

BIOLOGY 355 Cellular Biology
FACE-to-FACE CLASS

INSTRUCTORS:	Dr. Mary Konsolaki	EMAIL:	mary.konsolaki@njit.edu
OFFICE:	CKB 340D 973-642-4975	OFFICE HOURS:	Tue 1:00pm-3:00pm (F2F) or by appointment (virtual)
COURSE SCHEDULE:	Tue-Thu 11:30am-12:50pm CKB 316	COURSE WEBSITE:	Canvas https://njit.instructure.com/courses/44242

COURSE DESCRIPTION: A study of eukaryotic cell structure and function, including cytoskeletal function, membrane properties and transmembrane transport, cell communication and signaling, cell cycle regulation, and cancer. Emphasis will be placed on reading primary literature in order to understand current findings in biological and biomedical research.

PREREQUISITES:

BIOL 201 and BIOL 202 or R21:120:201 and R:21:120:202 and BIOL 205 and BIOL 206 or R21:120:205 and R21:120:206.
CHEM 125 (or R21:160:115) and CHEM 126 (or R21:160:115)

OBJECTIVES: To provide the student with: (1) knowledge of terms, concepts and theories of how eukaryotic cells work (2) the ability to integrate the material from multiple sources and research (3) improved critical thinking skills and the opportunity to apply cell biology concepts in everyday biology-related applications

INSTRUCTIONAL MATERIALS:

New material will be provided in the form of readings from the primary literature. Students who want a resource to refresh their background knowledge can use either their existing textbook from BIOL201 (Alberts' "Molecular Biology of the Cell") or free textbooks from NCBI (<https://www.ncbi.nlm.nih.gov/guide/literature/> or an OER textbook such as Fundamentals of Cell Biology (<https://open.oregonstate.education/cellbiology/>)). Primary research literature and case studies will be posted by the instructor.

SUPPLEMENTAL MATERIALS: Any additional materials required for class would either be provided through Canvas (UCID required), or via web link.

CODE OF STUDENT CONDUCT:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: [NJIT Academic Integrity Code](#). Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any

online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu.

GENERATIVE AI:

This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

STUDENT ABSENCES FOR RELIGIOUS OBSERVANCE:

Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence.

ATTENDANCE

Attendance is mandatory for this class and will be monitored through short in-class quizzes online. Attendance of 85% of lectures earns full attendance credit for the course. You will need to have a computer or a cell phone in order to complete these quizzes online. If you expect to miss a class for a valid reason, please email Dr. Konsolaki and provide documentation (mary.konsolaki@njit.edu). For the Department of Biology policy on missed classes, please visit <https://biology.njit.edu/policy-absences>

REASONABLE ACCOMMODATION:

If you have a special need that may require an accommodation or assistance, please inform your instructor of that fact as soon as possible and no later than the end of the second class meeting. Students with disabilities who require accommodations must contact the Center for Counseling and Psychological Services (C-CAPS), Campbell Hall, (entry level), room 205, (973) 596-3420

LATE WORK: Work submitted late will be penalized with a 10% per day reduction.

EXTRA CREDIT:

There will be no individualized opportunities for extra credit. There may be extra credit opportunities for the entire class during or at the end of the semester.

LETTERS OF RECOMMENDATION

I am very happy to write letters of recommendation on behalf of my students. I find that these letters are most effective when I have opportunities to meet with the student on one-on-one basis because I can write a stronger letter that includes real examples of the strengths and abilities of the student. To this effect, I am asking students to follow the guidelines below:

1. have attended two of my classes, one of which should be Biol201 (Foundations-MCB) or Genetics Biol352.
2. Have attended office hours during the semester that they were in my class
3. Send me a CV, current transcript and personal statement

COURSE EVALUATION PROCEDURES:

GRADING	POINTS
Exam 1	15% (100pts)
Exam 2	15% (100pts)
Exam 3 (Final)	25% (125pts)
Project	20% (50pts)
Homework/Group work	20% (50pts)
Attendance & Participation	5% (25pts)
TOTAL	100% (500pts)

GRADING SCALE	
A	90-100
B+	85-89
B	80-84
C	65-74
D	50-64
F	0-49

The topics to be covered will include:

- Membrane structure
- Membrane Function
- Intracellular compartments
- Transport across membranes
- Vesicular transport
- Cell signaling
- GPCR and RTK signaling pathways
- Cytoskeleton
- Extracellular matrix and basal lamina
- Cell movement
- Tissues
- Cell growth pathways
- Cell death pathways
- Cell division and cancer
- Cell biology in the -omics area

COURSE SCHEDULE

The course schedule may be updated during the semester. Updates will be discussed in class and will be announced through email notifications and Canvas postings.

Week of	Lecture Topic	Assignments Due
9/2	Introduction to Cellular Biology	
9/9	Membrane structure	HW1 (Canvas)
9/16	Membrane Function	HW2 (Canvas)
9/23	Transport across membranes Student presentations of primary literature	Exam 1 on Canvas
9/30	Cell signaling – Exam 1	HW3 (Canvas)
10/7	Cell signaling pathways	HW4 (Canvas)
10/14	Vesicular transport Case study analysis	HW5 (Canvas)
10/21	Cytoskeleton Student presentations of primary literature	HW6 (Canvas)
10/28	Intracellular compartments	Exam 2 on Canvas
11/4	Extracellular matrix – Exam 2	HW7 (Canvas)
11/11	Cell sorting	HW8 (Canvas)
11/18	Tissues	HW9 (Canvas)
11/25	Cell growth / cell death pathways Student presentations of primary literature	HW10 (Canvas)
12/2	Cancer	Quiz 3 on Canvas
12/9	Cell Biology in the -omics era Database exploration	No HW
12/16	Final Exam - During Final Exam Period*	Final Exam Schedule will be posted here: http://www5.njit.edu/registrar/exams/