

Cell Biology (BIOL-302) Syllabus

Spring 2024

Lecture Time and Location: Tues Thurs 12:30 to 1:45PM in Gosnell A300

Instructor: Dr. Hyla Sweet
Contact information: Office: CBET 75-3119
Email: hxssbi@rit.edu (preferred mode of communication)
Phone: 585-475-5143

Learning Assistant: Victoria Greever
Contact information: vmg8790@g.rit.edu

Learning Assistant: Meredith Michetti
Contact information: mbm3657@g.rit.edu

Victoria and Meredith are the Learning Assistants (LAs) for Cell Biology. Their role is to help with student-student interactions, active learning, and problem solving. Victoria and Meredith will hold LA sessions outside of class to provide you with additional time to get help with class material, learn effective study habits specific to this class, and work with others to study and complete assignments.

Instructor-Student Communication: Dr. Sweet will regularly use email to send information to the whole class.

Online Course Material: myCourses will be used for lecture notes and grades
Norton's Smartwork will be used for assignments

Student Hours: Tuesdays and Thursdays 10:00AM to 12:00PM in CBET 1130

Course Description: This course will address the fundamental concepts of cell biology. Class discussions, assignments, and projects will 1) Explore the structure-function relationships that drive cellular processes at the molecular, cellular and tissue level. 2) Investigate the mechanisms of cellular signaling and the transmission of genetic information. 3) Examine energy transformation strategies and the biochemical pathways used for synthesis and breakdown of ATP and other important biomolecules. 4) Investigate the organizational strategies used by cells to form functional tissue and organ systems.

Required Materials:

-**Textbook:** "Essential Cell Biology". 6th ed. Alberts et al. 2023

-**Smartwork** for "Essential Cell Biology" (*can get both from the wwnorton.com website*)

<https://digital.wwnorton.com/ecb6>

RIT textbook website

<https://rit.textbookx.com/institutional/index.php?action=browse#/books/4131360/>

-a getting started video is here [How to Register for Smartwork5 non-LTI](#)

-Smartwork Student Set ID for Cell Biology Spring 2024 is 788301

-**iClicker App**

-learn about the iClicker App at <https://mhe.my.site.com/iclicker/s/article/How-to-Create-an-iClicker-Student-Account>

Final Exam: Thursday, May 2 1:30-4:00pm Gosnell A300

Course Learning Outcomes	Assessment Method
Explain how cells use chemical, electrical or other forms of signaling to coordinate responses at the cellular level.	Class assignments, quizzes and/or exams
Describe the relationship between cell structure (shape, membrane, organelles, cytoskeleton and polarity) and cell function.	Class assignments, quizzes and/or exams
Construct a signal transduction pathway that demonstrates the dynamic interaction of cellular proteins.	Class assignments, quizzes and/or exams
Compare and contrast the strategies used by cells to organize themselves into higher order, compartmentalized structures (tissues and organ systems).	Class assignments, quizzes and/or exams
Describe the strategies and processes cells use to convert stored chemical energy into ATP.	Class assignments, quizzes and/or exams
Compare and contrast the various biochemical pathways cells use to synthesize and breakdown molecules.	Class assignments, quizzes and/or exams
Describe how energetically unfavorable reactions are driven by coupling to energetically favorable reactions (such as ATP hydrolysis).	Class assignments, quizzes and/or exams
Predict the intracellular and intercellular movement of important biomolecules based on its biochemical and physical properties.	Class assignments, quizzes and/or exams
Apply basic laws of thermodynamics to cellular systems to describe why physiological processes are never 100% efficient.	Class assignments, quizzes and/or exams
Explain how a particular cellular response is dependent on the integration and coordination of chemical and/or physical signals.	Class assignments, quizzes and/or exams
Examine the relationship between cell fate and local cellular environment/cell lineage.	Class assignments, quizzes and/or exams
Predict how alteration of a single gene or molecule in a signaling network may have complex impacts at the cell, tissue or organism level.	Class assignments, quizzes and/or exams

In-Person attendance:

It is expected that students will engage with the designated “in-person” modality of this course as outlined. Exceptions are illness, quarantine, DSO accommodations, etc. Attending and engaging in class time with me and your peers is important for your learning the materials. If you have questions about your attendance and participation in this course, please contact me. If you will not be attending class because of an exception listed above, let me know *before class* and I will make plans to provide the materials and/or assignments to you.

