BIOMEDICAL ENGINEERING, MS

The Department of Biomedical Engineering offers three distinct master of science (MS) degree programs in Biomedical Engineering:

- Biomedical Engineering MS, Research (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-research-ms/) – traditional master's program culminating in a thesis
- Biomedical Engineering MS, Accelerated Program (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-accelerated-program-ms/) – accelerated, course-based master's program with the opportunity to choose a specialty area
- Biomedical Engineering MS, Biomedical Innovation, Design, and Entrepreneurship (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-biomedical-innovation-design-entrepreneurship-ms/) – accelerated, course- and project-based master's program with an emphasis in design, business, and engineering

Biomedical engineering is the application of engineering tools for solving problems in biology and medicine. It is an engineering discipline that is practiced by professionals trained primarily as engineers, who specialize in medical and biological applications. This area of study combines fundamentals of the biomedical sciences with advanced engineering methods of analysis and design, and brings together these two fields in order to contribute to the design of new medical instruments and devices, apply engineering principles for understanding and repairing the human body and other biological systems, and use engineering tools for decision making and cost containment.

The Department of Biomedical Engineering should be of interest to students who wish to practice engineering or engage in research in an engineering specialization in medicine and biology. An individualized course of study is planned with a faculty advisor. Biomedical engineering faculty and affiliated faculty come from the various colleges and professional schools throughout the university. They specialize in biomedical engineering areas as diverse as biomechanics, bioinstrumentation, biomedical imaging and biophotonics, micro and nanotechnology, systems biology, biomaterials, cellular engineering, tissue engineering, neuroengineering, and rehabilitation and human performance. A list of biomedical engineering faculty, affiliated faculty, and their respective areas of specialization is available from the department website (https://directory.engr.wisc.edu/bme/faculty/).

ADMISSIONS

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Students apply to the Master of Science in Biomedical Engineering through one of the named options:

- Research (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-research-ms/)
- Accelerated Program (https://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-accelerated-program-ms/)
- Biomedical Innovation, Design, and Entrepreneurship (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-biomedical-innovation-design-entrepreneurship-ms/)

FUNDING

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/).
Other Grade Requirements	n/a
Assessments and Examinations	There are no degree-specific assessments and examinations outside of those given in individual courses.
Language Requirements	n/a

REQUIRED COURSES

Select a Named Option (p. 2) for courses required.

NAMED OPTIONS

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral. Students pursuing the Master of Science in Biomedical Engineering must select one of the following named options:

View as listView as grid

- **BIOMEDICAL ENGINEERING: ACCELERATED PROGRAM, MS (HTTP://GUIDE.WISC.EDU/GRADUATE/BIOMEDICAL-ENGINEERING/BIOMEDICAL-ENGINEERING-MS/BIOMEDICAL-ENGINEERING-ACCELERATED-PROGRAM-MS/)**
- **BIOMEDICAL ENGINEERING: BIOMEDICAL INNOVATION, DESIGN, AND ENTREPRENEURSHIP, MS (HTTP://GUIDE.WISC.EDU/GRADUATE/BIOMEDICAL-ENGINEERING/BIOMEDICAL-ENGINEERING-MS/BIOMEDICAL-ENGINEERING-BIOMEDICAL-INNOVATION-DESIGN-ENTREPRENEURSHIP-MS/)**
- **BIOMEDICAL ENGINEERING: RESEARCH, MS (HTTP://GUIDE.WISC.EDU/GRADUATE/BIOMEDICAL-ENGINEERING/BIOMEDICAL-ENGINEERING-MS/BIOMEDICAL-ENGINEERING-RESEARCH-MS/)**

POLICIES

POLICIES

Students should refer to one of the named options for policy information:

- Research (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-research-ms/)
- Accelerated Program (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-accelerated-program-ms/)
- Biomedical Innovation, Design, and Entrepreneurship (http://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-biomedical-innovation-design-entrepreneurship-ms/)

PROFESSIONAL DEVELOPMENT

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

PROGRAM RESOURCES

The Individual Development Plan (IDP)

An Individual Development Plan (IDP) (https://grad.wisc.edu/pd/idp/) helps graduate students and postdoctoral researchers:

- assess current skills, interests, and strengths;
- make a plan for developing skills to meet academic and professional goals; and
- communicate with supervisors, advisors, and mentors about evolving goals and related skills.

The IDP is a document to be revisited again and again, to update and refine as goals change and/or come into focus, and to record progress and accomplishments.

The university **recommends** IDPs for all postdoctoral researchers and graduate students, and **requires** IDPs for all postdoctoral researchers and graduate students supported by National Institutes of Health (NIH) funding. See the Graduate School for more information and IDP resources (https://grad.wisc.edu/pd/idp/).

Engineering Career Services

The Engineering Career Services (https://ecs.wisc.edu/) staff offers assistance to students searching or preparing for internships, co-ops, and jobs with well-recognized organizations.

The Writing Center

The Writing Center (https://writing.wisc.edu/) is a campus-wide organization that provides free of charge, face-to-face and online consultations for students writing papers, reports, resumes, and applications.

LEARNING OUTCOMES

LEARNING OUTCOMES

1. Demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
2. Demonstrate an ability to formulate, analyze, and solve advanced engineering problems.
3. Demonstrate creative, independent problem solving skills.
4. Apply the latest scientific and technological advancements, advanced techniques, and modern engineering tools to these problems.
5. Recognize and apply principles of ethical and professional conduct.

PEOPLE

PEOPLE

FACULTY

Paul Campagnola (Chair)
Randolph Ashton
Randy Bartels
David Beebe
Walter Block
Christopher Brace
Joshua Brockman
Kevin Eliceiri
Shaoqin 'Sarah' Gong
Aviad Hai
Pamela Kreeger
Wan-ju Li
Kip Ludwig
Megan McClean
Beth Meyerand
William Murphy
Krishanu Saha
Melissa Skala
Darryl Thelen
Pallavi Tiwari
Justin Williams
Colleen Witzenburg
Filiz Yesilkoy

INSTRUCTIONAL STAFF AND TEACHING FACULTY

Amit Nimunkar
John Puccinelli
Tracy Jane Puccinelli
Darilis Suarez-Gonzalez
Christa Wille

See also Biomedical Engineering Faculty Directory (http://directory.engr.wisc.edu/bme/).