

Graduate Programs in

Civil, Environmental and Construction Engineering

THE UCF DIFFERENCE

HIGH-IMPACT RESEARCH

The department's robust research activities (\$15,784,000 in new external funding since 2015-16) address a myriad of relevant societal topics, including coastal hydro-science, structural monitoring and performance, traffic safety, drinking water safety and intelligent transportation systems, and smart cities technology.

WORLD-CLASS FACULTY

Students work alongside and publish with distinguished researchers internationally renowned for their scholarly contributions. They publish approximately 200 books, chapters and papers annually with external funding averaging \$300,000. Department Chair Mohamed Abdel-Aty is editor of *Accident Analysis & Prevention*, the premier journal for transportation safety research. See below for more faculty highlights.

POWERFUL PARTNERSHIPS

Our partners and funders include the National Science Foundation, National Oceanic and Atmospheric Administration, Florida Department of Transportation, MetroPlan Orlando and many other agencies, as well as numerous corporate affiliates. Visit our website at cece.ucf.edu, and click Partnerships to learn more.



PRIME LOCATION

The central Florida region provides a year-round outdoor living laboratory for research areas such as water resources, coastal hydro-science and geotechnical topics such as erosion and sinkhole formation. Jobs and internships are plentiful in the greater Orlando region, an economic powerhouse in the southeast.

FACTS OF INTEREST

UCF is partnering with Florida Department of Transportation and MetroPlan Orlando on a \$12 million Federal Highway Administration project (ATCMTD) to develop smart transportation systems technologies that enhance safety and ease congestion for drivers, pedestrians, transit riders and bicyclists. Data will be collected and analyzed on UCF's campus.

FUTURE CITY Initiative: This team of UCF researchers in structures, transportation, environment and water resources management explores futuristic technologies (big data analytics, connected and autonomous vehicles, sensing, computer vision, Internet of Things) to provide a blueprint to city planners to help them meet sustainability and resiliency goals and better serve urban residents.

Potable water expert Steven Duranceau, professor, directs UCF's Environmental Systems Engineering Institute. He is associate editor of *Desalination and Water Treatment* and researches corrosion control in water distribution systems.

Earthquake experts: Prof. Nicos Makris is editor of *Earthquakes and Structures*, and Assoc. Professor Kevin Mackie is chair of the American Society of Civil Engineers' national technical committee on seismic effects.

Assistant Prof. Kelly Kibler is on a team of UCF scientists analyzing the impact of 20 years of restoration efforts in Florida's Indian River Lagoon. The \$1.6 million NSF project focuses on how shorelines restored with oyster reefs and mangroves shape the physical and aquatic environments.

GRADUATE DEGREES OFFERED

MASTER'S

Civil Engineering (general or with track)

- Smart Cities
- Structures and Geotechnical
- Transportation Systems
- Water Resources

Environmental Engineering

DOCTORAL

Civil Engineering

Environmental Engineering

FACULTY HONORS

Our faculty are members and fellows of scientific societies including:

- National Academy of Engineering
- American Society of Civil Engineers
- American Association for the Advancement of Science
- European Academy of Sciences

ALUMNI AND STUDENTS SAY

"I credit much of my workplace success to the training and education I received at UCF."

– Joanne Keller, '03, '04
Engineer for Palm Beach County, Florida

"The opportunities at UCF have enriched my development and leadership. I have conducted breakthrough research on the effects of sea level rise in the northern Gulf of Mexico that benefits the scientific community and helps coastal managers and policy makers make informed decisions."

– Davina Passeri, Ph.D., '15

"My UCF graduate studies went beyond my expectations. The courses are diverse and detailed. The many research opportunities provide amazing ways to tangibly connect academic work with 'real-world' engineering problems and practitioners on a local and global scale."

– Ryan Shamet, '14, '17, doctoral student,
graduate teaching and research



UCF

**College of Engineering
and Computer Science**



RESEARCH FOCUS AREAS

Water resources and quality
Structural health and monitoring
Infrastructure
Transportation
Traffic safety
Environmental engineering
Structural topics related to earthquakes
Sinkholes and other geotechnical topics

RESEARCH CENTERS/CLUSTERS

Center for Advanced Transportation
Systems Simulation
Stormwater Management Academy
Civil Infrastructure Technologies for
Resilience and Safety
Coastal Dynamics of Sea Level Rise
Research Cluster of Excellence
Potable Water Quality and Treatment

LABORATORIES

Spaces for advanced research techniques including micro- and macro-scale sensing, data mining, big data, simulation and computer modeling.

- Air Quality Modeling
- Bioenvironmental System Research
- Boyle Engineering Organic Analysis
- Joint-Use Computer Teaching
- Chemical/Biological Process
- Coastal Hydrosience Analysis, Modeling & Predictive Simulations
- Environmental Process
- Florida Water Service Drinking Water
- Geotechnical and Pavement
- Hydraulics
- Metals/Inorganic
- Microbiology
- Microsensor Biofilm Research
- Structural Health Monitoring
- Structural
- Transportation Simulation
- Water Treatment and Sustainability Research
- Welbro Construction Engineering

ALUMNI STARS

MARYAM GHYABI, Ph.D., '83, '86

Owner and CEO of a transportation engineering firm. Chaired the Interstate 4 - St. Johns River Bridge Coalition. Was named one of the 10 most powerful women in the state by *Florida Transportation* magazine, and one of the five most influential women in Volusia County.

TAYLOR LOCHRANE, Ph.D., '08, '09, '14

Research civil engineer, Federal Highway Administration. At UCF, he was the first engineering doctoral student to be elected student body vice president. He designed a student ridesharing system and an evening bus service for students.

LEILA JAMMAL, '82

Senior client manager, Terracon. Started her own geotechnical engineering company after graduating. Established a UCF lecture series in memory of her father S.E. "Jim" Jammal.

CONTACT

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ADMISSION

Visit graduatecatalog.ucf.edu and select your program of interest to see admission requirements, deadlines and additional program information.



UNIVERSITY TRANSPORTATION RESEARCH CENTERS

ELECTRIC VEHICLE TRANSPORTATION CENTER TIER 1

Funding: \$3 million federal;
\$1.5 million matching

Creating a national system to address influx of electric vehicles and resulting power demands. Sample project: Electric vehicle charging technologies analysis and standards.

NATIONAL CENTER FOR TRANSPORTATION SYSTEMS PRODUCTIVITY AND MANAGEMENT TIER 1

Funding: \$1.2 million federal;
\$1.2 million matching
Addresses safety, state-of-good-repair, more. Sample project: Real-time monitoring and prediction system for reduced visibility conditions.

SAFER SIM TIER 1

Funding: \$540,000 federal;
\$270,000 matching

Uses high-tech simulation techniques. Sample project: Operational and safety-based analyses of toll roads.

SOUTHEASTERN TRANSPORTATION CENTER REGION 4

Funding: \$500,000 federal;
\$500,000 matching

Multi-university partnership focusing on topics to achieve comprehensive safety, including human factors in transportation. Sample project: Evaluating the wrong-way driving incidents problem on Florida's Turnpike Enterprise Roadway System.



College of Engineering and Computer Science