



Herbert Wertheim
College of Engineering
Department of Chemical Engineering
UNIVERSITY of FLORIDA

Program Overview and Information for Prospective Undergraduate Students

Spring 2025



Dr. Dmitry Kopelevich,
Associate Chair for
Undergraduate Studies



Dr. VJ Tocco,
Undergraduate
Program Coordinator

Interested in ChE Course Content?
See VJ's YouTube Channel here



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Chemical Engineers design processes to produce anything made by chemical or biological means



Food & Beverage



Pharmaceuticals



Semiconductors



Renewable Energy



Cosmetics & Consumer
Products

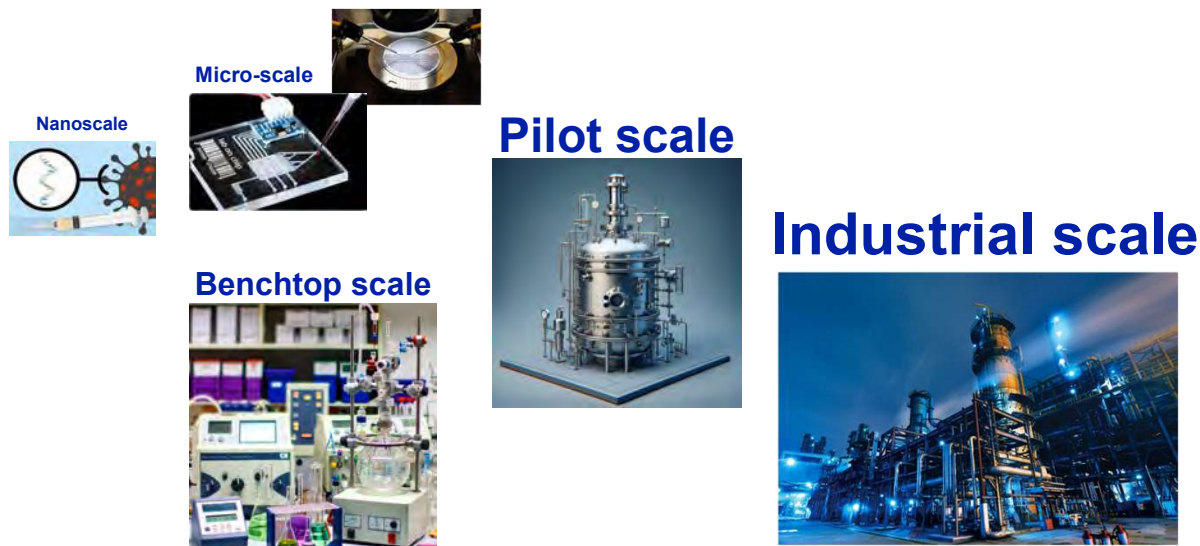


Pulp & Paper



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Chemical Engineers work in a variety of scales



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Chemical Engineers are problem solvers and critical thinkers

Environmental Responsibility

- Minimize emissions
- Reduce pollution
- Adhere to regulations & standards

Optimization

- Reduce costs while maintaining performance
- Recognize trade-offs
- Efficient and cost-effective consumption of resources

