmental Hydrology
- Water and Wastewater Engineering
- Indoor Environmental Modeling
- Contaminant Transport

Miami, the Best Location to Learn About Sea Level Rise Adaptation

Explore Breakthroughs in Concrete Materials

Learn About Resilient Environmental and Built Infrastructures
Master of Science in Construction Management

Program Info
An interdisciplinary program embracing technological innovations and state-of-the-art design and construction responsive to industry needs.

Core Curriculum
- Sustainable Construction
- Building Information Modeling
- Project and Construction Management
- Construction Accounting and Finance
- Construction Law
- Construction Accounting and Finances

Miami, the Urban Laboratory Where Resilient and Sustainable Concepts Are Implemented in a Real-Life Setting

Advanced Construction Visualization Using Augmented Reality

Focused on Interdisciplinary Entrepreneurship and Management Skills Coupled With Technological Innovations in Construction
Master of Science in Electrical and Computer Engineering

Cybersecurity Program Info
A program to boost your career in the areas of communication networks; cybersecurity; digital forensics; legal, ethical, political and policy issues; and secure software development.

Core Curriculum
- Internet and Intranet Security
- Data Security and Cryptography
- Information Assurance
- Advanced Problems in Cybersecurity

Practical Experience in an Industrial Cybersecurity Lab

Artificial Intelligence Program Info
The program provides students with firsthand knowledge of automated reasoning, machine learning, computer vision and deep learning.

Core Curriculum
- Principles of Artificial Intelligence
- Machine Learning
- Pattern Recognition
- Advanced Problems in AI

Collaboration With a Leading Company in Augmented Reality

Novel Artificial Intelligence Applications
Master of Science in Industrial Engineering

Program Info

A program to improve productivity, safety and quality of work in:

- Engineering Management
- Ergonomics and Human Factors
- Healthcare Systems
- Management of Technology
- Manufacturing Engineering
- Occupational Health and Safety
- Operations Research
- Productivity Engineering
- Quality Engineering

Quality Engineering: Six Sigma Black Belt

Expert Instructors in Global Safety and Quality Systems

Application to Healthcare Delivery

Core Curriculum

- Engineering Cost Management
- Project Management Techniques
- Supply Chain Management
- Advanced Production Systems
Master of Science in Mechanical Engineering

Program Info
A program to boost your career in aerospace, automotive and aeronautics. Break new ground in renewable energy with emerging opportunities in biomedical devices, nanotechnology and mechatronics.

- Advanced material science and mechanics of materials
- Computer Aided Design for novel structural design optimization
- Additive manufacturing

Core Curriculum
- Additive Manufacturing of Engineering Materials
- Additive Manufacturing Lab
- Computer Aided Design for Additive Manufacturing

Additive Manufacturing
Design, analysis and fabrication using state-of-the-art additive manufacturing printing facilities.

Study in a State-of-the-Art Additive Manufacturing Laboratory

Instructors With Expertise in 3D Manufacturing

Entrepreneurship and Innovation for 3D Manufacturing
Master of Science in Ocean Engineering

Program Info
A cross-disciplinary program combining engineering skills and knowledge in the marine sciences with applications to coastal engineering, remote sensing and maritime security.

Two tracks:
- Coastal Engineering
- Remote Sensing and Maritime Security

Core Curriculum
- Intro to Ocean Systems Engineering
- Wave Propagation in the Ocean Environment
- Applied Ocean Hydrodynamics

Immersive Experience in a Top-Ranked Marine and Geosciences Research Facility

Miami, the Best Location to Study Effects of Sea Level Rise

Expert Instructors in Oceanography and Atmospheric Sciences
Admission Information

Apply for Scholarship Consideration.

Application Process

**Step 1:** Visit coe.miami.edu/apply

**Step 2:** Submit Application Materials. Additional Materials may be Required for International Applicants.

Financial Assistance

Merit-Based Financial Assistance is Available.
About Miami

Miami, the cultural, economic and financial center of South Florida, is the sixth most populated major city in the United States. The Miami metropolitan area is home to 6.1 million people. Miami is ranked seventh in the U.S. and 33rd among global cities in terms of business activity, human capital, information exchange, cultural experience and political engagement.

Ranked

#1
- Most International City in the U.S.
- Happiest Place to Work in the U.S.
- For Startups in the U.S.

Ranked

#2
- Best State for Business
- In International Passengers into the U.S.
Ranked #3
- Tallest Skyline in the U.S.

Ranked #4
- Most Attractive U.S. City to Millennials (after New York, San Francisco and Austin)

Ranked #5
- Most Livable Community in the World