College of Engineering and Computer Science (CECS) Virtual Graduate Open House: *Master’s Edition*

Ali P. Gordon, PhD, F. ASME
Professor and Associate Dean
cecsgrad@ucf.edu
Open House Goals

- Learn more about UCF’s College of Engineering and Computer Science
- Connect you to the graduate programs in your prospective department
- Learn about the application process

CECS Grad Site
http://grad.cecs.ucf.edu
Dean’s Welcome – Dr. Michael Georgiopoulos

- Appointed as Dean in 2013
- Numerous Research and Teaching Awards
- Joined UCF in 1986
- Pegasus Professor in 2010
- Earned PhD in Electrical Engineering from the University of Connecticut
- BS in Electrical, Electronics, and Communications Engineering from the National Technical University of Athens
Welcome Floridian Prospective Students
College of Engineering and Computer Science

CECS Interests Students from All Parts of the US

Enrollment by State & Territories (non-Florida): 2023-24 Fall Term
Total States (non-FL): 47; Total USA Territories & DC: 3
Percent Non-FL: 6.70%

Fall 2023:
228 CECS Graduate Students non-FL residents
Enrollment by Nation of Citizenship: 2023-24 Fall Term

Total Countries (non-USA): 65

1,258 US Graduate Students in CECS
807 International Graduate Students in CECS
The University of Central Florida was founded in 1963 as Florida Technological University, with the mission of supporting the growing United States space program at nearby Kennedy Space Center and Cape Canaveral Air Force Station.
## CECS by the numbers

<table>
<thead>
<tr>
<th>Category</th>
<th>Figure</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total UG+G Students Enrolled</td>
<td>13,544</td>
<td>Fall 2022</td>
</tr>
<tr>
<td>Alumni</td>
<td>41,000+</td>
<td>Spring 2022</td>
</tr>
<tr>
<td>% of UG Represented</td>
<td>34%</td>
<td>Fall 2022</td>
</tr>
<tr>
<td>% of UG Eligible Pell Grant</td>
<td>31%</td>
<td>Fall 2022</td>
</tr>
<tr>
<td>SAT/GPA of Students</td>
<td>1310/4.2</td>
<td>Fall 2022</td>
</tr>
<tr>
<td>SAT/GPA of Honors</td>
<td>1466/4.5</td>
<td>Fall 2022</td>
</tr>
<tr>
<td>Research Funding</td>
<td>$54.4M</td>
<td>2021-2022</td>
</tr>
<tr>
<td>Research Expenditures</td>
<td>$50.7M</td>
<td>2021-2022</td>
</tr>
</tbody>
</table>

- #1 Supplied of Graduates to U.S Aerospace and Defense Industries
- #1 Collegiate Cybersecurity and Computer Vision Teams in the US
- NASA Kennedy Space Center Employees are UCF Grads
- #2/23 Producer of UG Degrees to Under-Represented Groups and Women
- #10 Producer of UG Degrees in the US

---

CECS Virtual Graduate Programs Open House | Fall 2023 | Master’s Edition
CECS’s Home

- Six academic departments
- Numerous Engineering and Computer Science Buildings
- Various Research Buildings
- Nearly 200 Faculty in CECS
- Adjacent Nation’s 7th Largest Research Park (145 Companies nearby)
- Nation’s epicenter for computer modeling simulation and training

www.cecs.ucf.edu

Airports: MCO (20), SFB (15), MLB (60), DAB (55), TPA (107)
Rail: Brightline, SunRail, and Amtrak
Interstate: I-95, I-4
Proximity to Industry

College of Engineering and Computer Science

CECS Virtual Graduate Programs Open House | Fall 2023 | Master’s Edition
CECS’s Research Highlights

Collaborations:
- CECS+CREOL
- CECS+COS
- CECS+COM
- CECS + CBA
- CECS + SMST

Research Park:
- All DoD Entities
- 100 Companies
- 10,000 Employees
- Themed Parks
- Disney, Universal

Strengths:
- Center for Research in Computer Vision
- Genomics and Bioinformatics
- Renewable, Sustainable, Intelligent Energy Systems (RISES) + Siemens (Energy, Smart Grid)
- CATER + Siemens (Energy, Turbomachinery)
- Sustainable Coastal Systems
- Cyber Security and Privacy
- Biionix (Bionics, Materials, Implants and Interfaces)

