MASTER OF SCIENCE IN THE FIELD OF BIOMEDICAL ENGINEERING

The School of Engineering and Applied Science offers the MS degrees in biomedical engineering through the Department of Biomedical Engineering. The MS program in biomedical engineering at GW is a 30-credit-hour graduate program, which can include a 6-credit master’s thesis.

The program is strongly interdisciplinary and prepares students to apply engineering principles to problems in medicine and biology, to understand and model multiple attributes of living systems, and to use this knowledge to develop novel biomedical systems and devices. Graduate students can choose from among a large array of areas of study, mentored by both core Departmental faculty and external faculty from SEAS and elsewhere in GW, who qualify, on the basis of their expertise and teaching abilities, for joint or secondary appointments in the Biomedical Engineering Department. The core faculty expertise includes cancer therapy, cardiac electrophysiology, biosensors, microfluidics, ultrasound applications in medicine, and medical imaging and image analysis.

The program is offered on the main campus in Foggy Bottom, and take full advantage of the close proximity of the Department’s home in the new Science and Engineering Hall to the GW School of Medicine, the Milken Institute School of Public Health at GW, and the GW Hospital. These interactions are supplemented by collaborations that take advantage of nearby clinical and research facilities, including Children’s National Health System and Federal agencies such as the FDA and NIH.

Visit the program website (http://www.bme.seas.gwu.edu/master-science-biomedical-engineering/) for additional information.

ADMISSIONS

Admission deadlines:

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<th>Fall</th>
<th>January 15</th>
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<td>Spring</td>
<td>September 1</td>
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<tr>
<td>Summer</td>
<td>March 1 (non-F1 visa seeking applicants)</td>
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Standardized test scores: The Graduate Record Examination (GRE) is required of all applicants. (Institution code 5246).

Admission deadlines:

- Fall - January 15
- Spring - September 1
- Summer - March 1 (non-F1 visa seeking applicants)

Recommendations required: Two (2) recommendations

Prior academic records: Transcripts are required from all colleges and universities attended, whether or not credit was earned, the program was completed, or the credit appears as transfer credit on another transcript. Unofficial transcripts from all colleges and universities attended must be uploaded to your online application. Official transcripts are required only of applicants who are offered admission.

If academic records are in a language other than English, a copy in the original language and an English language translation must be uploaded. Transcript evaluations should not be uploaded. Applicants who have earned a degree from an Indian university are required to submit individual semester marksheets.

Statement of purpose: In an essay of 250 to 500 words, state your purpose in undertaking graduate study at The George Washington University; describe your academic objectives, research interests, and career plans; and discuss your related qualifications, including collegiate, professional, and community activities, and any other substantial accomplishments not already mentioned.

Additional requirements: Applicants must possess a BS in biomedical engineering with a grade point average of at least 3.0 (on a scale of 4.0) for the last 60 credits of undergraduate work. Students with a BS in another field may be admitted with a set of deficiency courses to be determined by the department.

The Test of English as a Foreign Language (TOEFL), the Academic International English Language Testing System (IELTS), or the PTE Academic is required of all applicants except those who hold a bachelor’s, master’s, or doctoral degree from a college or university in the United States or from an institution located in a country in which English is the official language, provided English was the language of instruction. Minimum scores:

- Academic IELTS: an overall band score of 6.0 with no individual score below 5.0; applicants requesting funding consideration must have an overall band score of 7.0 with no individual score below 6.0; or
- TOEFL: 550 on paper-based or 80 on Internet-based; applicants requesting funding consideration must have 600 on paper-based; or 100 on Internet-based; or
- PTE Academic: 53; applicants requesting funding consideration must have 68.
All applicants must choose an area of focus that most closely matches their interests and note this on the online application. All applicants must submit a résumé or CV.

**International applicants only:**

Please follow this link - https://graduate.admissions.gwu.edu/international-student-application-requirements (https://graduate.admissions.gwu.edu/international-student-application-requirements/) - to review the International Applicant Information carefully for details on required documents, earlier deadlines for applicants requiring an I-20 or DS-2019 from GW, and English language requirements.

For more information on the admission process, please visit the SEAS Frequently Asked Questions page. (http://graduate.seas.gwu.edu/apply/faq/)

**Contact for questions:** engineering@gwu.edu - 202-994-1802 (phone) - 202-994-1651 (fax)
9:00 - 5:00 pm, Monday through Friday

**REQUIREMENTS**

The following requirements must be fulfilled: 30 credits, including 15 credits in required courses and 15 credits in elective courses (non-thesis option) or 6 credits in thesis and 6 credits in elective courses (thesis option).

A maximum of 3 credits of independent research (BME 6050) may be applied towards a masters degree.

Colloquium requirement: In addition to required coursework, students must attend 5 non-credit bearing engineering colloquia as part of their program of study. At least three of these must be BME Department events. Each colloquium attended must be verified by a faculty member also in attendance. After attending 5 colloquia, the student must submit to the department prior to applying for graduation a colloquium attendance form signed by the faculty advisor.

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td><strong>Required</strong></td>
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<td>Five 6000-level BME courses (15 credits) excluding BME 6050.</td>
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<td><strong>Required of students who have selected the thesis option</strong></td>
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<td>BME 6998</td>
<td>Thesis Research</td>
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<tr>
<td>BME 6999</td>
<td>Thesis Research</td>
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<td></td>
<td><strong>Electives</strong></td>
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For non-thesis option, five elective courses (15 credits). For thesis option, three elective courses (9 credits). All electives must be approved by the advisor. Some possible electives listed below.

- **ANAT 8120** Graduate Human Gross Anatomy
- **APSC 6212** Analytical Methods in Engineering II
- **APSC 6213** Analytical Methods in Engineering III
- **BME 6481** Regulatory Law for Medical Devices
- **ECE 6030** Device Electronics
- **ECE 6035** Introduction to Computer Networks
- **ECE 6215** Introduction to MEMS
- **ECE 6800** Computational Techniques in Electrical Engineering
- **EHS 6227** Introduction to Human Health in Space
- **EMSE 6765** Data Analysis for Engineers and Scientists
- **EXNS 6202** Advanced Exercise Physiology I
- **EXNS 6223** Biomechanical Analysis
- **MAE 6204** Tissue Engineering
- **MAE 6238** Biomaterials
- **MATH 6522** Introduction to Numerical Analysis
- **MATH 6540** Topics in Numerical Analysis
- **PUBH 6002** Biostatistical Applications for Public Health