Introduction to the Department of Mechanical and Aerospace Engineering
Outline of this Orientation

• Introduction to MAE
• General advice for new graduate students
• MAE Graduate Program logistics, points of contact and resources
• MAE areas of research
• MAE Graduate Student Association
• Graduate and Professional Studies Office (SoE)
• Q&A

Roger Rangel
Department Chair and Professor of Mechanical and Aerospace Engineering

Research Interests:
Heat transfer, spray combustion, two-phase flows, fluid instability and atomization

Manuel Gamero-Castaño
Graduate Advisor and Professor of Mechanical and Aerospace Engineering

Research Interests:
Spacecraft propulsion, electrospraying, electrohydrodynamics and atomization
Mission Statement

Our mission is to educate students, at all levels, to be the best engineers and leaders in the nation and world by engaging them in a stimulating community dedicated to the discovery of knowledge, creation of new technologies, and service to society.
<table>
<thead>
<tr>
<th>Department History</th>
<th>Student Population and Degrees Offered</th>
<th>Research</th>
<th>Faculty and Recognition</th>
<th>Affiliated Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>1223 Undergrads 177 Graduate Students</td>
<td>$11.2 M Research Expenditures 5 Research Thrusts • Dynamics and Controls • Fluid Dynamics and Propulsion • Thermal and Transport Sciences • Mechanics of Materials and Structures • Systems Engineering and Design</td>
<td>30 Full-time faculty 15 Emeritus and Adjuncts appointees Honors: 3 National Academy of Engineering 2 Fellows AAAS 4 Fellows ASME 4 Fellows AIAA 2 Fellows IEEE 2 Fellow APS 1 Mexican Academy of Science Foreign Member 1 Swedish National Academy of Engineering Foreign Member 1 Office of Naval Research Young Investigator Award 7 NSF Career Awards 1 National Academy of Inventors 5 Distinguished Professors 1 Chancellor’s Professor</td>
<td>7 World-Class Center and Institute Affiliations • Advanced Power and Energy Program (APEP) • UCI Combustion Laboratory • Integrated Nanosystems Research Facility (INRF) • National Fuel Cell Research Center (NFCRC) • UCI Irvine Materials Research Institute (IMRI) • Center for Complex and Active Materials (CCAM) • Beckman Laser Institute</td>
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<tr>
<td>1990</td>
<td>Degree offered: • Master of Science (M.S.) • Doctor of Philosophy (Ph.D.) • Master of Engineering (M.Eng.)</td>
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Department of Mechanical Engineering founded

Department expands to include Aerospace Engineering
Goals, Expectation and Advice for Graduate Students

- Make academics your first priority
- Take initiative in your educational development, recognize knowledge gaps and fill them in
- Develop broader impact perspective
- Engage with, and benefit from, the intellectual community – classmates, labmates, faculty
- Attend seminars
- Develop excellent writing and presentation skills
- Understand and Follow Degree Requirements
  - Consult https://engineering.uci.edu/dept/mae/graduate
Some Differences Between Graduate and Undergraduate Studies

• Research and Teaching
  – Participate in creating new knowledge, i.e. research
  – Work individually with faculty research advisor
  – Significant independent research
  – Opportunities to participate in teaching of undergraduate courses (TA) and mentoring of undergraduate research

• Courses
  – Classes dig deeper, assume you learned undergrad course material
  – More initiative in learning is expected from you
  – Multiple references rather than one textbook
  – Smart, hardworking classmates the norm
Why we want you to attend:
Exposure to leading researchers, what they are doing, how they are doing it

What is your role?
Try to learn. Develop researcher mentality. What is the research problem? Why is it important? What methods are used to solve the problem? What is novel about the work? What are the most significant results and what is the next step?
How does the speaker present the work? What would you do the same? What would you do differently?

Help us create a positive impression on influential seminar guests.

Seminar etiquette
Be the audience member you would like to have at a seminar you give. Be attentive. Think of a question and ask it. Don’t talk, text, check email, facebook, etc.

