Bioengineering (M.S.)

Master of Science
https://bioengineering.gmu.edu
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Program Overview
The Department of Bioengineering at George Mason University offers a Master of Science in Bioengineering. The MS in Bioengineering prepares students for research and professional practice in bioengineering and related fields. The program includes both fundamentals and advanced work to apply engineering techniques to solve problems in biology and medicine. A major distinguishing feature of the curriculum is that it is designed by education leaders who understand and appreciate how biomedical technology is translated from bench to bedside. Graduates from this program will eventually serve at universities, industry or government in a variety of roles, due to the breadth of this program and its content specific to clinical translation of new technologies.

Bioengineers are at the forefront of biomedical research and develop many of today's most important medical breakthroughs such as internal and external prosthetics, multiple imaging modalities, new computationally-based diagnostics, and therapeutics using micro- and nano-technologies. Bioengineers are needed to lead in more specialized roles, especially designing, developing and operationalizing of medical technologies and devices.

Program Requirements
All students must complete 30 graduate credits, including six core courses and elective courses as part of one selected option: thesis, practicum or coursework. Attendance at two departmental seminars per semester is also required.
Core courses include:
- Biomedical Data Analytics
- Cell and Tissue Engineering or Biomaterials
- Neural Engineering
- Medical Image Processing or Medical Imaging

And two of the following:
- Bioengineering Research Methods
- Pathophysiology and the Role of New Technologies in Human Diseases
- Intellectual Property, Regulatory Concepts and Product Development

Students may select a thesis option requiring research, six elective credits, a thesis research proposal, and thesis preparation with defense. Students may also select a practicum option, which requires independent research, six elective credits, project preparation and a project presentation. Alternately, students opting for the coursework option will choose 15 credits from a list of select technical specialization courses to increase technical depth in an area of their interest.

Refer to the department’s website for more information on program course offerings and details on program requirements.
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Related Programs
- Data Analytics Engineering (with a concentration in Bioengineering), MS
- Bioengineering, PhD

Distance education courses may be available for select programs. Graduate Certificate degree programs may also be offered. Please visit our website for details.

Admission Requirements
In addition to satisfying general admission requirements for graduate study, all applicants must hold a bachelor’s degree from an accredited institution in engineering or the sciences and have earned a GPA of 3.00 or better in the last 60 credits of that degree. Applicants must also demonstrate strong knowledge in ordinary differential equations, cell biology and general chemistry as demonstrated by the BS degree, course selection, or project work. Additional knowledge in molecular biology, physiology, organic chemistry, linear algebra, and/or statistics is recommended.

Required application materials include:
- Online application and non-refundable fee
- Transcripts showing all post-secondary study
- Professional and Educational Goals Statement
- Two letters of recommendation from references who are familiar with the applicant’s professional accomplishments
- GRE scores
- Resume

Additional application materials, including English proficiency examination scores (e.g., TOEFL, IELTS), are required if the applicant holds a degree from an international institution and/or requires an F-1 or J-1 visa. Visit http://admissions.gmu.edu/grad for details.

Special admission programs are available for Volgenau School students and alumni.

Visit our website for details: https://bioengineering.gmu.edu
Apply online: http://admissions.gmu.edu/grad/applynow