Tentative Grading Scheme

Exam 1	10%
Exam 2	10%
Exam 3	10%
Exam 4	10%
Final Exam	15% (Thursday May 2; 1:30-4:00pm)
iClickers	12% (~0.5% per iClicker in-person session)
Smartwork5 HW	10% (1% per chapter, 10 chapters total)
Smartwork5 Problem Sets	10% (1% per chapter, 10 chapters total)
Group work	10% (~1% per chapter, 10 chapters total)
Presentation	3%

A = 93.4-100, 4.00; A- = 90.0-93.3, 3.67; B+ = 86.7-89.9, 3.33; B = 83.4-86.6, 3.00; B- = 80.0-83.3, 2.67; C+ = 76.7-79.9, 2.33, C = 73.4-76.6, 2.00; C- = 70.0-73.3, 1.67; D = 60.0-69.9, 1.00, F = below 60, 0.00

Tentative Lecture Schedule

Topics and Readings from Textbook

Week 1

Jan 16 (Tu)	Syllabus, Chapter 11: Membrane Structure
Jan 18 (Th)	Chapter 11: Membrane Structure

Week 2

Jan 23 (Tu)	Chapter 12: Transport Across Cell Membranes
Jan 25 (Th)	Chapter 12: Transport Across Cell Membranes

Week 3

Jan 30 (Tu)	Exam 1: Chapters 11, 12 (10%)
Feb 1 (Th)	Chapter 13: How Cells Obtain Energy from Food

Week 4

Feb 6 (Tu)	Chapter 13: How Cells Obtain Energy from Food
Feb 8 (Th)	Chapter 14: Energy Generation in Mitochondria and Chloroplasts

Week 5

Feb 13 (Tu)	Chapter 14: Energy Generation in Mitochondria and Chloroplasts
Feb 15 (Th)	Chapter 14: Energy Generation in Mitochondria and Chloroplasts

Week 6

Feb 20 (Tu)	Exam 2: Chapters 13, 14 (10%)
Feb 22 (Th)	Chapter 15: Intracellular Compartments and Protein Transport

Week 7

Feb 27 (Tu)	Chapter 15: Intracellular Compartments and Protein Transport
Feb 29 (Th)	Chapter 16: Cell Signaling

Week 8

Mar 5 (Tu) Chapter 16: Cell Signaling

Mar 7 (Th) Chapter 16: Cell Signaling

Week 9 Spring break Mar 11-15, no classes**Week 10**

Mar 19 (Tu) Chapter 16: Cell Signaling

Mar 21 (Th) **Exam 3: Chapters 15, 16 (10%)**

Week 11

Mar 26 (Tu) Chapter 17: Cytoskeleton

Mar 28 (Th) Chapter 17: Cytoskeleton

Week 12

Apr 2 (Tu) Chapter 18: The Cell Cycle

Apr 4 (Th) Chapter 18: The Cell Cycle

Week 13

Apr 9 (Tu) **Exam 4: Chapters 17, 18 (10%)**

Apr 11 (Th) Chapter 19: Sexual Reproduction and Genetics

Week 14

Apr 16 (Tu) Chapter 19: Sexual Reproduction and Genetics

Apr 18 (Th) Chapter 20: Cell Communities: Tissues, Stem Cells, and Cancer

Week 15

Apr 23 (Tu) Chapter 20: Cell Communities: Tissues, Stem Cells, and Cancer

Apr 25 (Th) Chapter 20: Cell Communities: Tissues, Stem Cells, and Cancer

Finals Week-Final Exam (15%; cumulative)

May 2 (Th) 1:30-4:00pm Gosnell A300

Final Exam (15%)

ACCOMMODATION STATEMENT

RIT is committed to providing academic adjustments to students with disabilities. If you would like to request academic adjustments such as testing modifications due to a disability, please contact the Disability Services Office (DSO). Contact information for the DSO and information about how to request adjustments can be found at <https://www.rit.edu/disabilityservices/>. After you receive academic adjustment approval, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary.