Alexandra Voloshina
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Rehabilitation robotics, prosthetics, exoskeletons, locomotion biomechanics.

Jacqueline Huynh
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Design of aircraft systems and operations, aviation environmental impacts, aeroacoustics.
Graduate Program Logistics

PEOPLE

Prof. Manuel Gamero
Graduate Studies Advisor

Tenley Dunn
Graduate Coordinator

Mark Banderas
Graduate Counselor, Graduate and Professional Studies, HSSoE

RESOURCES

https://engineering.uci.edu/dept/mae/graduate

• 90% of your questions will be answered here

Your faculty advisor

• Course selection, timelines, focus area

Graduate Coordinator: Ms. Tenley Dunn
tdunn@uci.edu

• All forms and formalities

Graduate Advisor: Prof. Manuel Gamero,
mgameroc@uci.edu

• Questions that have not been answered
Understand and Follow Degree Requirements

- Consult [https://engineering.uci.edu/dept/mae/graduate](https://engineering.uci.edu/dept/mae/graduate)
- Master of Science Degree Requirements

MS Plan of Study Form is due during the first Quarter of your MS program

<table>
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<tr>
<th>Major Area</th>
<th>Approved Courses</th>
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<tbody>
<tr>
<td><strong>Applied Math</strong></td>
<td>MAE 250A Engineering Analysis I</td>
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<tr>
<td></td>
<td>MAE 250B Engineering Analysis II</td>
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<td></td>
<td>With the approval of the Graduate Advisor, a graduate-level math course offered by another engineering or science department at UCI</td>
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<tr>
<td><strong>Dynamics and Controls</strong></td>
<td>MAE 285 Nonlinear Optimization Methods</td>
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<td>MAE 243 Dynamics</td>
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<td>MAE 270A Linear Systems I</td>
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<td><strong>Fluid Dynamics and Propulsion</strong></td>
<td>MAE 230A Inviscid Incompressible Fluid Mechanics I</td>
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<td>MAE 230D Theoretical Fluid Dynamics</td>
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<td>MAE 233 Fundamentals of Turbulence</td>
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<td>MAE 235 Turbulent Free Shear Flows</td>
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<td><strong>Solid Mechanics</strong></td>
<td>MAE 248 Mechanics of Smart Structures</td>
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<td>MAE 254E Mechanics of Solids and Structures</td>
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<td>MAE 255 Composite Materials and Structures</td>
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<td>MAE 256 Nanomechanics</td>
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<td>MAE 258 Mechanical Behavior of Solids - Continuum Theories</td>
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<td><strong>Systems and Design</strong></td>
<td>MAE 242 Robotics</td>
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<td>MAE 244 Theoretical Kinematics</td>
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<td>MAE 245 Spatial Mechanism Design</td>
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<td>MAE 247 Micro-System Design</td>
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<td>MAE 249 Micromechanics and Actuators</td>
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<td>MAE 250 Biomechanics</td>
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<td>MAE 253 MEMS and MEMS</td>
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<td>MAE 279 Special Topics in Mechanical Systems</td>
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<tr>
<td><strong>Thermal and Transport Sciences</strong></td>
<td>MAE 212 Engineering Thermodynamics: Fundamentals &amp; Applications</td>
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<td>MAE 218 Statistical Thermodynamics</td>
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Understand and Follow Degree Requirements

• Ph.D. Degree Requirements

  • **Converge on your faculty advisor as soon as possible**, define your research topic. Students admitted without a nominal advisor must have an advisor on record by the end of the Winter quarter of the first year.

  • **PhD Course Requirement I**: PhD students must have taken a course load equivalent to our MS. If the student does not already have an MS, this means that s/he will have to fulfill our MS requirements and obtain the MS degree enroute to the PhD. Check admission letter.