Chemical Engineering Process Design

Sustainability

- Reuse & recycle
- Minimize waste
- Utilize renewable resources

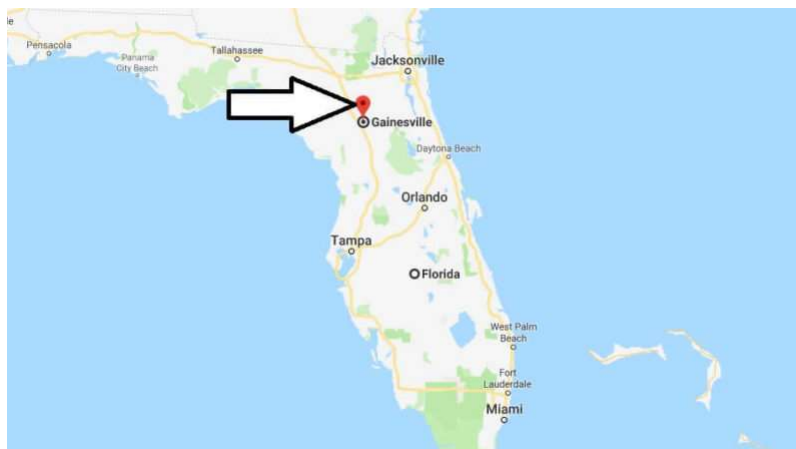
Safety & Risk Management

- Hazard identification
- Risk assessment
- Implementation of safeguards



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UF ChE is located in Gainesville; ~2 hour drive away from Orlando, Tampa and Jacksonville



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Fun activities around Gainesville for students



Watch a play at the
Hippodrome



Hike through Payne's Prairie



Observe local wildlife



Tube down the
Ichetucknee River

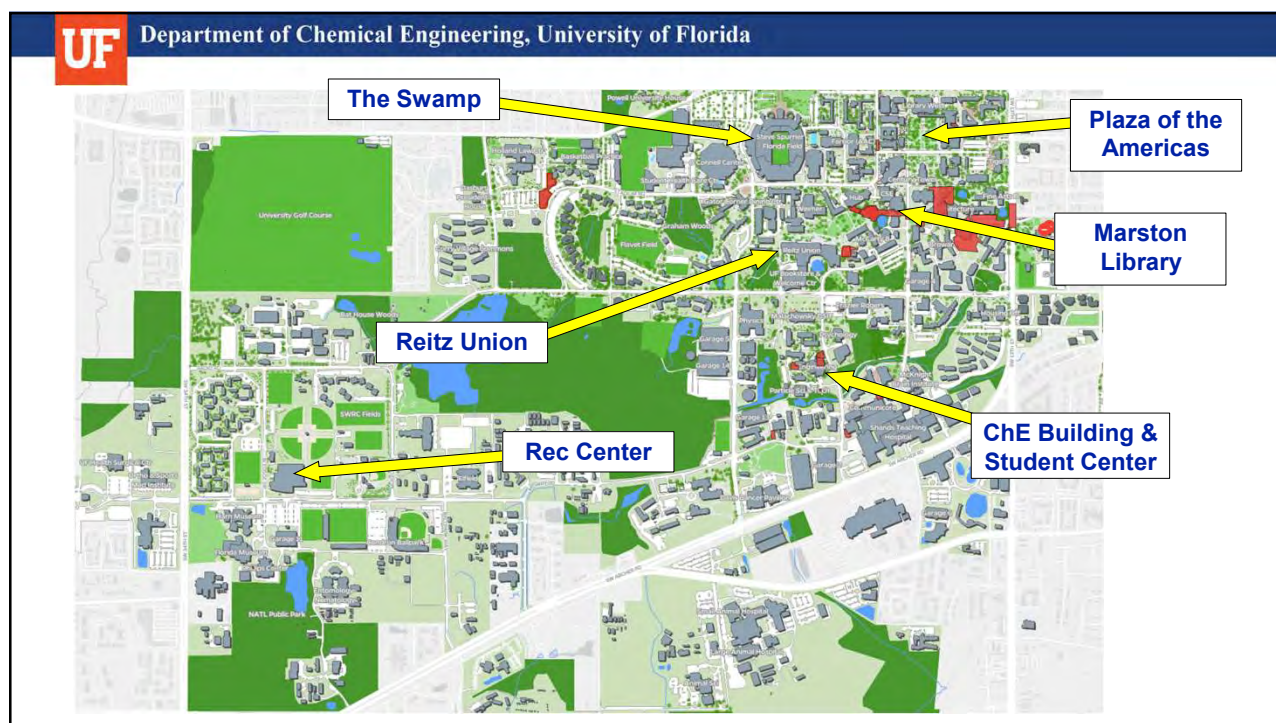


See a game in The Swamp

VisitGainesville.com



Bike the Gainesville-
Hawthorne Trail



UF Department of Chemical Engineering, University of Florida

State-of-the-Art Facilities



Chemical Engineering Main Building
Faculty Offices, Research and Teaching Labs

Currently undergoing a \$44M renovation project



Chemical Engineering Student Center
A place for students to meet, study and interact

