BME 504: Numerical Methods for Chemists and Engineers

3 Credits

CHEM 504 is a 3-credit course designed to give graduate students an overview of basic numerical techniques. After completion of the course, the students will be able to perform simple computational tasks. The emphasis will be given to numerical solutions of ordinary and partial differential equations relevant to the chemical and biomedical research, such as reaction kinetics and transport phenomena. This 500-level course will contribute to the student’s ability to expand the frontiers of knowledge, to perform independent research, work as a team, and make conference-style presentations.

Recommended Preparations: Working knowledge of calculus and familiarity with Matlab.

Cross-listed with: CHEM 504

BME 590: Colloquium

1-3 Credits/Maximum of 3

Continuing seminars which consist of a series of individual lectures by faculty, students, or outside speakers.

Prerequisite: BME 590

BME 591: Bioengineering Ethics and Professional Development

1 Credits/Maximum of 999

Problem solving methods in ethical decision making, best practices in research communication, and strategies for professional development. This course will cover the main philosophical underpinnings of bioengineering ethics. It will then assist in developing methods for ethical decision making in the main areas of bioengineering professional practice. These areas include data collection, management and presentation, animal and human experimentation, peer review and authorship, and social implications of bioengineering research. The course will then assist in the professional development of students by instruction in tools for effective acquisition of discipline-specific conceptual knowledge, research skill development, communication, management, leadership.

BME 594: Research Topics

1-2 Credits/Maximum of 6

Supervised student activities on research projects identified on an individual or small-group basis.

BME 596: Individual Studies

1-9 Credits/Maximum of 9

Creative projects, including nonthesis research, which are supervised on an individual basis and which fall outside the scope of formal courses.

BME 597: Special Topics

1-9 Credits/Maximum of 9

Formal courses given on a topical or special interest subject which may be offered infrequently; several different topics may be taught in one year or term.