  • **PhD Course Requirement II**: 3 “advanced” graduate courses in addition to MS course requirement

  • **Preliminary Exam**: establishes whether the Ph.D. Candidate has command of specified fundamental material in Applied Mathematics and one of five Topic Areas of mechanical and aerospace engineering. Students that come with an MS must take the Prelim in Fall of the second year. Students that must obtain an MS in enroute to PhD take it in Spring of the second year. The student has two chances to pass the Prelim

  • **Qualifying Examination**: the last step towards your Advancement to Candidacy in the doctoral program. The Qualifying Examination, and subsequent Advancement to Candidacy, are expected to occur in the third year (second year for students who entered with a master’s degree) of your graduate enrollment.
Main Disciplinary Areas

https://engineering.uci.edu/dept/mae/research

• Dynamics and Controls
  Athanasios Sideris

• Fluid Dynamics and Propulsion
  Feng Liu

• Mechanics of Materials and Structures
  Mark Walter

• Systems and Design
  J. Michael McCarthy

• Thermal and Transport Sciences
  Jaeho Lee

• Aerospace Engineering
  Dimitri Papamoschou
**Dynamics and Controls - Research**

**Areas of Interest**
- Control Theory and Algorithms
- Autonomous and Distributed systems
- Navigation and Flight systems
- Machine Learning
Dynamics and Controls - Faculty

David Copp
Assistant Professor of Teaching of Mechanical and Aerospace Engineering
Research Interests: Optimal control and estimation, hybrid dynamical systems, energy storage, pedagogy.

Tryphon Georgiou
Distinguished Professor of Mechanical and Aerospace Engineering
Research Interests: Dynamical systems and control, mathematical physics, applied mathematics.

Faryar Jabbari
Professor of Mechanical and Aerospace Engineering
Research Interests: Control theory, particularly in robust and nonlinear control systems. Saturation control and control applications for combustion and fuel cell research. Controller design for systems with limited actuator capacity, with emphasis on active and hybrid control systems for earthquake engineering.

Solmaz Kia
Associate Professor of Mechanical and Aerospace Engineering
Research Interests: Systems and control; decentralized/distributed algorithm design for multi-agent systems; cooperative navigation; sensor fusion; fault detection.

Athanasios Sideris
Professor of Mechanical and Aerospace Engineering
Research Interests: Machine learning, Neural network control, Robust control

Haithem Taha
Associate Professor of Mechanical and Aerospace Engineering
Research Interests: Geometric nonlinear control theory; unsteady aerodynamics and aeroelasticity; optimization, calculus of variations and optimal control; flight dynamics and autopilot design; airplane performance and configuration aerodynamics.

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Associate Professor of Mechanical and Aerospace Engineering
Research Interests: Geometric nonlinear control theory; unsteady aerodynamics and aeroelasticity; optimization, calculus of variations and optimal control; flight dynamics and autopilot design; airplane performance and configuration aerodynamics.
ENGRMAE 275. Nonlinear Feedback Systems. 4 Units.

Advanced tools for feedback control system analysis and synthesis. Norms, operators, Lp spaces, contraction mapping theorem, Lyapunov techniques along with their extensions. Circle criterion positivity and passivity. Applications to nonlinear control methods, such as sliding mode or adaptive techniques.

Prerequisite: ENGRMAE 270B

Restriction: Graduate students only.

- MAE206 Nonlinear Optimization Methods
- MAE241 Dynamics
- MAE270A Linear Systems I
- MAE 239 Dynamics of Unsteady Flow
- MAE 270B Linear Systems II
- MAE 272 Robust Control
- MAE 273 Robot Control
- MAE 274 Optimal Control
- MAE 275 Nonlinear Feedback
- MAE 276 Geometric Nonlinear Control
- MAE 277 Learning Control Systems
- MAE 278 Estimation/Filtering
- MAE 295 Inertial Navigation
- MAE 295 Networks & Control
- MAE 295 Stochastic Control
- MAE 295 Satellite Systems
Fluid Dynamics and Propulsion - Research

Areas of Interest
- Aeroacoustics
- Aeroelasticity
- Biomedical Flows
- Combustion Theory
- Computational Fluid Dynamics
- Electrosprays
- Jet & Rocket Propulsion
- Multiphase Flow
- Turbomachinery
- Turbulence
Fluid Dynamics and Propulsion - Faculty

Said Elghobashi
Distinguished Professor Emeritus of Mechanical and Aerospace Engineering
Research Interests:
Direct numerical simulation of turbulent chemically reacting and dispersed two-phase flows.