- As per your disability agreement from the DSO, your accommodations are not active in my course until you meet with me.
- If you have an accommodation involving the testing center and want to use it, you must take your exams there. If you have accommodations such as extra time, quiet spaces, use of a computer, distraction devices, music, etc. then you must take your exam in the testing center in order to use those accommodations because I cannot provide such things. You are always welcome to take exams with the rest of the class within the time given for the rest of the class.

- Requests to use the testing center must be made four business days before the day of the exam and two weeks before the first day of final exams.
- You must take your exam on the same day as the rest of the class. If you cannot schedule time in the testing center on the same day as the exam, you must discuss with me first.

ACADEMIC INTEGRITY

As an institution of higher learning, RIT expects students to behave honestly and ethically at all times, especially when submitting work for evaluation in conjunction with any course or degree requirement. RIT Online encourages all students to become familiar with the [RIT Honor Code](#) and with the [RIT Academic Integrity Policy](#).

Academic Dishonesty

Academic Dishonesty falls into three basic areas: cheating, duplicate submission and plagiarism.

Cheating is any form of fraudulent or deceptive academic act, including falsifying of data, possessing, providing, or using unapproved materials, sources, or tools for a work submitted for faculty evaluation.

Duplicate submission is the submitting of the same or similar work for credit in more than one course without prior approval of the instructors for those same courses.

Plagiarism is the representation of others' ideas as one's own without giving proper credit to the original author or authors. Plagiarism occurs when a student copies direct phrases from a text (e.g., books, journals, internet) and does not provide quotation marks, or paraphrases or summarizes those ideas without giving credit to the author or authors. In all cases, if such information is not properly and accurately documented with appropriate credit given, then the student is guilty of plagiarism.

DIVERSITY, INCLUSION, AND RESPECT

RIT has put forth [Policy P05.0 Diversity Statement](#) for all community member. RIT through its policies and practices is responsible for building an inclusive environment where membership in the community allows for faculty, staff and students to reach their fullest potential, both professionally and personally. RIT is committed to the development, administration and interpretation of policies and procedures in a way that is consistent with our commitment to diversity and is in compliance with federal, state and local laws. RIT's policies and procedures are administered in a way that supports fair treatment for all faculty, staff, students, and the RIT community at large.

RIT POLICY PROHIBITING DISCRIMINATION AND HARASSMENT

RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our governance website. RIT's policies require faculty to share information about incidents of gender-based discrimination and harassment with RIT's Title IX coordinator or deputy coordinators, regardless whether the incidents are stated to them in person or shared by students as part of their coursework. If you have a concern related to gender-based discrimination and/or harassment and prefer to have a confidential discussion, assistance is available from one of RIT's confidential resources on campus (listed below).

1. The Center for Women & Gender: Campus Center Room 1760; 585-475-7464; CARES (available 24 hours/7 days a week) Call or text 585-295-3533.
2. RIT Student Health Center – August Health Center/1st floor; 585-475-2255.
3. RIT Counseling Center - August Health Center /2nd floor - 2100; 585-475-2261.
4. The Ombuds Office – Student Auxiliary Union/Room 1114; 585-475-7200 or 585-475-2876.

5. The Center for Religious Life – Schmitt Interfaith Center/Rm1400; 585-475-2137.
6. NTID Counseling & Academic Advising Services – 2nd Floor Lynden B. Johnson; 585-475-6468 (v), 585-286-4070 (vp).

RIT COPYRIGHT STATEMENT

The materials used in this course, including images and movies, are copyrighted. The use of copyright protected material outside this RIT course may be prohibited by law.

COUNSELING AND PSYCHOLOGICAL SERVICES

Many students at RIT face personal challenges or have psychological needs that may interfere with their academic progress, social development, or emotional wellbeing. The university offers a variety of confidential services to help you through difficult times, including individual and group counseling, crisis intervention, consultations, online chats, and mental health screenings. These services are provided by staff who welcome all students and embrace a philosophy respectful of clients' cultural and religious backgrounds, and sensitive to differences in race, ability, gender identity and sexual orientation. Located on the second floor of the August Center building (above the Student Health Center), [Counseling and Psychological Services](#) provides confidential and personalized services to meet the mental health needs of currently enrolled, undergraduate and graduate students.

