2014 - 2015 COURSE CATALOG

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Advanced Cancer Biology	BIOSCI 620	Shiuan Chen	The goal of the course is to provide our graduate students with basic and critical information on cancer. We hope to stimulate interest among our graduate students to develop translational research on cancer. Lectures 1-7 will provide important key aspects of cancer biology. Lectures 8-10 are to teach students about basic principles of chemoprevention, radiation therapy and chemotherapy. Lectures 11-15 will be taught by our clinical colleagues.	This course is not offered in the 2014 - 2015 Academic Calendar.					
Advanced DNA Repair and Epigenetics	BIOSCI 655	Binghui Shen	The course will explore fundamental concepts and mechanism of tumorigenesis, particularly how defects in DNA repair and epigenetic processes can both result in cancer and impact the efficacy of cancer therapies. The class will also help students master skills in searching for new information and knowledge through class discussions and attendance at seminars and a symposium related to the topics of the course. The course will be taught by a group of very active scientists in this field.	T &TH	TBD	Weekly	Classroom #1207	TBD	TBD
Advanced Epigenomics	BIOSCI 660	Dustin Schones	The objectives of the course are to provide insight into problem-oriented epigenomics research at the City of Hope and explain experimental and bioinformatics tools for epigenome mapping experiments. Problem-based research lectures will focus on one biological problem and how it is approached using methods of epigenomics. Problem-based research lectures will also explain specific laboratory methods utilized for epigenomics.	This course is not offered in the 2014 - 2015 Academic Calendar.					

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Advanced Immunology	BIOSCI 625	Zuoming Sun; Peter Lee	Many lectures will have a discussion of one to two research papers published in high impact journals within one-two years. The research papers will be given to the students in the week prior to the discussion. Each student gets to choose one paper to write the critique. Other than turning in the critique, all students need to be prepared to extensively participate in the discussion of the papers rather than just the paper they chose to write the critique. Each student's critique needs to address satisfactorily all seven questions listed below in order to get a good score. 1. What were they trying to prove? 2. What system did they use and why was it appropriate for the study? 3. What major methods were used to gather the data and why were they appropriate? 4. What were the major findings and why are they convincing (or not)? If not convincing, what experiment(s) would you propose that could be more convincing? 5. Did they prove their thesis and consider alternative explanations (explain)? 6. What do you think they should do next? 7. What do you not understand about this work?	This course is not offered in the 2014 - 2015 Academic Calendar.					
Advanced RNA	BIOSCI 650	Ren-Jang Lin	The topics will include microRNA biogenesis, RNA-mediated gene silencing and activation, splicing factors regulation, alternative splicing and RNA-binding proteins, cell responses to viral RNA invasion, and current techniques in global RNA analysis.	TBD	TBD	Weekly	Classroom #1207	TBD	TBD

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Advanced Stem Cell Biology	BIOSCI 640	Michael Barish (in collaboration with USC and CHLA)	The course examines the theories, principles, models, techniques, potentials, applications, and limitations of stem cell biology and its role in modern medicine. It is taught by instructors from basic and clinical departments spanning multiple disciplines including reproductive biology, developmental biology, and different areas of medicine, surgery, radiology, and tissue engineering. Each pair of lectures focuses on an area of stem cell and developmental biology. The first will review the background of current knowledge and technology, point out the direction of state of the art research, and discuss potential problems and controversies in the field.	TBD	TBD	Weekly	Classroom #1207	TBD	TBD
Advanced Stem Cell Research and Medicine	BIOSCI 645	Michael Barish (in collaboration with USC and CHLA)	This class that explores the impact of stem cell research on our society in terms of social, legal and ethical issues. The first part of the course provides information about the fundamentals of ethics and moral philosophy and models of ethical decision. The second part addresses what exactly constitutes stem cell research, the current status of stem cell research in the scientific world, and the history of the legal and political decisions that have resulted in our current climate and controversy regarding stem cell research. The main body of the course consists of students giving presentations on specific topics that relate to ethical dilemmas that face the stem cell field.	TBD	TBD	Weekly	Classroom #1207	TBD	TBD
Advanced Topics in Comparative Medicine	BIOSCI 610	Richard Ermel	Subject matter will cover the basic biology and diseases of all commonly used laboratory animals, as well as seldom used laboratory animal species. Additional lectures will cover surgery, anesthesiology, pharmacology, public health and zoonoses, animal models, pathology, regulations and policies, and other management topics. The course format will follow the ACLAM text “Laboratory Animal Medicine” and use other ACLAM textbooks as appropriate.	TH	1 pm - 2 pm	Weekly	TBD	TBD	TBD