Reopened in Feb. 2025 after a \$6M renovation



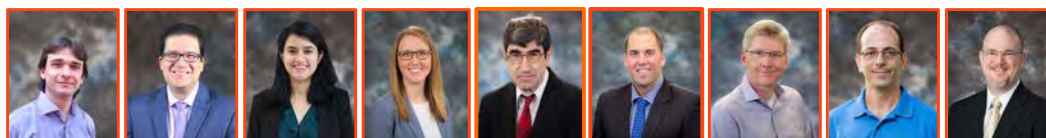
28 UF ChE Primary Faculty, Including 6 Teaching Faculty



Travis Anderson Jason Butler Won Tae Choi Henry Chu Carl Denard Rich Dickinson LiLu Funkenbusch Helena Hagelin-Weaver Piyush Jain



Yeongseon Jang Peng Jiang Dmitry Kopelevich Tony Ladd Fernando Mérida Josh Moon Ranga Narayanan Mark Orazem Sumant Patankar Fan Ren



Juan M. Restrepo-Flórez Carlos Rinaldi-Ramos Janani Sampath Whitney Stoppel Spyros Svoronos VJ Tocco Sergey Vasenkov Jason Weaver Kirk Ziegler



Benefits of a large faculty

- All core courses offered in both fall and spring (and some in the summer) – you won't fall behind for participating in internships and co-ops!
- Smaller class/section sizes - many are limited to 49 students.
- Diverse expertise and interests.





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Our curriculum is currently 130 credits and contains 19 core courses

First Year

Mostly pre-req science and math courses such as chemistry, physics, and calculus (no core ChE courses)

Second Year

First core ChE courses, including *Material & Energy Balances*, *Transport Phenomena*, and *Process Thermodynamics*. Finish pre-requisite math and science, such as statistics, organic chemistry, and diff. eq.

Third Year

Upper-level ChE courses, including *Energy Transfer*, *Fluids*, *Phase Equilibria*, *Chemical Process Safety*, and *Separations*. First Unit Operations Lab. Finish organic chemistry/labs and start technical electives.

Fourth Year

Upper-level ChE courses, including *Kinetics & Reactor Design*, *Process Economics* and *Process Control*. Second Unit Operations Lab, Process Control Lab, and **Capstone Design**.



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Technical Electives for In-Depth Coverage of ChemE Applications and Fundamentals

Biotechnology

- Bioprocess Engineering and Bioseparations
- Pharmaceutical Bioengineering
- Protein Engineering and Synthetic Biology
- Nanoparticle Nanomedicines

Fluids, Polymers, and Transport

- Nanoscale Transport
- Rheology Fundamentals & Practice
- Polymer Science & Engineering
- Microfluidics and Electrokinetics
- Material Self-Assembly

Computing, Data Science and AI

- Fundamentals of Artificial Neural Networks
- Chemical Process Data Science
- Statistics and Design of Experiments
- Applied Optimization for Engineers
- Simulations of Soft Materials

Energy and Sustainability

- Electrochemical Engineering
- Catalytic Engineering
- Surface Science
- Sustainable Process Design

Semiconductors

- Semiconductor Materials and Processing
- Semiconductor Device Fabrication



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Minors and Certificates in Related Fields

- 15-20 credit hours to complete a minor
- 9-10 credit hours to complete a certificate
- Can double-count up to 10 technical elective credits towards the ChemE degree and a minor/certificate
- Biomolecular Engineering Minor
 - Offered by the Chemical Engineering Dept.
 - Courses in Bioprocessing, Protein Engineering, etc.
- Examples of other minors and certificates pursued by ChemE students:



- Food Science
- Computer Science and Engineering
- Materials Science and Engineering

- Sustainable and Resilient Energy Engineering
- AI Fundamentals and Applications



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Combination BS+MS Degree

- Get both BS and MS degrees in 5 years!
- Double-count up to 12 credit hours for BS and MS programs
 - Out of 30 credits required for MS degree
- Bright Futures Scholarship can cover the undergraduate costs of up to 12 hours of graduate courses that apply to the undergraduate degree
- Remaining costs can be covered by Florida Prepaid

- Coming soon!

A combination of BS in CHE and MS in Applied Data Science





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Help Navigating the Curriculum



Shaura Thomas

- Dedicated Academic Advisor

Chemical Engineering Peer Advisors (ChEPAs)

- Supplement professional advising with student perspective
- Suggest minors, certificates, electives, alternatives semester plans
- Support career-readiness & literacy
- Mentorship program for new engineering students



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Help Seeking Internships and Full-Time Jobs

- **UF Career Showcase**
 - Main showcase each fall and a smaller showcase in the spring
- **Virtual Chemical Engineering Career Fair**
 - Career fair just for Chemical Engineering students!
 - Held each fall 1-2 weeks before the campus-wide fair to help establish connections with recruiters



CAREER CONNECTIONS
CENTER



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Resources to Prepare for Your Job Search

- **UF Career Connections Center**
 - Workshops on resume writing and interviewing
- **AIChE Chapter helps with:**
 - Industry panels
 - Resume review
 - Mentorship
 - Company info sessions
- **Required ChE Course:**
 - *Professional Development of Chemical Engineers*
- **Faculty and alumni mentorship**



CAREER CONNECTIONS
CENTER



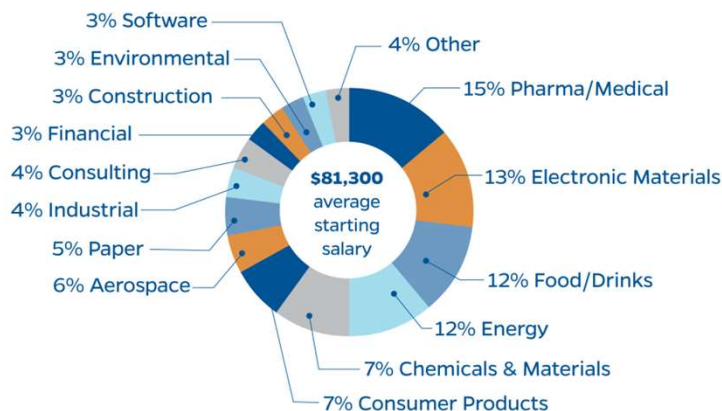
- **77%** of students gain internship/co-op experience
- **78%** of students secure a job or graduate/professional school placement at the time of graduation



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Our Graduates are Employed by Diverse Industries

Industries Employing Our Recent Graduates



- Starting salary on par with national level*
- Nationwide, ChemEs have the top starting salary among engineers*

*Source: Federal Reserve Bank of New York (2024)

Data from UF Exit Survey for ChE graduates



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Companies Employing Our Graduates



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Chemical Engineering Teaching Lab at UF

Experiments on Chemical Engineering Fundamentals



- Recent \$500K lab upgrade
- New experiments relevant to pharma/food industries



Enzyme Reactor



Cross-flow filtration



Chromatography

Semiconductor Manufacturing





Student Chapter of American Institute of Chemical Engineers (AIChE)



- Won the Outstanding Student Chapter Award 7 years in a row
- Provides fellowship among chemical engineering students
- Opportunities for students to build a network of contacts in academia and in industry.
- ChemE Department provides funding for travel to Regional and National AIChE meetings
- Supported by alumni donations



AIChE Student Activities



- **Professional development:**
 - Company info sessions
 - Grad school info sessions
 - Internship panels
 - Research panels
 - Mentoring program
 - Sophomore retreat
- **Social events:**
 - Week of welcome
 - Game nights
 - Coffee with ChemE
 - Kayaking with ChemE
 - And much more!