Partnerships:
- Learning Sciences Cluster
- AI and Big Data Initiative
- Smart City + FDOT Initiative (Transportation, Water, Mobility)
- Renewable Energy and Chemical Transformation (REACT) Cluster
- Disability, Aging and Technology Cluster
- Advanced Materials Processing and Characterization Center (AMPAC)
- Nanoscience Technology Center (NSTC)
- Interactive Computing Experiences Cluster (AR, VR, XR)

Initiatives:
- AI Initiative 18+ Hires
- Energy Initiative 16+ Hires
- Space/AE Initiative 15+ Hires
- Cyber Initiative 5 Hires
- Chip Technology Initiative 16+ Hires
- Digital Twin Initiative 14+ Hires
- Infectious Diseases Initiative 15+ Hires

Faculty:
- 163 T/TE
- 431 FTE
- 69 Adjuncts
- 64 Post-Docs

Deans AB:
- 40 + Companies
- Lockheed Martin
- L3Harris
- Northrop Leidos, Raytheon
- NASA-KSC
- Space Industry
Program Overviews
CECS Departments

• Civil, Environmental and Construction Engineering (CECE)
• Computer Science (CS)
• Electrical and Computer Engineering (ECE)
• Industrial Engineering and Management Systems (IEMS)
• Materials Science and Engineering (MSE)
• Mechanical and Aerospace Engineering (MAE)

www.cecs.ucf.edu
CECS Graduate Programs

Graduate Certificate (GC) Programs
- Computer Forensics
- Construction Engineering
- Data Analytics
- Guidance Controls and Dynamics
- Healthcare Systems Engineering
- Mixed Reality Engineering
- Project Engineering
- Quality Assurance
- Structural Engineering
- Systems Engineering
- Technologies for Smart Communities
- Transportation Engineering

Master's of Science (MS) Degree Programs
- Aerospace Engineering
- Biomedical Engineering
- Civil Engineering
- Computer Engineering
- Computer Vision
- Computer Science
- Cybersecurity and Privacy
- Data Analytics
- Digital Forensics
- Electrical Engineering
- Engineering Management
- Environmental Engineering
- FinTech*
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*
- Systems Engineering
- Travel Technology and Analytics

Specialty Graduate Programs
- MS in Engineering Management, Professional Project & Systems Engineering Track (a cohort-based program)
- MS in Data Analytics
- Graduate Certificate in Data Analytics
- MS in Healthcare Systems Engineering Track

Doctor of Philosophy (PhD) Degree Programs
- Aerospace Engineering
- Big Data Analytics*
- Biomedical Engineering
- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation*

New for Fall 2022
Also offered as fully online
*Interdisciplinary program

Admit Term | Fall Priority | Fall | Spring | Fall
---|---|---|---|---
App. Deadline
Domestic
(International) | January 15th
(December 1st) | July 1st
(December 1st) | December 1st
(July 1st) | April 1st

CECS Virtual Graduate Programs Open House | Fall 2023 | Master's Edition
Civil, Environmental, and Construction Engineering

MS Programs

- MS Civil: MSCE, Transportation, Smart Cities, Water Resources, Geotechnical and Structural
- MS: Environmental Engineering and Environmental Engineering Sciences

Options

- Thesis (8 classes + research) versus Non-thesis (10 classes)
- In Person, Online, Hybrid

Admissions

- 3.0 GPA (Domestic can be below 3.0)
- No GRE
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Essay and Letters of Recommendation

Point of Contact

- Dr. Andrew Randall andrew.randall@ucf.edu

cece.ucf.edu
College of Engineering and Computer Science

Civil, Environmental, and Construction Engineering Department

- Smart Buildings
- Freeway Management
- Smart Transportation
- Water Reclamation
- Smart Buildings
- Freeway Management
- Smart Transportation
- Water Reclamation

cece.ucf.edu
Research Interests

I. Nanomaterials
   Nanoparticles, nanosheets and nanotubes
   Optical and electric properties

II. Energy Materials
   Supercapacitors and batteries
   Wearable electronics
   Photovoltaic materials
   High temperature materials

