

Graduate Programs in Mechanical and Aerospace Engineering

www.mae.buffalo.edu

Vital statistics

Degrees:

M.Eng., M.S., Ph.D.

Faculty:

23 full time, 8 part time

Graduate students:

186 full time, 15 part time

Teaching, research, and graduate assistant positions: 80

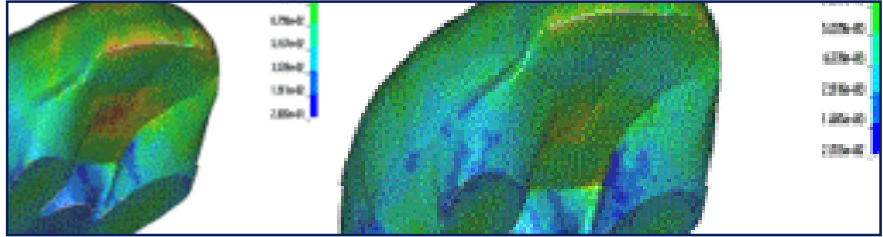
Areas of study include:

- Biomaterials, medical devices, and implants
- Musculoskeletal biomechanics
- Biomedical simulation and visualization
- Scientific visualization
- Optimization in design
- Virtual reality/Haptics
- Design theory
- Mechatronics
- Robotics/Mechatronics
- Transportation
- Guidance, navigation, and control
- Combustion
- Computational fluid dynamics
- Thermodynamic and transport behavior of novel materials and anomalous phenomena
- Thermal/Chemical/Mechanical systems modeling
- Particulate light scattering
- Aerosol mechanics and respiratory flow
- Theoretical fluid dynamics
- Composite materials
- Smart and multifunctional materials
- Magnetic data-storage materials
- Electronic packaging materials
- Computational mechanics
- Experimental mechanics

Top graduates

In the past few years, our Ph.D. graduates have received:

- 4 NSF CAREER awards
- 1 NSF Presidential Young Investigator award
- 2 Office of Naval Research Young Investigator awards
- 1 Presidential Faculty Fellow award
- 1 NSF Presidential Early Career Award for Scientists and Engineers



Using pediatric brain injury as a model, UB MAE researchers are developing new high-fidelity computational tools for the simulation of brain injury mechanics.

First-rate faculty

The UB Department of Mechanical and Aerospace Engineering faculty, working closely with our advanced graduate students, conducts leading-edge research in a number of disciplines, funded by government agencies and industry.

In recent years, our faculty have earned:

- 2 NSF Presidential Faculty Fellow awards
- 4 NSF CAREER awards
- 1 NSF Accomplishment-based Creativity award
- 1 NSF Presidential Young Investigator award

Accessible, first-rate faculty • Exciting research • Excellent facilities • Comfortable size • Successful graduates • Top-quality university • Great location

National ranking

The National Research Council (NRC) Effectiveness Ratings for Research-Doctorate Programs in Mechanical Engineering place UB's MAE department just below the first quartile (31 percent) in program effectiveness.

The NRC ranks us alongside University of California-Santa Barbara and Virginia, and ahead of Duke, Michigan State, Iowa State, Johns Hopkins, Colorado, and Florida.

In New York, only Cornell and RPI rank ahead of UB's mechanical and aerospace engineering department.

Markus Tremmel | Germany | Ph.D. program | Research area: aerodynamics

"The classes are small. The professors are very friendly. The facilities are great. The computing facilities are fantastic. And the multicultural aspect is wonderful."



Victor Guerrero | Ecuador | Ph.D. program | Research area: mechanics of materials



"I love the weather in Buffalo. In my case I come from a place where we don't have snow, so I love the winter sports here."

Research

Research in UB's MAE department is focused in four basic areas and one interdisciplinary area:

- Dynamics, control, mechatronics
- Design and optimization
- Fluids and thermal science
- Materials and mechanics
- Bioengineering (interdisciplinary)

Our faculty have attracted more than \$3 million in external research funding during 2002.

School and University

UB's School of Engineering and Applied Sciences offers graduate degrees in chemical engineering; civil, structural, and environmental engineering; computer science and engineering; electrical engineering; and industrial engineering in addition to mechanical and aerospace engineering.

The school either houses or has strong research affiliations with such nationally known UB centers as the New York State Center for Engineering Design and Industrial Innovation; the Center for Computational Research (currently running one of the world's fastest supercomputing clusters); the Institute for Lasers, Photonics, and Biophotonics; the National Center for Geographic Information Analysis; the Center for Multisource Information Infusion; the Multidisciplinary Center for Earthquake Engineering Research; and a great many others.

As a research-intensive university, UB supports and houses a wide array of research institutes, centers, and laboratories. These organized units, and the research projects of individual faculty members, accounted for more than \$300 million in grants from federal and state agencies, foundations, and industrial research partners in 2002.

Low cost

Because the University at Buffalo is a public institution, UB graduate tuition is an exceptional value. If you look at the top three rated mechanical and aerospace engineering programs in New York State, only UB's has low tuition. The department supports all its full-time Ph.D. students—with stipends and tuition scholarships—and some students in its master's program.

Department support

Teaching assistantships and university fellowships—assigned on the basis of academic merit—provide support ranging between \$12,000 and \$15,000 for an initial ten-month academic-year period. Beyond that period, continuing support usually comes from research assistantships funded by research grants and contracts. Students receiving aid in one of the above-mentioned forms are usually awarded tuition scholarships in addition to the basic stipend.



Renee Bagwell | U.S. | Ph.D. program | Research area: composite materials

"I like the size of this department because you can get to know everyone and everyone can get to know you."

Bottom Line: Where Our Grads Go

The following is a selection of the labs and companies where recent UB MAE graduate degree recipients are working:

Alcatel Space Industries
Boeing
Bosch
Cooper Industries
Dresser Rand
Evercell
Fluent
Ford
Honeywell Satellite Systems Operation
Hundai
Jet Propulsion Laboratory
Knolls Atomic Power Plant
Kodak
Lockheed-Martin Tactical Aircraft Systems
Los Alamos National Laboratory
Moog Aircraft Group
National Transportation Safety Board
Niagara Mohawk
Porsche
Praxair
Raytheon Missile Systems
Rolls-Royce Allison
Seagate
Siemens
Silicon Graphics Inc.
Sprint
Sun Microsystems
United Airlines
Volvo
Xerox

Our Ph.D. graduates have joined the faculties of:

Clarkson
Clemson
Cornell
Kansas State
Louisiana State
Michigan State
Purdue
Rochester Institute of Technology
RPI
Texas A&M
UC-Berkeley
University of Florida
University of Hawaii
University of Houston
University of Illinois-Urbana/Champaign
University of Minnesota
University of South Florida
Vanderbilt
Virginia Tech

Where to look, write, e-mail

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