

BIOMEDICAL ENGINEERING

Program Information

The Master's degree (thesis or nonthesis) requires at least 30 semester hours. The Doctoral degree requires at least 90 semester credit hours beyond the bachelor's degree. No more than 30 hours of a master's degree from another institution will be transferred to the Ph.D. degree. If a student holds a master's degree in a discipline different from the doctoral program, the master's work will not be counted toward the doctoral degree unless the BME Department successfully petitions the Dean of the Graduate School. Requirements for these degrees are given in the Graduate Degrees (<http://gradcatalog.ufl.edu/graduate/degrees/>) section of this catalog.

Complete BME program details and courses available are listed in the Biomedical Engineering Graduate Guidelines, on the BME website (<https://www.bme.ufl.edu/>) (which also offers information on available research areas).

Combination program: Biomedical Engineering also offers a combination bachelor's/master's degree program in collaboration with the other departments in the College of Engineering. This program allows qualified students to earn both a bachelor's degree and a master's degree within 5 years for a net savings of 1 year. Contact the BME academic services office for more information or see <https://www.bme.ufl.edu/academics/bme-graduate-program/>

Degrees Offered

Degrees Offered with a Major in Biomedical Engineering

- Doctor of Philosophy
 - without a concentration
 - concentration in Clinical and Translational Science
- Master of Engineering
- Master of Science

Requirements for these degrees are given in the Graduate Degrees (<http://gradcatalog.ufl.edu/graduate/degrees/>) section of this catalog.

Courses

Biomedical Engineering Departmental Courses

Code	Title	Credits
BME 5401	Biomedical Engineering and Physiology I	3
BME 5500	Biomedical Instrumentation	3
BME 5703	Statistical Methods for Biomedical Engineering	3
BME 5937	Special Topics	1-4
BME 6010	Clinical Immersion	1
BME 6018	Clinical Correlations in BME	3
BME 6164	Magnetic Biomaterials	3
BME 6330	Cell and Tissue Engineering	3
BME 6360	Neural Engineering	3
BME 6522	Biomedical Multivariate Signal Processing	3
BME 6535	Radiological Physics, Measurements and Dosimetry	3
BME 6592	Therapeutic Radiological Physics II	3
BME 6705	Mathematical Modeling of Biological and Physiological Systems	3

BME 6905	Individual Work in Biomedical Engineering	1-4
BME 6907	BME Project	1-9
BME 6910	Supervised Research	1-5
BME 6936	Biomedical Engineering Seminar	1
BME 6938	Special Topics in Biomedical Engineering	1-4
BME 6940	Supervised Teaching	1-5
BME 6971	Research for Master's Thesis	1-15
BME 7979	Advanced Research	1-12
BME 7980	Research for Doctoral Dissertation	1-15
EGN 5949	Practicum/Internship/Cooperative Work Experience	1-6
EGN 6913	Engineering Graduate Research	0-3

College of Engineering and College of Medicine Courses

Code	Title	Credits
EEE 5354L	Semiconductor Device Fabrication Laboratory	3
EEE 5776	Applied Machine Learning	3
EEE 6778	Applied Machine Learning II	3
EGN 5215	Machine Learning Applications in Civil Engineering	3
EGN 5216	Machine Learning for Artificial Intelligence Systems	3
EGN 5442	Programming for Applied Data Science	3
EGN 6216	Artificial Intelligence Systems	3
EGN 6217	Applied Deep Learning	3
EGN 6446	Mathematical Foundations for Applied Data Science	3
EGN 6640	Entrepreneurship for Engineers	3
EGN 6642	Engineering Innovation	3
EGN 6913	Engineering Graduate Research	0-3
EGN 6933	Special Topics	1-3
EGN 6937	Engineering Fellowship Preparation	0-1
EGS 6012	Research Methods in Engineering Education	3
EGS 6020	Research Design in Engineering Education	3
EGS 6039	Engineering Leadership	3
EGS 6050	Foundations in Engineering Education	3
EGS 6051	Instructional Design in Engineering Education	3
EGS 6054	Cognition, Learning, and Pedagogy in Engineering Education	3
EGS 6056	Learning and Teaching in Engineering	1
EGS 6085	Advanced Engineering Educational Technology	3
EGS 6101	Divergent Thinking	3
EGS 6626	Fundamentals of Engineering Project Management	3
EGS 6628	Advanced Practices in Engineering Project Management	3
EGS 6629	Agile Project Management for Engineers and Scientists	3
EGS 6681	Advanced Engineering Leadership	3
EGS 6930	Engineering Education Seminar	1
EGS 6940	Preparation for Engineering Education Practicum	1
EGS 6949	Research to Practice Experience in Engineering Education	1-3
EGS 6971	Research for Master's Thesis	1-12
EGS 7979	Advanced Research	1-12

EGS 7980	Research for Doctoral Dissertation	1-12
ESI 6900	Principles of Engineering Practice	1-4

Student Learning Outcomes

Biomedical Engineering (PHD)

SLO 1 Knowledge

An ability to develop a broad-based knowledge of Biomedical Engineering problems

SLO 2 Knowledge

An ability to critically read Biomedical Engineering literature

SLO 3 Skills

An ability to use apply fundamental engineering principles to identify, analyze and solve biomedical engineering problems

SLO 4 Skills

An ability to design and conduct scientific and engineering experiments, and to analyze and interpret the resulting data

SLO 5 Professional Behavior

An understanding of professional and ethical responsibility and the impact of clinically significant engineering solutions

SLO 6 Professional Behavior

An ability to communicate effectively and work collaboratively

Biomedical Engineering (ME & Ms)

SLO 1 Knowledge

An ability to develop a broad-based knowledge of Biomedical Engineering problems

SLO 2 Knowledge

An ability to critically read Biomedical Engineering literature

SLO 3 Skills

An ability to use apply fundamental engineering principles to identify, analyze and solve biomedical engineering problems

SLO 4 Skills

An ability to design and conduct scientific and engineering experiments, and to analyze and interpret the resulting data

SLO 5 Professional Behavior

An understanding of professional and ethical responsibility and the impact of clinically significant engineering solutions

SLO 6 Professional Behavior

An ability to communicate effectively and work collaboratively