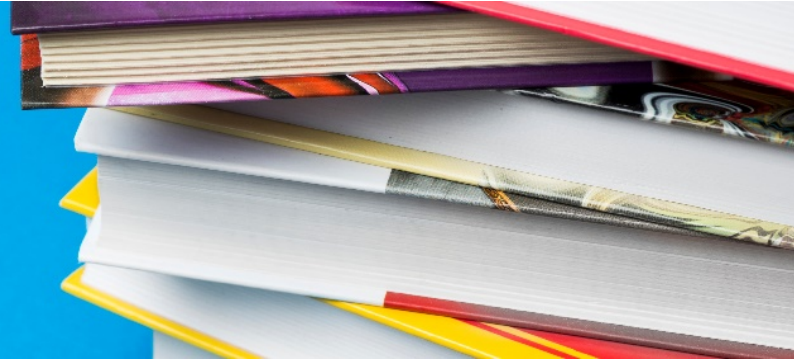




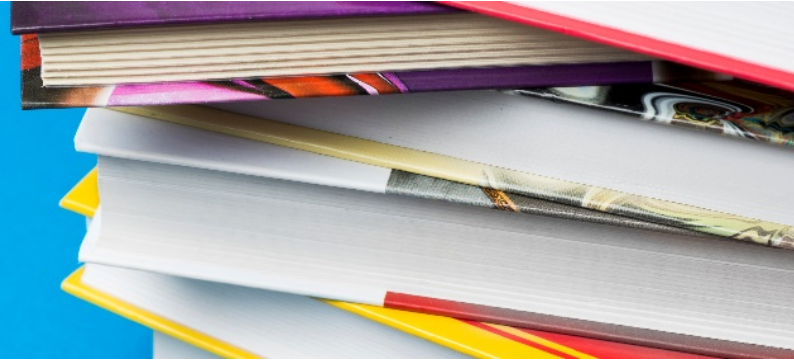
Full Syllabus



Course Title	
0455256601 - Molecular Cell Biology Laboratory	
Lecturer	
Prof. Miguel Weil	
Semester	
Second	
Course requirements	
Cell Biology 101	
Final grade components	
2 Quiz exams + 2 lab reports (report 1: Labs 1+2; report 2: Lab 3)	
Course schedule	
Class no. / Date	Subject and Requirements (assignments, reading materials, tasks, etc.)
Week 1	A: Basics Experimental Cell Biology Lab 1: Looking at the intracellular components Immunofluorescence analysis of intracellular/organelle proteins expression
	Introduction to the experiment methodology, cell culture and Immunofluorescence protocol
	<ol style="list-style-type: none"> Sample preparation and plate seeding <ol style="list-style-type: none"> 1.1 Sterile work under a TC Laminar flow hood 1.2 Seeding procedure and plate incubation 1.3 Cell counting procedure (learning and training) Treatment of cells with different inhibitors to perturb specific organelle biology Immunofluorescence protocol Imaging under an automated fluorescent microscope Image analysis of the stained cells under the different experimental conditions Requirements: View Introductory lecture (prerecorded video) Read Lab 1 in the Course Laboratory Manual
Week 2	Lab 2: Principles in cell growth regulation
	Introduction to the experiment methodology, evaluation of cell viability under different culture conditions, Cell count and FACS analysis
	<ol style="list-style-type: none"> Introduction to FACS analysis (Dr. Orit Sagi-Assif)
	<ol style="list-style-type: none"> Plate preparation: Trypsinization, counting and seeding cells at different densities in different plate types according to culture conditions: Cell Density, serum starvation, cell cycle check point inhibitors Harvest cells from the different plates for analysis Requirements: View Prerecorded Lecture: Principles in cell growth regulation in animal



Full Syllabus



	cells
Week 3	<ol style="list-style-type: none"> 1. Summary on Lab1 and Lab 2 Quiz exam: Lab1 and Lab 2
	B: Experimental approaches to characterize and isolate biomarkers (in health and disease)
	Introduction to the experiment methodology, live imaging of stained organelles, Western blot analysis of putative markers and PAS assay
	Lab 3: Identification of molecular biomarkers (Phenotype) in disease cell model
	<ol style="list-style-type: none"> 1. Preparation of experiment set up (cell counting and seeding) 2. Staining of cells for live imaging and for PAS assay 3. Protein quantification for Western blot samples using BCA reagents 4. Western blot step by step: gel electrophoresis and membrane transfer
Week 4	<ol style="list-style-type: none"> 5. PAS assay 6. Western blot step by step: Immunolabeling, ECL reaction and imaging 7. Analysis of protein marker expression using Image J software Lecture: New approach towards drug personalized medicine of rare diseases (Prof. Miguel Weil) Requirements: View Prerecorded guide on Image analysis and Image J tutorial

Required course reading

Relevant chapters to lab subjects in Essential Cell Biology by Alberts et al., 5th Edition
 Additional aid manual on technical and experimental subjects (provided)

Optional course reading

Comments

Lab 3 is updated every year