Planned Offerings of Molecular Genetics Courses in 2012/13 and 2013/14

Course Number	Course Title	Semester Credit Hours (Contact hours per week)	Description	Planned Offerings in 2012/2013 (Summer 2012 – Spring 2013)	Planned Offerings in 2013/2014 (Summer 2013 – Spring 2014)
MolGen 1101	Introduction to Plant Biology: Plants, People, and the Environment	5 (3 55-min lectures, 1 55-min recitation, and 3-hrs of lab).	Plants and their relationships to humans and the biosphere: plant structure and function, growth and development; plant genetics and biotechnology; plant diversity and evolution; practical and economic uses of plants.	Summer Autumn Spring	Summer (?) Autumn Spring
MolGen 1301	Bridge Course for PCMB 102	3 (Contact instructor)	This is a bridge course that substitutes for PCMB 102 Introduction to Plant Biology II: Plants, People and the Environment under the quarter system.	Concurrent with every offering of MolGen 1101	Concurrent with every offering of MolGen 1101
MolGen 2220H	Introduction to Molecular Life Sciences: Research Opportunities and Career Options	1	Faculty presentations and facility tours to introduce first- and second- year students to research opportunities in molecular life sciences.	Autumn	Autumn
MolGen 3300	General Plant Biology	3 (2 55-min lectures and 1 3-hr lab)	Plant structure and function; growth and development; diversity, reproduction, and evolution of lower and flowering plants; people, the biosphere, and plant diversity.	Spring	Spring
MolGen 3436	Introductory Plant Physiology	3 (3 55-min lectures)	Topics in plant physiology at the introductory level: diffusion, transpiration, water stress, translocation, photosynthesis, plant growth hormones, tropisms, flowering, and fruit development.	Autumn	Autumn

MolGen 4500	General Genetics	3 (3 55-min lectures)	The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, recombinant DNA and genomics, and the genetics and evolution of populations.	Autumn Spring Summer	Autumn Spring Summer
MolGen 4500E	General Genetics	4 (3 55-min lectures plus 1 55-min honors specific recitation)	The principles of genetics, including molecular genetics, transmission genetics of prokaryotes and eukaryotes, developmental and non-chromosomal genetics, recombinant DNA and genomics, and the genetics and evolution of populations. Embedded Honors includes a recitation that further explores various topics in genetics.	Autumn Spring	Autumn Spring
MolGen 4503	Molecular Genetics Writing Project	1	Practice in searching, reading, and analyzing literature in molecular genetics, and in written and oral presentation.	Arrange	Arrange
MolGen 4591S	DNA Fingerprinting Workshops in Columbus Public Schools	1	A service learning course whereby undergraduates mentor high school students in molecular biology workshops.	Spring	Spring
MolGen 4606	Molecular Genetics	4 (3 55-min lectures and 1 55-min recitation)	A comprehensive genetics course for majors covering transmission and molecular genetics; DNA replication, repair and mutation; transcription and translation; analysis and manipulation of genes at the molecular level.	Autumn Spring	Autumn Spring
MolGen 4998/4998H	Undergraduate Research in Molecular Genetics	1-5	Undergraduate research in molecular genetics.	Arrange	Arrange
MolGen 4999/4999H	Thesis Research in Molecular Genetics	1-5	A program of reading and research leading to a senior thesis.	Arrange	Arrange
MolGen 5193	Individual Studies	1-3	Problem may be selected in the fields of molecular genetics, genomics, cell biology, developmental biology and plant sciences.	Arrange	Arrange

MolGen 5194	Group Studies	1-3	Group study of special topics in the fields of molecular genetics, genomics, cell biology, developmental biology, and plant sciences.		
MolGen 5601	Eukaryotic Molecular Genetics Lab	3 or 4 (Typically 2 5-hr labs)	Current laboratory techniques used in the genetic, cellular, and molecular analyses of yeast, Drosophila, and other model systems.	Autumn Maymester	Autumn Maymester
MolGen 5602	Eukaryotic Cell and Developmental Biology Laboratory	3 or 4 (Typically 2 5-hr labs)	Laboratory course emphasizing techniques and methods central to cell and developmental biology of eukaryotes.	Summer (?) Spring	Spring
MolGen 5607	Cell Biology	3 (3 55-min lectures)	Analysis of the structure and function of animal and plant cells and their components, stressing molecular genetic and biochemical approaches.	Autumn	Autumn
MolGen 5607E	Cell Biology	4 (3 55-min lectures and 1 55-min recitation)	Analysis of the structure and function of animal and plant cells and their components, stressing molecular genetic and biochemical approaches. Embedded Honors includes a recitation that explores cell biology topics from the primary literature.	Autumn	Autumn
MolGen 5608	Genes and Development	3 (3 55-min lectures)	Analysis of animal and plant development using modern genetic approaches.	Spring	Spring
MolGen 5608E	Genes and Development	4 (3 55-min lectures and 1 55-min recitation)	Analysis of animal and plant development using modern genetic approaches. Honors Embedded includes a faculty led recitation that explores developmental biology topics from the primary literature.	Spring	Spring
MolGen 5623	Genetics and Genomics	2	A survey and discussion of genomic studies applied to fungal, animal, or plants systems.	Not offered.	Spring
MolGen 5630	Plant Physiology	3	Advanced study of plant physiology; regulation of plant growth and development, hormones, and stress physiology.	Autumn	Autumn