III. Biomaterials
   Biosensors
   Tissue engineering
   Drug delivery
Materials Science and Engineering

MS Programs

- MS Materials Science and Engineering

Options

- Thesis (8 classes+ research): 5 required courses and 3 electives
- Non-thesis: 5 required | 4 electives | 1 Directed research or Research Methods
- In Person, Hybrid, Online
- Required:
  - EMA 5104 – Intermediate Structure and Properties of Materials
  - EMA 5106 – Metallurgical Thermodynamics
  - EMA 5317 – Materials Kinetics
- Electives:
  - 2 Hard materials or
  - 2 Soft materials

Admissions

- MS MSE or related field with 3.0 GPA (Domestic can be below 3.0) (physics, chemistry, biomedical, mechanical, electrical)
- No GRE
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Resume, Essay, and Two Letters of Rec

Point of Contact

- Dr. Jiyu Fang Jiyu.Fang@ucf.edu

mse.ucf.edu
College of Engineering and Computer Science

Materials Science and Engineering

- Scanning electron microscopy (SEM)
  - Joel JSM-6480
  - Zeiss Ultra-55
- Transmission electron microscopy (TEM)
  - Joel JEM-1011
  - Tecnai F30
- Focused ion beam (FIB)
  - FEI 200TEM
  - Zeiss FIB crossbeam
- X-Ray Diffraction (XRD)
  - XRD #1 Basic Diffraction
  - XRD #2 Environmental Diffraction
  - XRD #3 Thin Film Diffraction
- Second ion mass spectrometry (SIMS)
  - Cameca IMS-3F
  - PHI Adept
- Miscellaneous
  - XPS PHI 5400
  - Rutherford Backscatter
- AES/SAM PHI 600 (Auger)
- Molecular imaging PicoSPM
- MicroRaman spectroscopy
- Confocal Laser scanning microscope
- X-ray fluorescence spectrometer
College of Engineering and Computer Science

**Industrial Engineering and Management**

**Systems**

**MS Programs**
- Industrial Engineering: MSIE (for BSIE grads) and IE MS, HSE Track
- MS in Engineering Management and PP&SE Track
- MS in Systems Engineering

**Admissions**
- BS IE or related field with 3.0 GPA (Domestic can be below 3.0) (probability and stats, calculus, programming)
- No GRE
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Resume, Essay, and Two Letters of Rec

**Options**
- Thesis (8 classes+ research) versus Non-thesis (10 classes)
- In Person, Hybrid, Online
- At least 15 hours of 6000-level

**Point of Contact**
- Dr. Mansooreh Mollaghasemi mollagha@ucf.edu

iems.ucf.edu

CECS Virtual Graduate Programs Open House | Fall 2023 | Master's Edition
Research Interests

• Modeling, Simulation, and Training Systems
• Operations Research and Optimization
• Manufacturing, Quality, and Production Systems
• Human Factors and Ergonomics
• Management Systems Engineering
• Innovation and Technology Entrepreneurship

Why IE at UCF

• IEMS is the top ranked program at CECS, and one of only two ranked IE Programs in Florida (after University of Florida)
• IE graduate programs ranked 40th in the world by U.S. News & World Report Best Graduate Schools 2021 guide
• Top 10 BSIE majors producers in the nation
• Faculty are excellent teachers and researchers, student-oriented, professionally active
• Large graduate program (100+ PhD and 300+ MS students)
• Graduate research opportunities
• Team projects - IE students get valuable practical experience through team projects

Outcomes

• PhD Program, Aero and Defense, Energy, Entertainment
• Consulting, Healthcare, Build your business

iems.ucf.edu
College of Engineering and Computer Science

Electrical and Computer Engineering

Autonomous Ground Vehicles
- Autonomous Ground vehicles
- Smart Grid – Plug & Play & Intelligent
- Teleoperation and Medical Robotics

Brain Computer Interfacing
- Situational awareness
- Control and communication for brain-injured, quadriplegic patients
- Steady-State Visual Evoked Potential (SSVEP) BCIs

