BIOL 101 General Biology I

This is a 14-week face-to-face course for the Fall 2022 semester at RIT.

Prerequisites

None

Purpose of the course:

This is an introductory biology course designed for non-biology majors that have a science requirement. By this, you will receive a broad approach to the field of biology. For instance, you will become familiar with biological systems and how they function, but you will rarely need to know the specific molecular pathways that make them function.

Schedule and time commitment

This is an asynchronous course. You must have good time management skills to succeed since I do not see you two days a week to remind you of things! Do NOT rely on the myCourses calendar feature - rather you should be reading the Weekly Announcement regarding the plan for the week, and keep checking out the Course Schedule 2022

As this is a 3-credit course, to succeed you should plan to spend 6 to 9 hours minimally each week working on materials and assignments associated with this course.

- Review content (lecture materials - readings, videos, etc.)
- Complete online assignments (quizzes, worksheets, assessments, project pieces)
- Read the text and other resources, as needed, to supplement your learning

Course Learning Goals

a. Students will gain a broad background in fundamental principles of biology.
b. Students will gain knowledge and experience in the basic methods used to explore biological principles.
c. Students will apply fundamental biological concepts to novel scenarios.
d. Students apply scientific thinking to everyday problems.
e. Students will articulate the relevance of biology to society.

Content Learning Outcomes and Assessments:

Content Learning Outcomes	Assessment Methods
Define and correctly use scientific terminology in regard to biological organisms and processes.	• Project • Class activities
Compare and contrast the functions and chemical functional groups of the major groups of organic compounds (macromolecules): carbohydrates, lipids, proteins, and nucleic acids.	• Weekly assignments • Class activities
Compare and contrast properties of eukaryotic and prokaryotic cells.	• Weekly assignments • Class activities
Describe aerobic and anaerobic cellular respiration in the various domains and kingdoms of life.	• Weekly assignments • Class activities
Outline the flow of genetic information in cells, from DNA to RNA to protein and the regulation of the process.	• Weekly assignments • Class activities
Describe the process of meiosis and the genetic importance of meiosis in life cycles and sexual reproduction.	• Weekly assignments • Class activities
Define and describe basic genetic principles, including how the principles are the basis for evolution in a given environment.	• Weekly assignments • Class activities
Explain how global climate change and environmental forces (including	• Class activities • Project

anthropogenic sources) can impact evolution in a given environment.	
Compare and contrast the major characteristics of prokaryotes and eukaryotes.	• Weekly assignments • Class activities • Project
Use basic classification methods to distinguish taxa in the three domains of life.	• Weekly assignments • Class activities • Project

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.

Instructor:

Emily Coon-Frisch

Preferred Contact Information:

Email: excsbi@rit.edu

Office Hours:

General office hours:

- Monday 9:30 am - 11:00 am
- Thursday 1:00 pm - 2:30 pm

Meetings by appointment: Virtual and / or in person meetings may be scheduled. Please email me to schedule a meeting at least 48 hours in advance. Appointments are set up Monday through Friday only.

Course communication to instructors:

Emails to professors, staff, your potential employers, etc. should always include the following:

- To line – **to whom are you writing?** Address them professionally! Dr., Prof., etc. If you don't know, Mr. or Ms. is acceptable.

- Class reference – **of which class are you inquiring**? Many of your professors teach more than one class! For a job? What is the job title?
- Your question(s), statement(s), etc – written in comprehensible English, please!
- **Your name** – your professors, and others, would like to reply to you in a similar professional manner. Do yourself a favor a make a signature file in your RIT email so that I always know with whom I am speaking.

For this class, **I will respond to your email within 24 hours MONDAY through FRIDAY.** Over the weekend, do not expect a response until Monday morning. Now, it is quite likely that you will receive your response in less than 24 hours, but I do not guarantee it.

If you have general questions about the course that are not covered in these course documents, please post your questions to the Course Q&A Discussion Board so all students can benefit from the answer. If, as a student, you can answer a question pose in the Course Q & A, I encourage you to reply to your classmate.

Course Communication from your instructor to the Class:

I will provide any course announcements through the News / Announcements on the Course Home Page. This includes any updates or changes to assignments or other course assignments, as well as general comments about assignment results or discussions. You should plan on checking for new posts once a day.

Except for emergency announcements, I will **not** email the class.

Course Schedule

You are responsible for your learning. I can provide piles of information, multiple types of assessments, and all of the guidance in the world, but if you do not step up, take responsibility, and be accountable for your learning, I cannot do much to help.