Manuel Gamero
Professor of Mechanical and Aerospace Engineering
Research Interests:
Electric propulsion, colloidal thrusters, electrospays.

Perry Johnson
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Turbulent flows, particle-laden and multiphase flows, turbulent boundary layers, large-eddy simulations, scientific computing.

John LaRue
Professor Emeritus of Mechanical and Aerospace Engineering
Research Interests:
Fluid mechanics, heat transfer, turbulence.

Feng Liu
Professor of Mechanical and Aerospace Engineering
Research Interests:
Computational fluid dynamics, turbomachinery, propulsion.

Bihter Padak
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Combustion, reaction kinetics, and emissions control technologies.
Fluid Dynamics and Propulsion - Faculty

Dimitri Papamoschou
Professor of Mechanical and Aerospace Engineering
Research Interests:
Aeroacoustics, compressible turbulence.

Roger Rangel
Department Chair and Professor of Mechanical and Aerospace Engineering
Research Interests:
Heat transfer, spray combustion, two-phase flows, fluid instability and atomization.

William Sirignano
Distinguished Professor of Mechanical and Aerospace Engineering
Research Interests:
Combustion theory, multiphase flows, turbulent reacting flows, computational methods. Rocket and jet propulsion, gas turbine and internal combustion engines.

Haithem Taha
Associate Professor of Mechanical and Aerospace Engineering
Research Interests:
Geometric nonlinear control theory; unsteady aerodynamics and aeroelasticity; optimal control; flight dynamics and autopilot design.

Jacqueline Huynh
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Design of aircraft systems and operations, aviation environmental impacts, aeroacoustics.
Fluid Dynamics and Propulsion - Courses

ENGRMAE 231 Fundamentals of Turbulence. 4 Units.
Prerequisite: ENGRMAE 230A and ENGRMAE 230B
Restriction: Graduate students only.

- MAE 230A Inviscid Incompressible Fluid Mechanics I
- MAE 230B Viscous Incompressible Fluid Dynamics II
- MAE 230C Compressible Fluid Dynamics
- MAE 230D Theoretical Foundations of Fluid Mechanics
- MAE 231 Fundamentals of Turbulence
- MAE 233 Turbulent Free Shear Flows
- MAE 236 Nonequilibrium Gas Dynamics
- MAE 237 Computational Fluid Dynamics
- MAE 239 Dynamics of Unsteady Flows
Mechanics of Materials and Structures - Research

Areas of Interest:

- Computational mechanics
- Advanced manufacturing
- Machine learning
- Multiscale materials modeling
- Deformation and failure
- Low-dimensional materials
Mechanics of Materials and Structures - Faculty

Ramin Bostanabad
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests: Design under uncertainty, probabilistic machine learning, materials informatics, multiscale modeling, computational microstructure characterization, topology optimization.

Penghui Cao
Assistant Professor of Mechanical and Aerospace Engineering

SungWoo Nam
Associate Professor of Mechanical and Aerospace Engineering
Research Interests: Fundamental understanding of the mechanisms by which materials plasticity deform and fail, particularly in extreme environments.

Julián Rimoli
Professor of Mechanical and Aerospace Engineering
Research Interests: Materials, mechanics and multifunctionality; understanding mechanically coupled properties in low-dimensional materials; building devices based on advanced materials

Tim Rupert
Professor in Materials Science and Engineering
Research Interests: Computational solid mechanics, aerospace structures, multiscale modeling.