Sensors

Cyber-Physical-Human Systems

ece.ucf.edu
Electrical and Computer Engineering

MS Programs

- MSEE: Electromagnetics and Optics, Micro-Systems and Nano-Systems, Signal Processing, Guidance Control and Dynamics Track (joint with MAE)
- MSCpE: Computer Networks and Computer Security, Software Systems and Algorithms, and

Options

- Thesis (8 classes+ research) versus Non-thesis (10 classes)
- In Person, Hybrid

Admissions

- BS EE or BS CpE with 3.0 GPA (Domestic can be below 3.0)
- No GRE
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Resume, Essay, and Two Letters of Rec

Point of Contact

- Dr. Mingjie Lin mingjie.lin@ucf.edu

ece.ucf.edu
MS Programs

- MSAE: Space Systems Track, Thermo-Fluids Aero Systems Track, Guidance Control and Dynamics
- MSME: Mechanical Systems, Thermo-Fluids, Guidance Control and Dynamics
- MSBME: Biomechanics, Biofluids, and MSBME/COM

Admissions

- 3.0 GPA (Domestic can be below 3.0)
- No GRE
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Resume, Essay, and Two Letters of Recommendation

Options

- Thesis (8 classes+ research) versus Non-thesis (10 classes)
- In Person, Hybrid, Online

Point of Contact

- Dr. Jan Gou Jihua.gou@ucf.edu

mae.ucf.edu
College of Engineering and Computer Science

Mechanical and Aerospace Engineering

Research Areas
- Aero-propulsion and energy research
- Dynamics and Control Systems
- Advanced Sensing Technology
- Space Materials and Structures
- Materials Processing Techniques
- Nondestructive Evaluation

Research Areas
- Bio-Engineering
- Mechatronics and Robotics
- Mechanics of Materials
- Advanced Manufacturing
- Multiphase Heat Transfer and Fluid Flow
- Thermal Management Systems

mae.ucf.edu
College of Engineering and Computer Science

Interdisciplinary Approach

- CECS+COB: Master of Science in FinTech (MS)
  - Utilize Technology and Innovation to Shape the Future of Finance

- CECS+RCHM: Master of Science (MS) in Themed Experience
  - Design and Produce Themed Environments in Orlando, Florida

- CECS+SMST: Master of Science in Travel Technology and Analytics, MS
  - Develop and Implement the Technologies that Make Traveling Easier

- CECS+COS: Big Data Analytics (PhD)

- CECS+CAH + RCHM: Online Healthcare Systems Engineering
  - Master of Science and Graduate Certificate Tracks
College of Engineering and Computer Science

Computer Science

**MS Programs**
- Computer Science
- Computer Vision
- Cyber Security and Privacy (two tracks)
- Data Analytics (Market Rate, joint w/ C. of Sciences)
- Digital Forensics (online)
- FinTech (joint with College of Business)

**Options**
- Thesis (8 classes+ research) versus Non-thesis (10 classes)
- B in CDA 5106 and COT 5405 required

**Admissions**
- 3.0 GPA (Domestic can be below 3.0), B’s or better in undergraduate programming courses (Architecture, OS, Discrete Structures)
- GRE (no minimum, but Q:160 preferred)
- International Transcript Evaluation
- TOEFL (80), IELTS 6.5
- Resume, Essay, and Two Letters of Rec

**Point of Contact**
- Dr. Wei Zhang Wei.Zhang@ucf.edu

**CS.ucf.edu**
Research Areas

- Bioinformatics and Systems Biology
- Computer Architecture
- Computer Graphics
- Computer Security and Digital Forensics
- Computer Vision
- Database
- Image and Video Processing
- Machine Learning and AI
- Networking and Mobile Computing
- Parallel Computation
- Software Engineering and Systems
- Theory of Computing, Algorithms and Quantum Computing
- Virtual Reality and HCI

Faculty Highlights

- 3 NAE Fellows, 6 IEEE Fellows, 1 ACM Fellow, 2 AAAS Fellows
- National Collegiate Cyber Defense Championship and Programming Contest winners and awardees

cs.ucf.edu
On-Demand Program-Specific Overviews

Over 30 Overviews

Line-Up:
• Graduate Program Director/Coordinators
• Faculty Talks
• Campus Tour
• Financial Aid
• College Overview

