Course Requirements for BME Students in the Biomolecular Pharmacology Training Program
2012-2013

Year 1 Fall (12-16 cr)
GMS FC (4 cr) petition for possible exemption
ENG BE 605 Molecular Bioengineering (4 cr) lecture: T, Th 10-12 pm, lab: M 12-3 pm
or T 12-3 pm
GMS PM 701 Molecular Neurobiology and Pharmacology I (2 cr) M, 3-5 pm
GMS PM 710 Laboratory Techniques in Modern Pharmacology (2 cr)
ENG BME curriculum elective #1 (500 or 700 level BE course, 4 cr)
(Math course requirement: deferrable to Year 2 Fall for BME/Biomolecular
Pharmacology students only, see below*)

Year 1 Spring (12 cr)
ENG BE 606 Quantitative Physiology for Engineers (4 cr) lecture: M, W 10-12 pm,
lab: F 10-1 pm
GMS PM 702 Molecular Neurobiology and Pharmacology II (2 cr) M, 3-5 pm
GMS PM 710 Laboratory Techniques in Modern Pharmacology (2 cr)
ENG BME curriculum elective #2 (500 or 700 level BE course, 4 cr)

Year 2 Fall (10 cr)
GMS PM 801 Systems Pharmacology & Therapeutics I (2 cr) M 1-3 pm
ENG BME elective #3 (500 or 700 level BE course, 4 cr)
*Math course requirement (4 cr)

Year 2 Spring (4 cr)
GMS PM 802 Systems Pharmacology & Therapeutics II (2 cr) M 1-3 pm
GMS PM 810 Current Topics in Pharmacological Sciences (2 cr) W 12 pm -1:30 pm
(lunch provided), Seminar 2-3 pm

Year 2 or Year 3 Fall and Spring (4 cr)
BE 801, 802 Teaching Practicum, two semesters (2 cr each semester)

Descriptions of BME Required Courses

ENG BE 605 Molecular Bioengineering

Provides engineering perspectives on the building blocks of living cells and materials for biotechnology. Focuses on origins and synthesis in life and the laboratory, including biological pathways for synthesis of DNA, RNA and proteins; transduction, transmission, storage and retrieval of biological information by macromolecules; polymerase chain reaction, restriction enzymes, DNA sequencing; energetics of protein folding and trafficking; mechanisms of enzymatic catalysts and receptor-ligand binding; cooperative
proteins, multi-protein complexes and control of metabolic pathways; generation, storage, transmission and release of biomolecular energy; and methods for study and manipulation of molecules which will include isolation, purification, detection, chemical characterization, imaging and visualization of structure. 4 cr, 1st sem.

**ENG BE 606 Quantitative Physiology for Engineers**

Course in human physiology for biomedical engineering students. Fundamentals of cellular and systems physiology, including the nervous, muscular, cardiovascular, respiratory, renal, gastrointestinal, endocrine and immune systems. Quantitative and engineering approaches will be applied to understanding physiological concepts. 4 cr, 2nd sem.

For more information about courses offered by the Department of Pharmacology, please visit: [http://www.bumc.bu.edu/busm-pm/academics/courses/](http://www.bumc.bu.edu/busm-pm/academics/courses/)