# BIO 332 Cell Biology Syllabus Spring 2021

**Instructor: Cavit Agca**

This course is an introduction to fundamental cellular structures and processes at molecular and systems levels. Topics include: structural organization of cellular components and properties of cell membranes; universality of fundamental cellular mechanisms; compartmentalization and division of labor within cells; mechanisms of cell-environment and cell-cell communication, regulation of cell growth, division and death. Upon completing this course students will be able to identify basic molecular components of cellular structures, analyze intracellular processes at molecular level and integrate this information to predict cellular behavior at the level of the whole organism.

**Course Book:**

Molecular Biology of the Cell (6th Ed)

Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K. and Walter, P.

Garland Publishing Inc. (2015) ISBN 978-0-8153-4464-3

www.homerbooks.com

**Additional reading**

-Essential Cell Biology

Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K. and Walter, P.

Garland Publishing Inc. (2014)

-Physical Biology of the Cell

Phillips, R., Kondev, J. and Theriot, J. (2009)

Garland Science ISBN 978-0-8153-4163-5.

**PLEASE NOTE THAT THE SYLLABUS MAY HAVE UPDATES DEPENDING ON UPCOMING COVID19 MEASURES AND TIME CONSTRAINTS!!!**

1. MEMBRANE STRUCTURE, ORGANIZATION AND FUNCTION MODULE

Week 1: Visualizing cells (Chap. 9)

Week 2: Membranes: structure, transport and electrical properties (Chap. 10-11)

Week 3: Membranes: structure, transport and electrical properties (Chap. 11)

Week 4: Intracellular compartments and protein sorting (Chap. 11-12)

Miniterm I:

Time: Lab Session

Week 5: Intracellular compartments and protein sorting (Chap. 12)

1. THE DYNAMIC CELL MODULE

Week 6: Membrane traffic and vesicular transport, (Chap. 13)

Week 7: Membrane traffic and vesicular transport, (Chap. 13)

Week 8: Cytoskeleton (Chap. 16)

Miniterm II:

Date: TBA (to be announced)

Week 9: Cytoskeleton and Cell signaling (Chap. 15 , 16)

Week 10: Cell Signaling and Cell cycle (Chap. 15 , 17),

Week 11: Cell cycle, junctions and extracellular matrix (Chap. 15 , 19),

Miniterm III :

Date: TBA

Week 12: Cell Junctions and extracellular matrix (Chap. 19)

SPECIAL LECTURES

Week 13: Mitochondria and Apoptosis (Ch.14, 18)

Week 13: Plant cell wall, cytokinesis, chloroplast and signaling

Lecturer: Dr. Stuart James Lucas

FINAL (Miniterm IV, including Lab practices)

Date: TBA

**Grading:**

**15% Miniterm I + 15% Miniterm II + 15% Miniterm III +**

**25% FINAL (Miniterm IV & Lab practices ) + 30% Lab**

**Make up will be performed at the end of the semester (after FINAL) and will cover all contents of the course. In order to be able to accept you into make up exam, we will request official documents.**

**IMPORTANT NOTES ABOUT LABS:**

* **First six weeks we will not have active (Face-to-face) lab sessions and we will try to benefit from this time slot on certain occasions like miniterms, meetings and a possible online lab session, so please make sure that lab time slot is still available.**
* **Active (Face-to-face) lab sessions are planned to start on 7th week. Due to constraints related to Covid19, you will have two options to select. You can choose online version or the active version where you will have the option to stay at dorms and etc. Either option will occur simultaneously**
* **Please let us know by first miniterm, 4th week, whether you will prefer active or online version.**
* **You will have to choose one version and no change will be accepted after the labs have started since active labs require extensive organization like dorms, TAs and etc.**
* **Lab responsibilities for both versions will be identical, since we are planning to have it simultaneously. That means attendance and lab reports by either active or online labs are mandatory.**
* **We are also planning to have two labs per week which means there is a plan to have an extra session every week, which will be announced later. This depends on availability and is subject to change.**

**Contact:**

**Instructor:**

**Cavit Agca:** L025. Office hour: TBA

**TAs:**

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**Ebru Ozer**, [ebruozer@sabanciuniv.edu](mailto:ebruozer@sabanciuniv.edu)

Office hrs: TBA

**Lectures:** Tuesday 13:40-14:30 ONLINE, Wednesday 14:40-16:30 ONLINE,

Zoom Meeting

https://sabanciuniv.zoom.us/j/7556177895?pwd=cTViMFhwWk9tZGN1MFJ4WDlzUi94Zz09

Meeting ID: 755 617 7895

Passcode: Bio332

**Labs:** Friday 15:40-18:30 FENS 2053