جامعة الملك عبدالله
للعلوم والتقنية
King Abdullah University of
Science and Technology

Course Syllabus: Cell Structure Development Physiology II - B 213

Division	Biological and Environmental Sciences & Engineering Division
Course Number	B 213
Course Title	Cell Structure Development Physiology II
Academic Semester	Spring
Academic Year	2017/2018
Semester Start Date	01/28/2018
Semester End Date	05/24/2018
Class Schedule (Days & Time)	11:30 AM - 01:00 PM | Sun Wed

Instructor(s)

Name	Email	Phone	Office Location	Office Hours
Jasmeen Merzaban	jasmeen.merzaban@kaust.edu.sa	+966128082383	4218, 2, Ibn Al-Haytham (bldg. 2)	Office hours are flexible and students just need to inform the professor when a meeting is desired.
Valerio Orlando	Valerio.Orlando@KAUST.EDU.SA	+966128082674		Office hours are flexible and students just need to inform the professor when a meeting is desired.

Teaching Assistant(s)

Name	Email
N/A	N/A

Course Information

Comprehensive Course Description	The scope of this course is to provide a comprehensive overview of the fundamental functional and pathological aspects of genome and epigenome regulation in the context of development, cell division, growth and adaptation to the changing environment.
Course Description from Program Guide	The scope of this course is to provide a comprehensive overview of eukaryotic cell structure and the fundamental functional aspects of membranes, organelles, nuclear architecture, genome and epigenome in the context of development, specialization, and integration with the environment. This course will run over the fall and spring semesters.
Goals and Objectives	Students will have acquired a deep knowledge of the mechanistic aspects (histone modifications, nuclear architecture, non-coding RNA) that regulate epigenome structure and function in the context of development, cell identity, cell memory, reprogramming and adaptation. Students will also learn about cutting-edge technologies including Chromatin Immunoprecipitation (CHIP), RNA IP, Chromosome Conformation Capture (Hi-C) and ATAC Sequencing. In addition, they will acquire a fundamental understanding of how the cell regulates choices such as cell division, growth, death, differentiation and senesence.
Required Knowledge	The Cell: Structure, Development and Physiology I
Reference Texts	1) Molecular Biology of THE CELL, 5th or 6th edition or any other mainstream cell biology text book 2) Epigenetics, by Allis, Reinberg and Jenuwein

Method of evaluation	**40.00**% - Research Project **30.00**% - Tests **30.00**% - Presentation
Nature of the assignments	Tests --> 3 tests will be given following a block of lectures by the professors. Presentation/Group Discussion/Open Questions --> In small groups (2-3 students), a topic will be given and related articles will be assigned to be presented to the class and instructors for in depth disussions. In order to make these discussions profitable and valuble for evaluation purposes, everyone should read the same articles prior to coming to class and be ready to answer questions. The results of these discussions will be summarized as "Open Questions" that will feed into the final projects. Written Proposal and Oral defense = FINAL EXAM --> will be prepared on an individual basis on a topic of choice **that was discussed in class.** Written topic should be chosen based on topics and Open Questions covered during this course. Written proposal should be no longer than 5-6 pages, excluding references and it should be divided into three main sections: Introduction/general background and identification of the question/aim of the proposal (1.5-2 pages) Experimental plan specifying technology, expected results, coherence with the rest of the outlined aims of the proposal (2-3 pages) Final discussion and conclusions (1 page). Examples from previous years will be made available by the instructors. Proposal should be handed in by the last day of classes. Oral presentation should recap the topic and, like for the written proposal, introduce the question, then discuss the experimental plan with some emphasis also on the technologies and final outcome of the project. Altogether 15min presentation (~15 slides) plus 15min questions. Dates: May 20-24, 2018. Final schedule will be circulated later.
Course Policies	-Attendance in class is mandatory unless a valid excuse is provided -It is the responsibility of the student to attend classes, exams and submit work on time -Plagiarism is not tolerated and this will be monitored for all work submitted
Additional Information	

Tentative Course Schedule *(Time, topic/emphasis & resources)*				
Week	**Lectures**	**Topic**		
1	Sun 01/28/2018 Wed 01/31/2018	Sun, Jan 28 Wed, Jan 31	Development Development	Orlando Orlando
2	Sun 02/04/2018 Wed 02/07/2018	Sun, Feb 4 Wed, Feb 7	Development Development	Orlando Orlando
3	Sun 02/11/2018 Wed 02/14/2018	Sun, Feb 11 Wed, Feb 14	Test #1 Epigenetics	Orlando Orlando
4	Sun 02/18/2018 Wed 02/21/2018	Sun, Feb 18 Wed, Feb 21	Epigenetics Epigenetics	Orlando Orlando
5	Sun 02/25/2018 Wed 02/28/2018	Sun, Feb 25 Wed, Feb 28	Epigenetics Test #2	Orlando Orlando
6	Sun 03/04/2018 Wed 03/07/2018	Sun, Mar 4 Sun, Mar 7	Cell Cycle Control System *Ch. 17 pp. 963-977* Cell Division *Ch. 17 pp. 978-996*	Merzaban Merzaban
7	Sun 03/11/2018 Wed 03/14/2018	Sun, Mar 11 Wed, Mar 14	Control of Cell Division and Cell Growth *Ch. 17 pp. 996-1004, pp. 1010-1018* Cell Decisions: Senescence and Differentiation	Merzaban Merzaban
8	Sun 03/18/2018 Wed 03/21/2018	Sun, Mar 18 Wed, Mar 21	Cell Death *Ch. 18* Cancer *Ch. 20*	Merzaban Merzaban
9	Sun 03/25/2018 Wed 03/28/2018	Sun, Mar 25 Wed, Mar 28	Cancer *Ch. 20* Test #3	Merzaban Merzaban
10	Sun 04/01/2018 Wed 04/04/2018		Spring Break Spring Break	
11	Sun 04/08/2018 Wed 04/11/2018	Sun, Apr 8 Wed, Apr 11	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions	Merzaban Orlando Merzaban Orlando

12	Sun 04/15/2018 Wed 04/18/2018	Sun, Apr 15 Wed, Apr 18	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions	Merzaban Orlando Merzaban Orlando
13	Sun 04/22/2018 Wed 04/25/2018	Sun, Apr 22 Wed, Apr 25	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions	Merzaban Orlando Merzaban Orlando
14	Sun 04/29/2018 Wed 05/02/2018	Sun, Apr 29 Wed, May 2	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions	Merzaban Orlando Merzaban Orlando
15	Sun 05/06/2018 Wed 05/09/2018	Sun, May 6 Wed, May 9	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions	Merzaban Orlando Merzaban Orlando
16	Sun 05/13/2018 Wed 05/16/2018	Sun, May 13 Wed, May 16	Presentation/Group Discussion/Open Questions Presentation/Group Discussion/Open Questions LAST DAY OF CLASS - Written proposal due	Merzaban Orlando Merzaban Orlando
17	Sun 05/20/2018 Wed 05/23/2018	FINAL EXAMS- ORAL DEFENSE OF PROPOSAL		
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Note

The instructor reserves the right to make changes to this syllabus as necessary.