



## Course Syllabus: Introductory Cell Biology - B 102

<b>Division</b>	Biological and Environmental Sciences & Engineering Division
<b>Course Number</b>	B 102
<b>Course Title</b>	Introductory Cell Biology
<b>Academic Semester</b>	Fall
<b>Academic Year</b>	2019/2020
<b>Semester Start Date</b>	08/25/2019
<b>Semester End Date</b>	12/10/2019
<b>Class Schedule</b> (Days & Time)	11:30 AM - 01:00 PM   Tue , 01:00 PM - 02:30 PM   Sun

Instructor(s)				
Name	Email	Phone	Office Location	Office Hours
Michael Florian Mette	florian.mette@kaust.edu.sa	+966128082625		Anytime during work hours in Bldg. 2, Level 4, Room 4327 upon appointment, please send an email.

Teaching Assistant(s)	
Name	Email

Course Information	
<b>Comprehensive Course Description</b>	<p>This class targets students with entry-level background in cell biology. It serves as refreshment as well as a boost course for those aiming to major in all disciplines in biology. The class starts with defining the main terminology and fundamental principles of cell biology, it then recapitulates the different building blocks of cells from molecular to organelle level. Using a combination of upfront classroom teaching and problem-based learning, the principles of signaling, metabolism and energy homeostasis are discussed in the context of cellular organization.</p> <p>Selected examples of different aspects of cell biology are examined to provide students with the central scientific concepts of this field that are essential for the advanced Cell Biology courses B213 and B224. These concepts are also important foundation to several other courses in BESE. A major aim of the class is to demonstrate students how deductive processes are applied in the life sciences for the gain of new knowledge.</p>
<b>Course Description from Program Guide</b>	<p>This class targets students with entry-level background in cell biology. It serves as refreshment as well as a boost course for those aiming to major in all disciplines in biology. The class starts with defining the main terminology and fundamental principles of cell biology. It then recapitulates the different building blocks of cells from molecular to organelle level. Using a combination of upfront classroom teaching and problem-based learning, the principles of signaling, metabolism and energy homeostasis are discussed in the context of cellular organization.</p>
<b>Goals and Objectives</b>	<p>This course aims to provide students with a solid theoretical foundation in basic cell biology in order to prepare them for more advanced classes.</p>
<b>Required Knowledge</b>	<p>Basic understanding of general science</p>

<b>Reference Texts</b>	Textbook: Molecular Biology of the Cell 6th ed. 2015; Authors: Bruce Alberts, Alexander D. Johnson, Julian Lewis, Martin Raff, Keith Roberts, Peter Walter, David Morgan; Publisher: W. W. Norton & Company, ISBN: 978-0-815-34432-2;  Chapter numbers in the course schedule refer to this book.
<b>Method of evaluation</b>	<b>75.00%</b> - Tests <b>25.00%</b> - Homework /Assignments
<b>Nature of the assignments</b>	There will be two interim and one final exam, together accounting for 75% of the grade. Further, students will be expected to prepare for the course based on assigned readings, contribute actively in class, and to perform solving of short text and calculation problems in home-assignments, together accounting for 25% of the grade.
<b>Course Policies</b>	Attendance of and active participation in classes is mandatory. All assignments need to be delivered in due time. Any planned absence needs to be discussed with the course instructor and program chair.
<b>Additional Information</b>	

### Tentative Course Schedule

*(Time, topic/emphasis & resources)*

Week	Lectures	Topic
1	Sun 08/25/2019 Tue 08/27/2019	Lecture 1 - Prokaryotic and Eukaryotic Cells (Chap. 1) Lecture 2 - Cell Components (Chap. 2)
2	Sun 09/01/2019 Tue 09/03/2019	Lecture 3 - Protein Structure (Chap. 3) Tutorial 1 - Chap. 1, 2, and 3
3	Sun 09/08/2019 Tue 09/10/2019	Lecture 4 - Cell Energetics and Catalysis (Chap. 2 and 3) Lecture 5 - DNA and Chromosomes (Chap. 4)
4	Sun 09/15/2019 Tue 09/17/2019	Lecture 6 - DNA Replication (Chap. 5) Tutorial 2 - Chap. 2, 3, 4, and 5
5	Sun 09/22/2019 Tue 09/24/2019	Saudi National Day Break <b>Exam Part A</b> - (Lectures 1 to 6, Tutorials 1 and 2) - 25% of grade
6	Sun 09/29/2019 Tue 10/01/2019	Lecture 7 - DNA Repair (Chap. 5) Lecture 8 - DNA to RNA, and RNA to Proteins (Chap. 6)
7	Sun 10/06/2019 Tue 10/08/2019	Lecture 9 - Expression Regulation in Bacteria (Chap. 7) Tutorial 3 - Chap. 5, 6, and 7
8	Sun 10/13/2019 Tue 10/15/2019	Lecture 10 - Expression Regulation in Eukaryotes (Chap. 7) Lecture 11 - Cytoskeleton and Motor Proteins (Chap. 16)
9	Sun 10/20/2019 Tue 10/22/2019	Lecture 12 - Membrane Sorting and Vesicle Traffic (Chap. 12 and 13) Tutorial 4 - Chap. 7, 12, 13, and 16
10	Sun 10/27/2019 Tue 10/29/2019	Fall Midterm Break <b>Exam Part B</b> - (Lectures 7 to 12, Tutorials 3 and 4) - 25% of grade
11	Sun 11/03/2019 Tue 11/05/2019	Lecture 13 - Membrane Structure (Chap. 10) Lecture 14 - Cell-Cell and Cell-Matrix Adhesion (Chap. 19 and 15)
12	Sun 11/10/2019 Tue 11/12/2019	Lecture 15 - Membrane Transport (Chap. 11) Tutorial 5 - Chap. 10, 11, 15, and 19
13	Sun 11/17/2019 Tue 11/19/2019	Lecture 16 - Cell Signaling (Chap. 15) Lecture 17 - Signaling Mechanisms (Chap. 15)
14	Sun 11/24/2019 Tue 11/26/2019	Lecture 18 - Cell Cycle, Mitosis, and Meiosis (Chap. 17) Tutorial 6 - Chap. 15 and 17
15	Sun 12/01/2019 Tue 12/03/2019	No class <b>Exam Part C</b> - (Lectures 13 to 18, Tutorials 5 and 6) - 25% of grade
16	Sun 12/08/2019 Tue 12/10/2019	No class No class

#### Note

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