Lorenzo Valdevit
Professor in Materials Science and Engineering
Professor (Joint Appt.) in Mechanical and Aerospace Engineering
Director: Institute for Design and Manufacturing Innovation (IDMI)
Research Interests: Optimal design, fabrication and experimental characterization of micro-architected materials

Mark Walter
Professor of Teaching in Mechanical and Aerospace Engineering
Research Interests: Mechanics of multifunctional materials, building energy efficiency.
Mechanics of Materials and Structures - Courses

- MAE 207  Advanced Finite Elements
- MAE 248  Mechanics of Smart Structures
- MAE 254  Mechanics of Solids and Structures (Continuum Mechanics)
- MAE 255  Composite Materials and Structures
- MAE 256  Nanomechanics
- MAE 258  Mechanical Behavior of Solids - Continuum Theories (Materials Modeling)
- MAE 259  Mechanical Behavior of Solids - Atomistic Theories
- MAE 282  Engineering Design Under Uncertainty
- MAE 295  Failure and Fracture

ENGRMAE 256. Nanomechanics. 4 Units.

Nanoscale materials and the experimental and computational techniques used to measure their properties. Mechanical behavior is the main focus, but other material properties such as diffusion and electron transport are discussed.

Restriction: Graduate students only.
Areas of Interest

- Design and control of MEMS
- Machine information systems integration
- Computer Aided Design
- Robotics including microrobotics
- Biomechanics

- Carbon- and Magnetic MEMS
- CD-Based Fluidics
- Rehabilitation, prosthetics and exoskeletons
- Kinematics of spatial motion
- Design of Mechanical Systems
Natasha T. Buswell  
Assistant Professor of Teaching in Mechanical and Aerospace Engineering  
Research Interests: Graduate engineering education, faculty development, engineering teaching, engineering education research methods.

Donald Dabdbub  
Professor Emeritus of Mechanical and Aerospace Engineering; Civil and Environmental Engineering  
Research Interests: Mathematical modeling of urban and global air pollution, dynamics of atmospheric aerosols, secondary organic aerosols, impact of energy generation on air quality, chemical reactions at gas-liquid interfaces.

Lawrence Kulinsky  
Adjunct Professor of Mechanical and Aerospace Engineering  
Research Interests: Micro- and nano-manufacturing, hybrid manufacturing, microfluidics, electrokinetic phenomena, BioMEMs, personalized diagnostics, and drug delivery.

Marc Madou  
Distinguished Professor Emeritus of Mechanical and Aerospace Engineering  
Research Interests: Miniaturization science (MEMS and NEMS) with emphasis on chemical and biological applications, C-MEMS and CD based fluidics.

J. Michael McCarthy  
Director of the Performance Engineering Program and Professor of Mechanical and Aerospace Engineering  
Research Interests: Design of mechanical systems, computer aided design, kinematic theory of spatial motion.

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David Reinkensmeyer demonstrates one of his robotic devices created to help patients recover hand and arm function after neurologic damage caused by stroke or spinal cord injury.
Systems and Design - Courses

- MAE 242  Robotics
- MAE 244  Theoretical Kinematics
- MAE 245  Spatial Mechanism Design
- MAE 212  Electrochemistry for Engineers
- MAE 247  Micro-System Design
- MAE 249  Micro-Sensors and Actuators
- MAE 250  Bio-Robotics
- MAE 252  Fundamentals of Microfabrication
- MAE 253  BIOMEMS
- MAE 286  Design for Human Movement
- MAE 282  Computational Methods in Design
- Engr 265  Advanced Manufacturing Choices
- MAE 279  Special Topics in Mechanical Systems
- ENGR 290  Developing Teaching Excellence
- MAE 295  Academic Writing in Engineering

ENGRMAE 252. Fundamentals of Microfabrication. 4 Units.

Introduces Engineering and Science students to the science of miniaturization. Different options to make very small machines (micro and nano size) are reviewed, materials choices are discussed, scaling laws are analyzed, and many practical applications are listed.