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Advanced Topics in Medicinal Chemistry: Drug Delivery	BIOSCI 680	Jacob Berlin, Vincent Rotello (UMass Amherst), & Timothy Synold	This course will focus on strategies for improving the delivery of therapeutics molecules including small molecule drugs, oligonucleotides and peptides. The first several weeks will cover modern methods of measuring drug distribution and activity as well as challenges to achieving efficient targeted delivery of “naked” therapeutics. The remainder of the course will discuss various systems that have been developed for improved targeting of drug delivery. These systems will include: local injection, hydrogels, liposomes, polymeric nanoparticles, and inorganic nanoparticles. For each topic, there will be a 2:1 ratio of discussion/presentation sections to lectures. Generally, a lecture will introduce an aspect of the topic and then a class period will be devoted to discussing a written review of the topic. Each student will also nominate, by writing a short paragraph, a recent paper on the subject for discussion at the third class period. One paper will be selected and one student will serve as the advocate for the paper and one student will serve as the “critical reviewer”. At the conclusion of the course, each student will write a specific aims page on a novel research proposal of their choosing that addresses one of the challenges discussed in the class.	This course is not offered in the 2014 - 2015 Academic Calendar.					

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Advanced Virology	BIOSCI 635	Jiing-Kuan Yee	Diseases induced by virus infection are a major cause of human morbidity and mortality. Infection by human immunodeficiency virus, West Nile virus or hepatitis C virus is prevalent and creates socio-economic burden. Emerging viruses such as influenza virus or Severe Acute Respiratory Syndrome corona virus are increasing threats to become pandemic. Current Topics in Virology is designed to address key areas at the forefront of virology. Topics to be covered will include: Emerging viral infections, Viral pandemics, Host responses to control of viral infections and Harnessing the power of viruses as therapeutic tools and Virus discovery. The course will be led by Virology faculty members and will consist primarily of discussion of key papers in the context of the covered topic. Students will be expected to critically and creatively analyze assigned papers and discuss each topic. Active	This course is not offered in the 2014 - 2015 Academic Calendar.						
Biochemistry and Structural Biology (BaSB)	BIOSCI 510	Markus Kalkum; Nagarajan Vaidehi	The course educates the graduate students on the basic biochemistry as well as advanced biochemical techniques thus preparing them for their thesis research work. The course covers fundamental concepts and advanced topics of biochemistry and chemical biology. We will focus on molecular structure function relationships of life's essential biochemical processes as well as state-of-the-art imaging and spectroscopic methods that are used to determine accurate macromolecular structures and to gain detailed insight into biochemical mechanisms. The topics to be covered in this course include nucleic acids, amino acids, carbohydrates, lipids and membranes, protein biochemistry, protein structure analysis, separations and biophysical methods of characterizing protein complexes. The special topics in the final part of this course are designed to demonstrate contemporary applications of biochemical research strategies. Attendance will be recorded and is required for all lectures given in this course. You are allowed no more than three excused absences. These absences should be recorded with a note from an authority (e.g., doctor's note, accident report). If more than three lectures are missed, a student will be required to repeat the class.	M T W F	9 am -10 am	Weekly	Classroom #1207	9/8/14	12/19/14

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Biostatistics	BIOSCI 540	Jeffrey Longmate	The course should enable students to understand some of the major statistical concepts used in biology, apply several routine statistical methods, organize data and use a statistical computing package to carry out elementary calculations, and recognize common pitfalls and complexities.	M W and some Fridays for computing & exercising sessions	10:45 am - noon	Weekly	Classroom #1207	1/5/15	2/20/15
Cell Biology	BIOSCI 530	John Shively	• To understand the systemic inter-relationships from the perspective of integrative cell biology, biochemistry, developmental biology and pathophysiology. • To gain familiarity with cutting edge techniques and research problems being studied in human cell biology and its relationship to diseases. • To integrate various aspects of cell biology as applicable to your research. • To develop an analytical approach to solve problems which involve critical thinking and application of concepts learned from selected subjects in this course. • To promote your ability to understand and critically evaluate current research publications and seminars.	M - F	9 am - 10:30 am	Weekly	Classroom #1207	1/5/15	3/20/15
Computational Molecular Biology	BIOSCI 543	Nagarajan Vadeihi	To be distributed soon.	M - F	9 am - 10:30 am	Weekly	Classroom #1207	2/23/15	3/27/15

