

Biomedical Engineering, M.S.Bm.E.

Curriculum in Master of Science in Biomedical Engineering

A candidate for the M.S. degree in biomedical engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Chemical and Biomedical Engineering Department.

Program Requirements

All M.S. degree candidates are required to perform research and follow a planned program of study. The student's research advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements*

Code	Title	Hours
A minimum GPA of 3.0 is required in all courses		
A maximum of 6 credit hours can be taken at the 400 level		
A grade of C- or higher must be earned in all required courses		
BMEG 501	Principles and Applications of Biomedical Engineering	3
BMEG 601	Numerical and Statistical Methods for Biomedical Engineering	3
BMEG 602	Interfacial Phenomena in Living and Non-Living Systems	3
Any BIOM, BMEG, BMS, CCB, CCMD, CE, CHE, CHEM, CPE, CS, CTS, EDP, EE, EXPH, IENG, IH&S, MAE, MATH, MINE, OEHS, PNGE, PHYS, PT, SAFM, SENG, or STAT courses 500-795, as approved by the student's AEC **		15
BMEG 697	Research	6
CHE 786	Professional Development Seminar for Chemical and Biomedical Engineering ***	0
Plan of Study		
Final Oral or Written Examination		
Thesis		
Total Hours		30

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Students who do not hold a baccalaureate degree in biomedical engineering are required to take a set of undergraduate engineering courses above and beyond the minimum coursework requirements

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All elective courses must be approved by the Statler College Graduate Admissions and Curriculum Committee and student's AEC.

Full-time students are required to take a Seminar course each semester

Further:

- The student should form a 5 member AEC and file a draft plan of study by the end of their 1st semester of enrollment in the graduate program. At least one member of the graduate faculty from outside the student's home Department is required to serve on the AEC;
- The student's research advisor, in conjunction with the student's AEC will be responsible for determining the plan of study appropriate to the student's interests/needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their future career;
- All students pursuing a graduate degree are expected to engage in research and complete and successfully defend a dissertation. The dissertation must show a high degree of originality, i.e. be an original contribution to BMEG-related areas;
- The integrity of the research conduct is the utmost importance to the institution and our department. We are committed to promoting and supporting the ethical and responsible conduct of research across all disciplines. As a result, all students are required to take an online Responsible Conduct of Research (RCR) training in their first year;
- The graduate degree signifies that the holder has the competence to function independently in the chosen field. Hence, the number of years involved in attaining or retaining competency cannot be readily specified, nor can the exact program of study be defined. However, one has a maximum of 3.5 years for to complete all the requirements for the M.S program from the date of admission respectively.

Final Examination

At the completion of the research, candidates must prepare a dissertation and pass the final oral examination (defense) administered by their AEC. Candidates should be demonstrating an original contribution to scientific knowledge and engineering practice in BMEG. The defense examination is open to the public and, in order to evaluate critically the student's competency, may include testing on material in related fields, as deemed necessary by the AEC. In addition, since the M.S. degree is a research degree that embodies the results of an original research proposal and represents a significant contribution to scientific literature, the student must submit a manuscript on this research to the AEC. The rules for this defense and the timing for the manuscript submission are specified by the Office of Graduate Studies at WVU and the Statler College; neither a foreign language nor a minor is required for the PhD

Student Learning Outcomes

BIOMEDICAL ENGINEERING

The learning outcomes of students graduating in biomedical engineering (BMEG) will be defined and measured as follows:

1. Mastery of basic and advanced graduate level knowledge in their chosen areas of specialty as related to BMEG. This outcome will be measured through the grades that the students earn in their coursework;
2. Ability to complete on time specific research tasks. This outcome will be measured through the grade (Satisfactory, Incomplete, or Unsatisfactory) that the student receives every semester from his/her major research advisor for the appropriate research course (700 level);
3. Strong oral communication skills. This outcome will be measured through the quality and number of oral presentations and reports given by the student to his/her Advising and Examining Committee (AEC), at technical meetings or conferences, as well as meetings of his/her research team;
4. Strong communication skills in writing. This outcome will be measured through the quality and number of technical reports, articles or reviews that the student may write during his/her graduate studies. Additionally, the quality of student's communication skills in writing will be measured through the dissertation;
5. Ability to work independently in a collaborative environment – This outcome will be measured through feedback solicited from the members of student's AEC, his/her peers, as well as the length of time the student needs to complete his/her graduate studies.