BIOMETICAL ENGINEERING, M.S.

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

- Biomedical Engineering M.S., Research (https://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-research-ms/) – traditional master’s program culminating in a thesis
- Biomedical Engineering M.S., Accelerated Program (https://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 M.S., Biomedical Innovation, Design, and Entrepreneurship (https://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

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 (https://guide.wisc.edu/graduate/biomedical-engineering/biomedical-engineering-ms/biomedical-engineering-biomedical-innovation-design-entrepreneurship-ms/)

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

<table>
<thead>
<tr>
<th>Requirements Detail</th>
<th>Minimum Credit Requirement</th>
<th>Minimum Residence Credit Requirement</th>
<th>Minimum Graduate Coursework Requirement</th>
<th>Overall Graduate GPA Requirement</th>
<th>Other Grade Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>30 credits</td>
<td>16 credits</td>
<td>Half of degree coursework (15 credits out of 30 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (<a href="https://registrar.wisc.edu/course-guide/">https://registrar.wisc.edu/course-guide/</a>).</td>
<td>3.00 GPA required.</td>
<td>The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.</td>
</tr>
<tr>
<td>Assessments and Examinations</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
<td>There are no degree-specific assessments and examinations outside of those given in individual courses.</td>
</tr>
</tbody>
</table>
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:

- BIOMEDICAL ENGINEERING: ACCELERATED PROGRAM, M.S. (HTTP://GUIDE.WISC.EDU/GRADUATE/BIOMEDICAL-ENGINEERING/BIOMEDICAL-ENGINEERING-MS/BIO MEDICAL-ENGINEERING-ACCELERATED-PROGRAM-MS/)
- BIOMEDICAL ENGINEERING: RESEARCH, M.S. (HTTP://GUIDE.WISC.EDU/GRADUATE/BIOMEDICAL-ENGINEERING/BIO MEDICAL-ENGINEERING-MS/BIO MEDICAL-ENGINEERING-RESEARCH-MS/)

POLICIES

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

- Research (HTTP://GUIDE.WISC.EDU/GRADUATE/BIO MEDICAL-ENGINEERING/BIO MEDICAL-ENGINEERING-MS/BIO MEDICAL-ENGINEERING-RESEARCH-MS/)
- Accelerated Program (HTTP://GUIDE.WISC.EDU/GRADUATE/BIO MEDICAL-ENGINEERING/BIO MEDICAL-ENGINEERING-MS/BIO MEDICAL-ENGINEERING-ACCELERATED-PROGRAM-MS/)
- Biomedical Innovation, Design, and Entrepreneurship (HTTP://GUIDE.WISC.EDU/GRADUATE/BIO MEDICAL-ENGINEERING/BIO MEDICAL-ENGINEERING-MS/BIO MEDICAL-ENGINEERING-BIOMEDICAL-INNOVATION-DESIGN-ENTREPRENEURSHIP-MS/)

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

FACULTY

See also BME Faculty Directory (HTTP://DIRECTORY.ENG.EDU/BME/FACULTY/)

PROFESSORS

- David Beebe
- Walter Block
- Paul Campagnola
- Naomi Chesler
- Kevin Eliceiri
- Shaoqin (Sarah) Gong
- Kristyn Masters
- Beth Meyerand
- William Murphy
- Darryl Thelen
- Justin Williams
ASSOCIATE PROFessORS
- Randolph Ashton
- Christopher Brace
- Pamela Kreeger
- Wan-ju Li
- Kip Ludwig
- Krishanu Saha
- Melissa Skala

ASSISTANT PROFessORS
- Aviad Hai
- Melissa Kinney
- Megan McClean
- Jeremy Rogers
- Colleen Witzenburg
- Filiz Yesilkoy

FACULTY ASSOCIATES
- Amit Nimunkar
- John Puccinelli
- Tracy Jane Puccinelli
- Darilis Suarez-Gonzalez
- Aaron Suminski

emeritus
- Ed Bersu
- Willis Tompkins
- John Webster