All attendees to receive a link to the CECS On-Demand Overview of their prospective program

Computer Vision MS Open House (Domestic Students)

Travel Technology and Analytics MS Open House (Domestic Students)

Data Analytics MS Open House (Domestic Students)

Digital Forensics and Cyber Security and Privacy MS Open House (Domestic Students)
College of Engineering and Computer Science
**Graduate Fellowships**

- **Internal** – ORCGS, Presidential, Trustees, McKnight, McNair, etc.
- **External** – NSF, DoD SMART, DoD NDSEG, NASA, GEM, etc.
- Apply early
  - For Fall 2024 – November time-frame
- Contact prospective faculty advisor early
- Most funding is geared towards PhD students

https://graduate.ucf.edu/fellowships/
Application and Funding
Application and Funding – Mr. Leben Goldman

- Associate Director of Recruiting in the College of Graduate Studies
- Admissions and Recruiting
- Key lead on all Graduate Recruitment for UCF, recruitment event planning for graduate fairs, travel to represent UCF and its graduate programs at national conferences, design of relevant recruitment materials for UCF graduate programs
- Joined UCF in 2014
- Degrees from UCF and FSU
College of Engineering and Computer Science

Research Centers and Faculty

- Advanced Materials Processing Analysis Center (AMPAC)
- **Center for Advanced Transportation Systems Simulation (CATSS)**
- **Center for Advanced Turbomachinery and Energy Research (CATER)**
- **Center for Research in Computer Vision (CRCV)**
- Coastal Dynamics of Sea Level Rise Research Cluster of Excellence
- Consortium for Applied Acoustoelectronics Technology
- Environmental Systems Engineering Institute
- FEEDER Center, DOE
- **Future City Initiative**
- **Institute for Advanced Systems Engineering**
- Interactive Systems & User Experience Research Cluster of Excellence
- Materials Characterization Facility (MCF)
- MIST Center, NSF I/UCRC
- Stormwater Management Academy

2023 Recipients

- Kerrie Chen
  Engineering and Computer Sciences
  NSF Director's EPSCoR Grant: $500,000

- Zhaomiao (Walter) Guo
  Engineering and Computer Sciences
  NSF Director's EPSCoR Grant: $525,781

- Luigi Perotti
  Engineering and Computer Sciences
  NSF Director's EPSCoR Grant: $520,769

2022: 8 Winners | 2021: 13 Winners...
Getting in Contact with Faculty

Michael Kinzel
Assistant Professor
Email: michael.kinzel@ucf.edu
Phone: 407-823-6466
Office: ENG I, Room 313
Website: Computational Fluids and Aerodynamics Lab
Office Hours:
- Mondays, 8:30-10:30 a.m.
- Wednesdays, 12:30-2:30 p.m.

Research
- Computational fluid dynamics
Outlook and Closing
Benefits of a Graduate Degree

- Advance skillset
- Access to leadership roles
- Improve communication skills
- Enhance network
- Personal achievement
- MS is Pathway to PhD
- And more …
College of Engineering and Computer Science

CECS Graduate Programs Open House

Topics:

✓ Accelerated BS-to-MS Programs
✓ MS Programs:
   - Application Fee Waiver
   - Research Positions

http://cecs.ucf.edu/gradday
Our Expectations

• Graduate!!
• Abide by the various UCF, CECS, Dept., and Lab policies, guidelines, and regulations
• Explore what UCF has to offer
• Contribute to an atmosphere of collegiality and collaboration
• Be a positive ambassador for UCF
• Publish your research (Goal 2 to 3 journal articles and 3 to 4 conference papers)
Every Fall academic term, approximately 700 new students join CECS graduate programs. Getting students admitted to and enrolled into graduate-level programs is a team effort. Prospective students should develop a personal roadmap to execute their plans.
Thanks for Your Attention

Special Thanks:
CECS:
Heather Houser, Michael Georgiopoulos, Tracey Ziebro

CGS:
Leben Goldman, Brandy Pieper, and Jennifer Parham

E-mail: cecsggrad@ucf.edu