- **K-12 and Community outreach**





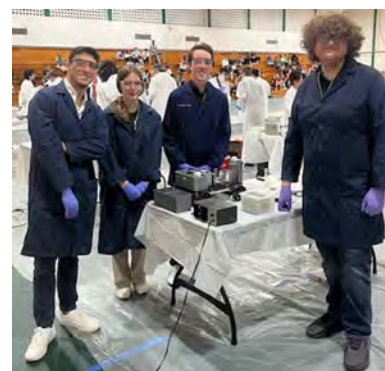
AIChE Design Teams



- Design and build a backpack-sized car powered by a battery.
- Stopping mechanism controlled by a chemical reaction.
- Regulated by a programmed microcontroller.
- 3D modeling and printing are used to design and build the car.
- Requires competency in chemistry and mechanical/electrical systems.

UF ChemE Car Team Awards:

- 1st Place Regional Competition 2025
- 3rd Place Regional Competition 2023
- 6th Place National Competition 2022
- 1st Place Regional Competition 2021



UF ChemE Car Team at the Regional 2025 AIChE Meeting



AIChE Design Teams



- Student teams design, build and demonstrate a 1 cubic foot **carbon-capture plant**
- Technology crucial for combating the climate change

- Teams develop a working plant prototype and a business plan
- UF team established in 2023
- Qualified to compete on the National level in 2024:
 - 8th overall out of 18 competing universities
 - 1st place in the ad component
 - 2nd place in cost efficiency





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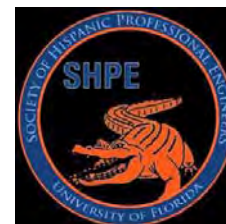
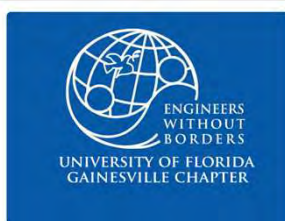


- Empowering graduate and undergraduate students to become diverse leaders in STEM
- Networking opportunities
- Preparation for internship, job, and graduate school applications
- Industrial info sessions
- Social events
- Departmental support for travel to conferences



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Other Student Engineering Organizations at UF



Orgs.StudentInvolvement.ufl.edu/Organizations



Research Opportunities

59% of our students graduate with research experience



**Advanced Materials,
Devices, and
Nanotechnology**



**Biomolecular
Engineering, Cellular
Engineering, and
Synthetic Biology**



**Complex and Multiphase
Flow Dynamics**



**Energy, Environment,
and Sustainability**



Engineering Education



**Heterogeneous Catalysis
and Surface Science**



**Modeling, Theory,
and Simulation**



**Transport, Molecular
Thermodynamics,
and Electrochemical
Engineering**



Resources to Succeed In Research

- **UF Center for Undergraduate Research (CUR)** cur.aa.ufl.edu
- **Research Excellence Program for Undergraduates**
 - Provides mentee training, workshops, and research methods classes
- **Multiple opportunities to present your research on campus**
 - ChE GRACE Symposium
 - Undergraduate Research Symposium
 - Soft Matter Symposium
 - Society for Biomaterials- Biomaterials Day
 - NanoDay
- **ChemE Department provides support for travel to conferences**
- **ChemE Department organizes workshops** on preparation of applications to graduate schools and NSF Graduate Fellowship



UF ChE GRACE Symposium



National AIChE Conference



Join the Chemical Engineering Family at UF!

- Diverse career paths
- Help solve challenges facing our society today
- Welcoming environment
- Engaged student body
- State-of-the-art facilities
- Wide range of research opportunities
- Guidance in job/graduate school search



[VJ's YouTube Channel](#)