MolGen 5632	Insect Molecular Genetics	2	Structure, genetics, and methodology of insect genes and genomes.	Not offered.	Unlikely to be offered.
MolGen 5643	Plant Anatomy	3	The structure, function, and development of cells, tissues, and organs of vascular plants.	Spring	Spring
MolGen 5645	Quantitative, Population, and Evolutionary Genetics	2	The genetics of populations, including quantitative, population, and evolutionary genetics.	Not offered.	Autumn
MolGen 5650	Analysis and Interpretation of Biological Data	3	Methods of analyzing biological data including: sampling, descriptive statistics, distributions, analysis of variance, inference, regression, and correlation. Emphasizes practical applications of statistics in the biological sciences.	Autumn	Autumn
MolGen 5660	Integrated Molecular and Cellular Biology for Non-Biologists	5	Overview of molecular and cellular biology of single cells, tissues, organisms and their interactions, including genetics and biochemistry of single cells.	Autumn	Autumn
MolGen 5700	Systems of Genetic Analysis	3	Analysis of select fungal, invertebrate, vertebrate, and plant model systems used in modern experimental genetics.	Autumn	Autumn
MolGen 5701	DNA Transactions and Gene Regulation	4	Understanding mechanisms of DNA replication, DNA repair and recombination, transcription, translation, regulation of gene expression, and the experimental approaches to these topics.	Autumn	Autumn
MolGen 5705	Advances in Cell Biology	2	An advanced study of selected key areas of research in eukaryotic cell biology.	Spring, 1st Term	Spring, 1st Term
MolGen 5715	Developmental Genetics	2	An advanced study of the regulation of developmentally significant genes and cellular interactions involved in differentiation and pattern formation in invertebrate, vertebrate, and plant model organisms.	Spring, 2nd Term	Spring, 2nd Term
MolGen 5733	Human Genetics	2	The principles of human genetics covering mapping of disease genes, defects causing human disease, the	Spring	Spring

			cloning of disease genes, gene therapy, transgenes, and specific pathological disorders.		
MolGen 5735	Plant Biochemistry	3	Focus on biochemical processes unique to plants, including photosynthesis, respiration, carbon fixation and carbohydrate metabolic networks, cell wall and lipid synthesis, and nitrogen and sulfur assimilation for macromolecular synthesis.	Not offered	Autumn or Spring
MolGen 5796	Current Topics in Signal Transduction	1 or 2	A discussion of signal transduction mechanisms in animal, fungal, and plant systems.	Not offered	Unlikely to be offered
MolGen 5797	Study at a Foreign Institution	1 - 15	Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details.	Arrange	Arrange
MolGen 5798	Study Tour: Domestic	1 - 15	Specific content, location, semester(s) of offering, and prerequisites vary; contact department office for details.	Arrange	Arrange
MolGen 6625	Plant Metabolic Engineering	2	Plant metabolic engineering with particular emphasis on the emerging role of plants and cultured plant cells as bioreactors.	Not Offered	Unlikely to be offered
MolGen 6725	Circadian Biology	2	Introduction to and discussion of the phenomenology and molecular mechanisms of the circadian timing system of five model systems.	Not offered.	Unlikely to be offered.
MolGen 6741	Reproductive Biology of Flowering Plants	2	An advanced course on reproductive processes in flowering plants with emphasis on recent biochemical, molecular, and genetic approaches.	Not Offered	Not Offered
MolGen 6795	Special Topics in Molecular Genetics	1 - 3	Lecture/discussion in a seminar format of publications, current research, or research techniques in the areas of cell biology, development, genetics, genomics, molecular biology, or plant biology.	Autumn: Cell and Dev. Biol. Spring: Plant Biol.? Maymester: Organelle Biol.	Autumn: Cell and Dev. Biol. Spring: Plant Biol.

MolGen 7600	First-Year Student Orientation	1	Orientation for first-year students in Molecular Genetics and partner graduate programs; lectures on topics important for successful graduate experience; training in presenting scientific work; training in research ethics.	Autumn	Autumn
MolGen 7741	Molecular Biology and Pathogenesis of Viruses	5	An integrated study of the molecular mechanisms of virus replication and host-virus relationships that control virus pathogenesis or use as a therapeutic agent.	Autumn	Autumn
MolGen 7780	Molecular Genetics Laboratory Rotations	3 - 6	Laboratory research procedures, literature readings, and discussions to familiarize the students with specific research areas.	Autumn Spring Summer	Autumn Spring Summer
MolGen 7801	Research Seminar: Developmental Genetics	1 - 2	Intensive study of problems in Developmental Genetics.	Not offered	
MolGen 7802	Research Seminar: Cell Biology	1 - 2	Intensive study of problems in Cell Biology.	Not offered	
MolGen 7806	Gene Expression: Transcriptional Control	2	Intensive study of problems in the general area of transcriptional control of gene expression. The course consists of student presentations and class evaluations of recently published results in these fields.	Not offered	Autumn
MolGen 7807	Gene Expression: Post-Transcriptional Control	3	Intensive study of problems in the general area of post-transcriptional control of gene expression. Consists of student presentations and class evaluations of recently published results in these fields.	Spring	Spring
MolGen 7890	Molecular Genetics Seminar	1	Faculty, graduate student, and outside speakers will participate.	Autumn Spring	Autumn Spring
MolGen 7999	Thesis Research	1 - 12	Research for Master's Thesis only.	Arrange	Arrange
MolGen 8999	Dissertation Research	1 - 12	Research for dissertation purposes only.	Arrange	Arrange