Curriculum

CURRICULUM FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY Ph.D. PROGRAM

Year 1		**Credits**
Fall		
	G715 Biomed I – Biomedical Science I – Biochemical Basis of Biological Processes	3
	G716 Biomed II – Biomedical Science II – Molecular Biology and Genetics	3
	G717 Biomed III – Biomedical Science III – Cellular Basis of Systems Biology	3
	G718 Research in Biomedical Science (1st rotation)	2
Spring		
	G655 Research Communication Seminar	1
	G718 Research in Biomedical Science Rotations 2 and 3	4
	Students will take 6 credits from the IBMG open enrollment electives in Spring	6
	*Biochemistry students must take at least **two of the six** 2-credit Biochemistry "core" courses (G805, 807, 817, 848, 852, 825) shown below (offered among the Spring IBMG electives or offered in Fall). These may also be taken in later years.*	
	Biochemistry Core Courses Offered in Spring:	
	G817 Molecular basis of cell structure and function	2
	G852 Concepts of cancer biology	2
	G807 Structural and chemical biology	2
	G848 Bioinformatic applications to proteomics and genomics	2
	Biochemistry Core Courses Offered in Fall:	
	G805 Diabetes and Obesity	2
	G825 Advanced Topics in Molecular Biology	2
Year 2		
Fall		
	IBMG open enrollment electives	
	G505 Responsible conduct of Research	1
	G855 Experimental Design and Research Biostatistics	1
Spring		
	B803 Advanced Biochemistry *This course in grant writing will culminate in the submission and oral defense of an "NIH or NSF style" grant proposal on the students intended*	1

	research topic. The assigned grade for this course is dependent on the successful defense of the proposal that will serve as a qualifying exam and be required for advancement to Candidacy.	
Years 2-5		
	Seminar B890	8
	B855 Research project *Work in the field of the candidate's thesis. Emphasis on ability to pursue research with relative independence and responsibility.*	
	Total credits (including research credits)	≥90

Notes:

- Students will be questioned on topics outside of their thesis work during their thesis proposal oral defense in B803. Passing of this defense (with B/3.0 grade or better) will be required for advancement to candidacy.
- Students will be enrolled for credit in B890 in years 2-5 in which they will present a seminar each year as well as attend all student and faculty seminars. Student seminars will generally be of a "journal club" format, where current, published work in the field of biochemistry is presented. Students who have advanced to candidacy may present their own lab work upon approval of course director and thesis advisor.
- After choosing a laboratory for thesis research, an advisory committee consisting of at least 3 Biochemistry and Molecular Biology and 1 external faculty member will be formed with the approval of the thesis advisor and departmental chairperson. Upon advancement to candidacy a thesis research committee will be similarly formed that may consist of different faculty.
- Students must score at least B- on each course and maintain at least a B average (3.0 minimal GPA).
- MD/PhD students will not be required to take G715-717 but will be expected to perform lab rotations (G718) during summer breaks from medical school classes. They will take B848 and at least one more of the 2-credit Biochemistry "core" courses (G805, 807, 817, 848, 852, 825) along with other courses required of Biochemistry and Molecular Biology PhD students (G505, G655, G855, B803 and B890) plus 2 credits from other department offerings.