Learning Outcomes

• The graduates will be able to demonstrate knowledge in Modeling and Simulation of Biomedical Systems. Specifically, the students should be able to describe the common features of mathematical and computational models used in Biomedical Engineering and be able to explain their utility and limitations. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

• The graduates shall demonstrate knowledge in Human Cell and Molecular Biology. In addition to the acquired biological knowledge, the students will be able to articulate the application of this in biomedical engineering. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

• The graduates shall demonstrate knowledge in Human Anatomy and Physiology for Biomedical Engineering. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

• The graduates shall demonstrate knowledge in Transport Phenomena in Biomedical Systems. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

• The graduates shall demonstrate knowledge in a topic related to biomedical engineering. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

• The graduates shall be able to assemble, interpret, summarize, and communicate information extracted from the scientific literature and focused on a topic related to biomedical engineering. The attained level of expertise in the subject matter will be rated by the course instructor as 1- Poor/inadequate, 2-Fair, 3-Adequate, or 4-Excellent. Ratings will be reported to the graduate director.

Publication Requirement for M.S. Students

An educational objective for M.S. students is that they have the ability to communicate their research results through oral presentations and written publications. Consistent with this objective, an M.S. student is required to submit, based on research performed while at USC, at least one conference paper or one journal paper related to their current research topic prior to graduation.

Master’s Thesis

A thesis is required of all students seeking the M.S. degree. The student’s academic advisor must approve the subject of the thesis. The Graduate School will furnish general thesis regulations upon request. Any student who wishes to use University facilities or to confer with the faculty on thesis work must be officially enrolled for thesis credit.

Students who plan to complete their Master’s degree requirements during the summer must submit their thesis in sufficient time to ensure the approval and signature of the final draft and its delivery to the Graduate School, twenty (20) days prior to the end of the second summer session. The student should anticipate the absence of the professor for at least part of the summer. Information on the fees associated with the thesis submission is available in the Master’s Thesis Guidelines or from the Graduate School.

Thesis Committee

A student’s M.S. Thesis Committee must consist of two faculty members, one of whom should be a BMEN faculty member. In addition to the two committee members, one designated graduate committee representative should be present at the time of examination.

Thesis Presentation and Defense

The thesis presentation is to be open to all members of the University community and guests. During the Fall and Spring semesters, the presentation and defense are to be conducted during normal business hours and on a day that faculty are expected to be on campus. The
Graduate Director must approve the date and time of presentations given during the summer sessions.

At least 7 days prior to the thesis presentation and defense, the student must submit a printed copy of a complete thesis to the two members of the thesis committee and the Graduate Director. At least 14 days prior to the presentation and defense, a notice consisting of presentation title, abstract, time, place, and the names of the thesis committee advisors to be delivered to the Graduate Director. The notice is to be approved by the Graduate Director, dated and placed in the student’s file. Using the information supplied, the Graduate Studies Committee will publicize the thesis and defense.

A Graduate Studies Committee representative will attend the presentation and defense. This representative will be selected by the Graduate Studies Committee and will be a faculty member who is not part of the student’s thesis committee. This representative will report to the Graduate Studies Committee the results of the presentation and defense.

**Graduation**

Within 15 days after the beginning of the semester of graduation, the student should submit an Application for Degree Form to the Graduate School. Dates for submission for each term are published by the USC Registrar’s Office (http://registrar.sc.edu/html/graduation/). If a student fails to meet the requirements for graduation, a new application must be submitted for the subsequent graduation term.

**Degree Requirements (30 Hours)**

The Master of Science (M.S.) degree in biomedical engineering (BMEN) requires 30 credit hours of graduate level work beyond the B.S. degree. Students must complete of 12 hours in core BMEN courses (BMEN 710, BMEN 713, BMEN 720, and BMEN 723), 9 hours in BMEN or other approved electives, 1 hour in BMEN 795 seminar, 1 hour in BMEN 798 seminar, and 7 hours of BMEN 799, thesis preparation. The student must write and defend a thesis. The completed thesis must be submitted electronically with appropriate signatures to the Dean of the Graduate School.