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Concepts In Molecular Biology & Genetics Laboratory	BIOSCI 505	Glenn Manthey	This course will introduce basic genetic concepts including; genotype and phenotype, dominance and recessiveness, pleiotropism, complementation and epistasis. These core concepts will be presented in the context of investigating the genetic control of genome stability in the yeast model system, Saccharomyces cerevisiae.	Due to the 2013 Lab Course format, please refer to the Orientation Schedule and 2nd & 3rd Week To Do file.		Weekly	Graduate School Lab	8/25/14	9/16/14
Fundamentals of Scientific Research (FSR)	BIOSCI 550	Timothy O'Connor; Jeremy Stark	The skills that beginners require the most opportunity to develop are: reading the scientific literature, writing, discussion, critique, and debate. Such a course should also permit students to leverage their prior training toward deepening their fund of scientific knowledge, and developing greater independence in evaluating the merits of different experimental approaches and bodies of work. The class is organized in modules with an introduction to a subject area in the Detailed Critiques, followed by Experimental Design Questions that develop actual problem-solving skills. The Detailed Critique and In Class Discussion train the student to recognize the elements that comprise a properly designed research paper and identify important aspects of the research area. The initial Detailed Critique assignment introduces a research area. The Experimental Design Questions and In Class Discussion train the student to properly design experiments that address current research problems in biology. Extensive literature review is required to assess the current state of knowledge for both sections, with the Experimental Design Questions leveraging the skills and knowledge developed in the Detailed Critique. Skills Developed: hypothesis generation, method selection, data description, and interpretation	TH	9 am - noon	Weekly	Classroom #1207	4/9/15	6/18/15
Introduction to Grant Writing	BIOSCI 502	Dustin Schones	Grant writing is one of the most important skills for successful scientists. This workshop is designed to introduce graduate students to the fundamentals of grant writing. By the end of this workshop, the students will develop the ability to apply for graduate fellowships.	M - F	9am - 10:30am	Daily	Classroom #1207	9/2/14	9/8/14

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Principles of Gene Expression	BIOSCI 520	Ren-Jang Lin	The purpose of the course is to prepare our students in several key areas that we believe a graduate level introductory course in molecular biology must accomplish. First, it must stimulate the acquisition and utilization of essential concepts and terms. Second, it must encourage the transition from passive learning from textbooks to active learning from the primary literature. Third, it should provide the students the opportunity to begin interpreting experimental results within the context of a body of work. Fourth, it must acquaint the students with the seminal experiments that form the foundation of molecular biology so they can observe the clearest possible application of the fundamental concepts that will be guiding their own experiments.	M W F	10:30:00 am - 12:45 pm	Weekly	Classroom #1207	9/10/14	12/19/14
Responsible Conduct in Research	BIOSCI 500	Steve Novak; Kate Sleeth	This class is an introduction to the ethical issues arising in biomedical research. The goals are to raise awareness of ethical issues, practice talking about ethical dilemmas, and identify institutional resources that can help scientists navigate complicated situations. The students are expected to read the material carefully, complete writing assignments, and discuss the case studies in depth.	M T W TH	3:30pm - 5pm; 9am - 10:30am	Daily	Classroom #1207	8/18/14	8/28/14

COURSE	COURSE #	COORDINATOR	BRIEF DESCRIPTION	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Scientific Writing Course	BIOSCI 600	Keely Walker	The ability to write high-quality, professional manuscripts and grant proposals is a necessary skill for biomedical researchers. This course addresses fundamental topics in scientific writing, with a focus on manuscript and grant proposal development. The course incorporates lectures and "hands-on" writing assignments to help students understand: • the importance of developing strong writing skills. • scientific misconduct (e.g., plagiarism, improper manipulation of figures) and how to avoid it. • how to develop major sections of common scientific documents (e.g., manuscripts, grant proposals). • the importance of preparation and organization in scientific writing. • how to improve word choice and syntax. The course provides students with the experience of writing a scientific document (first chapter [literature review] of dissertation) and having their work critiqued.	T	9:30 am - 11:30 am	Weekly	Classroom #1207	TBD	TBD

2014 - 2015 JOURNAL CLUBS

JOURNAL CLUB	COORDINATOR	DAY of the WEEK	TIME	OCCURRENCE	ROOM	START	END
Comparative Medicine	Richard Ermel	Thurs.	1 pm - 3 pm	Once a month	TBD	On going	On going
Current Science (JCCS)	Michael Barish	Tues.	11:30 am -12:30 pm	Every other week	Beckman Center Bldg. Confernece Room #4118	On going	On going
DNA Repair	Adam Bailis	Wed.	1:30 pm - 2:30 pm	Every other week	Fox North Bldg., 1st fl Conference Room	On going	On going
Epigenetics & Chromatin Structure	Dustin Schones	Tues.	1 pm - 2 pm	Every other week	Gonda Bldg., 1st fl. Conference Room	On going	On going
Immunology	Zuoming Sun	Tues.	2 pm - 3 pm	Every week	Beckman #1207	On going	On going
Protein Post-Translation Modification	Yuan Chen	Thurs.	noon - 1 pm	Every 3rd Thurs	Shapiro Conference Room	On going	On going
RNA	Mark Boldin	Fri.	1 pm - 2 pm	Every other week	Library Conference Room	On going	On going
Signaling and Regulation with	David Ann	Tues.	12:30 pm - 1:30 pm	Every other week	Beckman Bldg., Conference Room. #4118	On going	On going
Stem Cell	Theresa Ku	Mon.	noon - 1 pm	Every week	Conference Room C	On going	On going
Structural and Chemical Biology	John Williams	Wed.	noon - 1 pm	Every 3rd Wed.	Flower Bldg. Conference Room	On going	On going
Tumor Immunology Journal Club	Stephen Forman	Tues.	noon - 1 pm	Every 2nd & 4th Tues.	Beckman Bldg., Conference Room. #5201	On going	On going