Department of Biochemistry and Molecular Genetics

First Year Curriculum

Fall Semester

Biochemistry (3 hours)		**GEMS 501**
Molecular Biology (3 hours)		**GEMS 502**
Cell Biology (3 hours)		**GEMS 503**
Rotations* (1: sign-up for 2-3 hours)		GEMS 506
Faculty Research Seminars (1 hour)	[Highly recommended]	BCMG 501
Student Research Seminars (1 hour)	[Highly recommended]	BCMG 595
Research Methods I (1 hour maximum)**		GCLS 504

Spring Semester

Core Courses (2 of the following 3 required)

Integrative Biology - Development, Cancer, Immunology (3 hr)		**GEMS 510**
Molecular Genetics (3 hours)		**GEMS 511**
Structure of Biopolymers (3 hours)		**BCMG 513**
Rotations* (2: sign-up for 4-5 hours)		GEMS 506
Journal Club (1 hour)	[Highly recommended]	BCMG 515
Student Research Seminars (1 hour)	[Highly recommended]	BCMG 595
Research Methods II (1-2 hours)**		GEMS 505

* Notes regarding rotations: at the end of each rotation, students will present their work to the department in brief (10-12 minute) PowerPoint "rotation talks". Students are encouraged to do their first rotation within our department. Also, if you want to do your thesis work in BCMG, you are encouraged to do at least two of your rotations within the department as that will increase your potential of finding a home lab within the department (note that within GEMS, a thesis laboratory is required for progressing into the second year of graduate school).

** You are required to take 3 hours (or modules) of Research Methods during your first two years, but you can spread these out according to what works with your schedule and module offerings.

Radiation Safety Instructions (if used in research lab)	
Scientific Integrity and Responsible Research (all students)	GC401
Essentials for Animal Research (if animals used in research)	GC470

Second Year Curriculum

Six credit hours of didactic courses are required in the second year, in addition to any core courses requirement that needs to be fulfilled. Students will take a prelim exam at the end of the second year prior to the admission to PhD degree candidacy.

Fall semester

Topics in Biochemistry and Molecular Genetics	**BCMG 575**
Journal Club (1 hour)	BCMG 515
Student Research Seminars (1 hour)	BCMG 595
Thesis Research (0-16 hours)	BCMG 599

Either of the following courses can be used to satisfy the elective course requirement (see below)

Molecular and Genetics Analysis of Development (3 hours)	BCMG 526
Physiology (3 hours)	GEMS 500

Spring semester

One elective course (≥2 units), Can be selected from the Fall semester courses listed above, previous electives that were not taken, or the following (other courses can also be approved in consultation with advisor and DGS):

Receptor Pharmacology and Cell Signaling (3 hours)	GEMS 515
Drug Discovery, Design and Development (3 hours)	PMPG 507/BPS 507/MDCH 507
Intro to Data Analysis w/R (2 hours)	BSTT 494

Additional Requirements:

Journal Club (1 hour)	BCMG 515
Student Research Seminars (1 hour)	BCMG 595
Thesis Research (0-16 hours)	BCMG 599

Prelim Exam

The student will prepare a short thesis research proposal (~5 pages) and defend the proposal in front of a faculty jury, comprised of five faculty members (not including the student's thesis advisor), which must include at least three members from within the department and one external member. [Note that although the faculty members of this committee often also serve on the student's thesis committee, changes can be made.]

Post-second Year Curriculum

By the end of the second year, students should have completed the required didactic coursework, but still have to register for research credits and a limited amount of coursework. To be a full-time student receiving a stipend and tuition waiver, you must always be registered for a minimum of 12 units.

Journal Club (1 hour) (a total of 2.5 years or 5 hours is required)	BCMG 515
Student Research Seminars (1 hour) (continuous requirement, presenting once a year after passing the Prelim Exam)	BCMG 595
Thesis Research (0-16 hours)	BCMG 599