Restriction: Graduate students only.
Thermal and Transport Sciences - Research

Areas of Interest
• Combustion and Emissions
• Fuel Cell Technologies
• Advanced Energy Systems
• Renewable Energy

• Heat Transfer
• Atomization and Sprays
• Reaction Kinetics
• Nanomaterials
Thermal and Transport Sciences - Faculty

Jacob Brouwer
Professor of Mechanical and Aerospace Engineering; Civil and Environmental Engineering
Research Interests:
Fuel cells, energy systems dynamics, electrochemical systems design and analysis, chemical kinetics, reacting flows.

Derek Dunn-Rankin
Professor Emeritus of Mechanical and Aerospace Engineering; Civil and Environmental Engineering; Environmental Health Sciences
Research Interests:
Combustion, optical particle sizing, particle aerodynamics, laser diagnostics and spectroscopy.

Jaeho Lee
Associate Professor of Mechanical and Aerospace Engineering
Research Interests:
Heat transfer, electronics cooling, energy harvesting, photonics, microdevices, and nanomaterials.

Vince McDonell
Adjunct Professor of Mechanical and Aerospace Engineering
Research Interests:
Combustion, alternative fuels, gas turbines, sprays, diagnostics, combined heat and power, emissions, autoignition/flashback

Bihter Padak
Assistant Professor of Mechanical and Aerospace Engineering
Research Interests:
Combustion, reaction kinetics, and emissions control technologies.
Thermal and Transport Sciences - Faculty

G. Scott Samuelsen  
Director of Advanced Power and Energy Program,  
Research Professor and  
Professor Emeritus of  
Mechanical and Aerospace Engineering; Civil and  
Environmental Engineering  

Research Interests:  
Combustion, sprays, laser diagnostics, air quality, turbulent transport, alternative fuels, modeling reacting flows, practical systems, energy and environmental conflict.

William Sirignano  
Distinguished Professor of  
Mechanical and Aerospace Engineering  

Research Interests:  
Combustion theory, multiphase flows, turbulent reacting flows, computational methods. Rocket and jet propulsion, gas turbine and internal combustion engines.

Yun Wang  
Professor of Mechanical and Aerospace Engineering  

Research Interests:  
Fuel cells, computational modeling, thermo-fluidics, two-phase flows, electrochemistry, CFD, turbulent combustion.

Yoonjin Won  
Associate Professor of  
Mechanical and Aerospace Engineering  

Research Interests:  
Multi-scale structures for thermal and energy applications, in particular fabrication, characterization, and integration of structured materials.

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Mechanical and Aerospace Engineering  

Research Interests:  
Combustion theory, multiphase flows, turbulent reacting flows, computational methods. Rocket and jet propulsion, gas turbine and internal combustion engines.

Yun Wang  
Professor of Mechanical and Aerospace Engineering  

Research Interests:  
Fuel cells, computational modeling, thermo-fluidics, two-phase flows, electrochemistry, CFD, turbulent combustion.

Yoonjin Won  
Associate Professor of  
Mechanical and Aerospace Engineering  

Research Interests:  
Multi-scale structures for thermal and energy applications, in particular fabrication, characterization, and integration of structured materials.

William Sirignano  
Distinguished Professor of  
Mechanical and Aerospace Engineering  

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Thermal and Transport Sciences - Courses

- MAE 216 Statistical Thermodynamics
- MAE 217 Generalized Thermodynamics
- MAE 220 Conduction Heat Transfer
- MAE 221 Convective Heat Transfer
- MAE 210 Advanced Fundamentals of Combustion
- MAE 212 Engineering Electrochemistry: Fundamentals and Applications
- MAE 214A. Fuel Cell Fundamentals and Technology
- MAE 214B. Fuel Cell Systems and Degradation
- MAE 214C PEM Fuel Cells
- MAE 215 Advanced Combustion Technology
- MAE 224 Advanced Transport Phenomena
- MAE 227 Thermal Resistance Analysis in Microdevices and Nanomaterials
- MAE 228 Nanoscale Phase Change Transport Physics
- MAE 260 Current Issues Related to Air Quality, Climate, and Energy
- MAE 295 Chemical Kinetics and Simulations

ENGRMAE 260. Current Issues Related to Air Quality, Climate, and Energy. 4 Units.