Our mission is to enhance the RIT student potential for learning and success and to promote the emotional health and well-being of the campus community through:

1. Providing responsive, empirically-based, and culturally competent mental health services that include:
 - Short-term individual psychotherapy
 - Group counseling and psychotherapy
 - Urgent Care crisis intervention
 - Assessment and evaluation
 - Psychiatric services
2. Providing graduate clinical training in counseling, psychotherapy and college mental health
3. Providing campus-wide consultation and education

Campus Location: 2100 August Center, second floor

Phone: During Business Hours: 585-475-2261; After Business Hours, Weekends/Holidays: 855-436-1245

Fax: 585-475-6548

Email: caps@rit.edu

NOTE: DO NOT USE E-MAIL IN AN EMERGENCY SITUATION, since you cannot be assured that a counselor will open it at your time of need.

Emergency Contacts:

For urgent matters during business hours, contact Counseling and Psychological Services at 585-475-2261.

For urgent matters that cannot wait for business hours, call 1-855-436-1245 to speak with a mental health provider or call Public Safety at 585-475-3333.

National Suicide Hotline: **1 800 273-8255**

Crisis Text Line: Text **HOME** to **74174**

Changes to the syllabus

The syllabus is provided as a guide to this course and will be followed closely. However, as instructor, I reserve the right to modify the syllabus during the semester, if necessary, to ensure that we achieve course learning objectives. You will receive notice of any changes to the syllabus via email.

Continuity of Learning (Course-level)

In the event that there is a disruption in our learning, I will communicate all changes to you as quickly as possible. If a personal interruption removes me from the in-person or online classroom space, you will be informed of this directly via email. In this communication, any changes in the learning structure will be carefully outlined, as will all necessary steps moving forward. Communication is key, and it will be important for you to check your RIT email and myCourses regularly this semester.

Continuity of Learning (Student-level)

The RIT Safety Plan includes a section specifically for students, including accommodations, travel, health, etc. <https://www.rit.edu/ready/rit-safety-plan#for-students>. This site will be updated as needed to provide important information regarding your requirements for being on campus and staying healthy.

In the event that there is a disruption in your ability to learn with us, communication is key. The faster you can communicate these disruptions with me, the easier it is to keep you on a successful path in this course. If your absence from class is due to personal illness, please contact the Disability Services Office (<https://www.rit.edu/disabilityservices/>) as soon as possible. You may also reach out to your Academic Advisor who can assist you in making all of the necessary contacts with DSO, your instructors, etc.

Changes to the University Calendar

In the event that there is a significant change to the University calendar, this syllabus will be modified to meet those changes, if necessary. Modifications will be shared immediately with our class via myCourses and communications directly from me via email.

OTHER RESOURCES

Everyone in the RIT Community is dedicated to your success. With this, you need to ask for help when you need it! I am, and all of your faculty are, your first stop for help your courses. Your Academic Advisor also has a wealth of information for you.

Have trouble with time management, note taking in class, just getting your academic self together? Check out all of the resources the RIT Academic Success Center has to offer! <https://www.rit.edu/studentaffairs/asc/> From workshops to individual coaching, they have only your success in mind.

Have a paper that you just can't wrap your head around ... or can't even get started? The University Writing Program is here to help you! <https://www.rit.edu/academicaffairs/writing/>. Schedule an appointment for a consultation, or peruse all of their online tutorials for writing (<https://www.rit.edu/writing/writing-commons-overview>), just do not let writers block keep you from succeeding!

Have your presentation together and now you just need to building your presenting courage? Make an appointment with the Expressive Communication Center (<https://library.rit.edu/expressive-communication-center>), or in their space in Wallace Library (Room 2550) for getting it all together. While you are in Wallace Library, your friendly librarian can help you find good resources for that presentation (not just google and Wikipedia). Each College has a librarian who would love to meet you and talk about what you need to succeed. These are just come of the places on campus that are ready and willing to help you any time. The RIT Student Life website includes descriptions of all of the departments on campus available to help you (<https://www.rit.edu/studentlife/departments>). If you still need more resources ask your faculty, advisors, staff, and other students for help.

CONCLUDING STATEMENT

Most importantly, please be assured that I want students to learn and to receive the good grades they have earned and deserve. Please make an appointment with me should you have undue difficulty with your work in this course.