BIOMEDICAL ENGINEERING (M.S.)

Program specialization in this master's degree may be undertaken in these areas: biomaterials and tissue engineering, biomechanics of injury, biomedical imaging, biomedical instrumentation, computational and systems biology, and interdisciplinary. These specializations are available to both part-time and full-time students, in either research or non-research degree programs.

Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (http://bulletins.wayne.edu/graduate/general-information/ admission/). In addition, the minimum requirements for admission into the M.S. Program in Biomedical Engineering are:

- 1. Official transcripts from an accredited institution showing completion of an engineering baccalaureate degree. Students with a baccalaureate degree from a non-engineering discipline will be considered for admission to the program if they have the prerequisite coursework in Calculus (1, 2, and Differential Equations) and Physics (1 and 2). Applicants are expected to have some background in a programming language (e.g. MATLAB, C, C++, Java, Python, R, FORTRAN, etc). Courses from online platforms such as Coursera (https://www.coursera.org/), EdX (https://www.edx.org/) and MATLAB Onramp | Self-Paced Online Courses - MATLAB & Simulink (https://matlabacademy.mathworks.com/details/matlab-onramp/ gettingstarted/) may be used to gain such knowledge. Students without subsequent mathematical application coursework (e.g. life science) must have passed these courses with a grade of 'B' or better.
- 2. A Grade Point Average (GPA) of 3.0 or higher on a 4.0 scale will be considered for Regular Admission and GPA between 2.8 and 3.0 will be considered for Qualified Admission.
- 3. International applicants are required to submit a WES Evaluation (http://wayne.edu/admissions/graduate/international/).

Requirements – Traditional Program

This Master of Science degree in Biomedical Engineering is offered under the following options:

Plan A: minimum of thirty credits in course work including an eight-credit thesis.

Plan C: minimum of thirty credits in coursework.

Core Requirements

For either plan, students must complete the following:

Code	Title	Credits
BME 5010	Quantitative Physiology	4
BME 5020	Computer and Mathematical Applications in Biomedical Engineering	4
BME 8070	Seminar in Biomedical Engineering	1

Thesis Degree Plan (Plan A)

Code Title

13 credits of general courses (at least 6 credits in BME)
Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000 level or above in BME) *
Maximum of 4 credits in BME 5990 or BME 7990 (Directed study)

8 credits of BME 8999 - Master's Thesis Research

Maximum of 6 credits in BME 6991 (Internship)

The total credits for Directed Study/Internship combined cannot exceed 8 credits and individual maximums must be followed.

Non-Thesis Degree Plan (Plan C)

Code Title

Credits

21 credits of general courses (at least 12 credits in BME) Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000-level or above in BME) *

Maximum of 4 credits in BME 5990 or BME 7990 (Directed Study) Maximum of 6 credits in BME 6991 (Internship)

Maximum of 6 credits of non-BME Graduate-level Engineering or Medical School courses

The total credits for Directed Study/Internship combined cannot exceed 8 credits and individual maximums must be followed.

* BME 7990, BME 8070 and BME 8999 credits cannot be counted towards the minimum number of 7000-level credits in either the thesis or non-thesis program.

Students enrolled in the master's degree program are required to file a Plan of Work with the Graduate Program Director of the program by the time eight graduate credits have been earned. Following this, the applicant will petition his/her advisor to advance his/her rank to 'candidate.' Candidate status must be authorized by the time ten graduate credits have been earned, or else subsequent registration will be denied.

All course work must be completed in accordance with the regulations of the Graduate School (http://bulletins.wayne.edu/graduate/generalinformation/academic-regulations/) and the College of Engineering (http://bulletins.wayne.edu/graduate/college-engineering/academicregulations/). Courses to be applied to the degree requirements must be completed with a grade of B minus or higher. A maximum of 6 credits may be taken from Engineering or Medical School graduate-level courses with prior approval from the department.

Requirements – Online Program

The online Master of Science degree in Biomedical Engineering is offered with a concentration in Injury Biomechanics. All classes taken for the Online program must be online. Those enrolled in the program will take a core program in physiology and impact biomechanics, with additional electives to broaden the educational program. The program must be completed under Master's Degree Plan C, and it requires a minimum of thirty credits in course work.

Core Requirements

Credits

For either plan, students must complete the following:

Code	Title	Credits
BME 5010	Quantitative Physiology	4
BME 5020	Computer and Mathematical Applications in Biomedical Engineering	4
BME 8070	Seminar in Biomedical Engineering	1

Non-Thesis Degree Plan (Plan C)

CodeTitleCredits21 credits of general courses (at least 12 credits in BME)Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000-level or above in BME)Maximum of 4 credits in BME 5990 or 7990(Directed Study)*

Maximum of 6 credits in BME 6991 (Internship)

Maximum of 6 credits of Non-BME Graduate level Engineering or Medical School courses

* Directed Study/Internship combined cannot exceed 8 credits.

Students enrolled in the master's degree program are required to file a Plan of Work with the Graduate Program Director of the program by the time eight graduate credits have been earned. Following this, the applicant will petition his/her advisor to advance his/her rank to 'candidate.' Candidate status must be authorized by the time ten graduate credits have been earned, or else subsequent registration will be denied.

All coursework must be completed in accordance with the regulations of the Graduate School (http://bulletins.wayne.edu/graduate/generalinformation/academic-regulations/) and the College of Engineering (http://bulletins.wayne.edu/graduate/college-engineering/academicregulations/). Courses to be applied to the degree requirements must be completed with a grade of B minus or higher. A maximum of 6 credits may be taken from Engineering or Medical School graduate-level courses with prior approval from the department.