Current issues related to the atmosphere, climate, and air quality in the context of energy conversion and sustainability. Topics include transportation systems; building design; impacts on humans and ecosystems; modeling and meteorology; economics; and application to public policies.

Prerequisite: ENGRMAE 261 or CHEM 245 or EARTHSS 240

Restriction: Graduate students only.
Aerospace Engineering

A broad theme that encompasses many research and educational activities in MAE, including:

- Aircraft systems design and operations
- Innovative engine cycles for airbreathing propulsion
- Electrified propulsion for aircraft
- Subsonic and supersonic aerodynamics
- Dynamics and control of aerospace vehicles, including geometric nonlinear control
- Aeroacoustics of integrated aerial platforms
- Computational solid mechanics
- Spacecraft propulsion
- Autonomy and Cyber Physical Systems
**Aerospace Engineering - Faculty**

Manuel Gamero Castano  
Professor of Mechanical and Aerospace Engineering  
**Research Interests:**  
Spacecraft propulsion, electrospaying, electrohydrodynamics and atomization

Jacqueline Huynh  
Assistant Professor of Mechanical and Aerospace Engineering  
**Research Interests:**  
Design of aircraft systems and operations, aviation environmental impacts, aeroacoustics

Solmaz Kia  
Associate Professor of Mechanical and Aerospace Engineering  
**Research Interests:**  
Systems and control; decentralized/distributed algorithm design for multi-agent systems; cooperative navigation; sensor fusion; fault detection

Robert Liebeck  
Distinguished Adjunct Professor of Mechanical and Aerospace Engineering  
**Research Interests:**  
Aerodynamics, hydrodynamics, and aircraft design

Feng Liu  
Professor of Mechanical and Aerospace Engineering  
**Research Interests:**  
Computational fluid dynamics, turbomachinery, propulsion
Aerospace Engineering - Faculty

Dimitri Papamoschou
Professor of Mechanical and Aerospace Engineering
Research Interests:
- Aeroacoustics, compressible turbulence.

Julian Rimoli
Professor of Mechanical and Aerospace Engineering
Research Interests:
- Computational solid mechanics, aerospace structures, multiscale modeling

William Sirignano
Distinguished Professor of Mechanical and Aerospace Engineering
Research Interests:
- Combustion theory, multiphase flows, turbulent reacting flows, computational methods. Rocket and jet propulsion, gas turbine and internal combustion engines.

Haithem Taha
Associate Professor of Mechanical and Aerospace Engineering
Research Interests:
- Geometric nonlinear control theory; unsteady aerodynamics and aeroelasticity; optimal control; flight dynamics and autopilot design.
MAE Graduate Student Association

- Student-run organization with a focus on improving the academic lives of graduate students in the MAE department
- Enhance your educational experience through mentorship, outreach, and social activities.
- Provide guidance and support for your academic life
  - Relationship with your advisor
  - Issues working as a TA or Grader
  - Degree requirements/options, Preliminary exam, etc.
- Provide workshops and information sessions to prepare you for a career after graduation

Maryam Asghari
Recipient of the ARCS (Achievement Rewards for College Scientists)
Academic Goal: Ph.D.
Research Interests: Dynamic Modeling; Tri-Generation

@MAE.GSA
@UCIMAEGSA
MAE GSA Officers

President: Maryam Asghari
VP Internal: Zahra Heydarzadeh
VP External: Shiva Farzinazar
International Student Rep: Kimia Montazeri
Masters Student Rep: Marzieh Ataei
Outreach Coordinator: Alejandra Hormaza

Are You Interested in Joining Us?
Email us: maegsa@uci.edu
Jean Macneil  
Director  
jean.macneil@uci.edu  
*Primarily works with M.Eng and Computational Science JDP*

Mark Banderas  
Graduate Counselor  
mark.banderas@uci.edu  
*Primarily works with all MS and PhD students*

Dr. Athina Markopoulou  
Associate Dean

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204 Rockwell Engineering Center  
(building #311)  
http://www.eng.uci.edu/current/graduate  
gradengr@uci.edu  
Monday-Friday  
9am-12pm; 1pm-4pm

Revised 7/2022
For non-F1 or J1 visa holders

After IC approval

For F1 or J1 visa holders
Full-time

• 12 units minimum
• 16 units maximum
• 17+ units – need to email GPS Graduate Counselor for approval
• Required every quarter until graduation

Part-time

• 1 units minimum
• 8 units maximum
• For domestic MS students only
• For international MS students in their last quarter only
• Requires form and approval by certain deadline

**ABSOLUTE REGISTRATION DEADLINE:** Friday of Week 3 @ 4:00pm

**ADD/DROP/UNIT CHANGE DEADLINE:** Friday of Week 2 @ 5:00pm
Missed Deadline?
Submit electronic Enrollment Exception through StudentAccess
No guarantee that request will be approved
All Students:
- 3.0 GPA or higher
- Passing courses = B or higher or Satisfactory (S)
  - P/NP courses = not acceptable toward degree
  - Academic Conditional Status = lower than 3.0 GPA OR 2 Consecutive Term GPAs lower than 3.0

PhD Students:
- Match with PhD advisor by end of 1st year and maintain an advisor at all times
- Stay within normative time (see catalogue for specific timelines)
CHOOSE OPTION
Plan I: Thesis
Plan II: Non-Thesis

Plan I: Thesis
Begin coursework
Submit Plan of Study to Grad Coordinator
Identify thesis advisor and topic
Advancement to Candidacy
must be submitted at least one quarter prior to graduation
Complete thesis and exit survey,
submit thesis University Archives

Plan II: Non-Thesis
Begin coursework
Submit Plan of Study to Grad Coordinator
Continue coursework
Advancement to Candidacy
must be submitted at least one quarter prior to graduation
Complete coursework and exam/project
(differs by department) and exit survey
<table>
<thead>
<tr>
<th>Step</th>
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<tbody>
<tr>
<td>Choose research advisor</td>
</tr>
<tr>
<td>Complete any necessary coursework</td>
</tr>
<tr>
<td>Take preliminary exam</td>
</tr>
<tr>
<td>Continue research and choose dissertation topic</td>
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<tr>
<td>Nominate qualifying committee</td>
</tr>
<tr>
<td>Take qualifying exam and submit PhD Form I</td>
</tr>
<tr>
<td>Select doctoral committee</td>
</tr>
<tr>
<td>Complete dissertation</td>
</tr>
<tr>
<td>Defend dissertation and submit PhD Form II</td>
</tr>
<tr>
<td>Submit dissertation to university archives, submit exit survey</td>
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• You can find a list of course descriptions as well as your requirements in the 2022-23 UCI General Catalogue.

• You can find the policies and procedures to guide you through your graduate study in the Engineering Graduate Student Handbook.

• Also refer to your departmental handbook for additional/specific requirements.

• Additional policy information can be found on the Graduate Division Forms.
Contact Graduate and Professional Studies

• "I need help planning my classes" OR "I want to graduate in...." – academic advising

• "What do I need to do for.... (advancing to candidacy, taking my qualifying exam, defending my dissertation, etc.)" – we send important information to you when appropriate

• "I need the Associate Dean's signature" – this request is most likely for a DocuSign form. If so, the form will be routed to our office so we can get the signature for you

• "I am going on CPT" - we can provide you with authorization to enroll in the necessary course and obtain required signature

• "I have concerns about my research lab/research advisor" - we are here to listen and counsel you on how to proceed depending on the situation