In this course, we will approach learning through the following stages:

- Building Knowledge
  - OpenStax Biology 2e Readings
  - Powerpoint lectures
- Remembering / Understanding Knowledge
  - Lectures / ppt files (2 per week)
- Applying / Analyzing Knowledge
  - Lecture Weekly Quiz (1 per week)
  - Project Pieces (6 graded items throughout the semester)

- Analyzing / Evaluating Knowledge
    - Quarterly Assessments (4 per semester) - these dates will NOT change. *You can put them on your calendar in pen!*
- Creating Knowledge
    - Project (2 major pieces due throughout the semester)
        - Further information on the project will be given in class and here on myCourses in week 4
        - Project piece submission dates below

All assignments are due at 11:59pm (myCourses Henrietta, NY Time) on the date indicated, unless otherwise noted.

Last Updated: Saturday, August 26

Unit	Topics	Remembering / Understanding Knowledge	Applying / Analyzing Knowledge	Analyzing / Evaluating Knowledge	Creating Knowledge

1	Biodiversity Conservation DNA/RNA Proteins Who was Darwin? Evolution	<u>Reading Chapters:</u> Biodiversity: Chapter 47 Conservation: Chapter 45.2 DNA: Chapter 14 Proteins: Chapter 3.4 Intro to Evolution Chapter 18.1 Macroevolution: Chapter 18.3 Speciation: Chapter 18.2 Ted Talk: Can Animal Adapt to Climate Change? Ted Talk: The Evolution of Animal Genitalia See Content by Date: Module 1	Weekly Quiz #1 - Due Friday, Sept 1 Weekly Quiz #2 - Due Friday, Sept 8 Weekly Quiz #3 - Due Friday, Sept 15	Quarterly Assessment # 1: **Tuesday, Sept 19** The Quarterly Assessment (40 points) will be described in more detail later, but will include: multiple choice (1 point each) longer response questions (multiple paragraphs)	***Individual*** Project Overview: To Be Posted Week 4 In week 4, you can expect: • Overview of the project • Information on the project pieces due throughout the semester ***No Project Piece due in this Module.***

2	Intro to Genetics Mendelian Genetics Non-Mendelian Genetics Sex-Linked Genes Microevolution Natural Selection See Content by Date: Module 2	Reading Chapters: Intro to Genetics & Mendelian Genetics: Chapter 12 Non-Mendelian Genetics & SEx-Linkage: Chapter 13 Microevolution: Chapter 19 Natural Selection: Chapter 19.3 TedTalk: Genes & Fate	Weekly Quiz #4 - Due Friday, Sept 22 Weekly Quiz #5 - Due Friday, Sept 29 Weekly Quiz #6 - Due Friday, Oct 6 ***No Class October 10! (Fall Break)*** Weekly Quiz #7 - Due Friday, Oct 13	Quarterly Assessment # 2: **Tuesday, Oct 17**	**Project Piece #1 Due: Friday, October 6** Project Assignment: TBA Project Rubric: TBA
3	Biotechnology Cells Mitosis Meiosis Application of cell knowledge See Content by Date: Module 3	Reading Chapters: Biotechnology & Genomics: Chapter 17 Cells: Chapter 4 Cell Division - Mitosis: Chapter 10 Cell Division - Meiosis: Chapter 11 Ted Talk: The Wacky History of Cell Theory	Weekly Quiz #8 - Due Friday, Oct 20 Weekly Quiz #9 - Due Friday, Oct 27 Weekly Quiz #10 - Due Friday, Nov 3	Quarterly Assessment # 3: **Tuesday, Nov 7**	***No Project Piece due in this Module.***

4	Macromolecules Membranes / Osmosis / Diffusion Energy / Enzymes Cell Respiration Photosynthesis Ecosystem Energy See Content by date: Module 4	<u>Reading Chapters:</u> Biological Macromolecules: Chapter 3 Plasma Membranes: Chapter 5 (focus on 5.2, 5.3, and 5.4) Energy & Enzymes: Chapter 6 Cellular Respiration: Chapter 7 Photosynthesis: Chapter 8 Ecosystem Energy: Chapter 46.2 Ted Talk: How to Unboil an Egg Ted Talk: The Calvin Cycle	Weekly Quiz #11 - Due Friday, Nov 10 ***November 16 - Project Work Day*** Weekly Quiz #12 - Due Friday, Nov 17 ***No Class Nov 23! (Thanksgiving Break)*** Weekly Quiz #13 - Due Friday, Dec 1 (**includes 3 class days due to Thanksgiving Break*) Weekly Quiz #14 - Due *<u>Wednesday, Dec 6</u>* (**Day change due to Quarterly on Thursday*)	Quarterly Assessment # 4: **Thursday, Dec 7**	**Project Piece #2 Due: Friday, November 17** Project Assignment: TBA Project Rubric: TBA
				Final Exam = Project Presentations at Science Fair	**GEN BIO SCIENCE FAIR!** Project Assignment: TBA Project Rubric: TBA

					Thursday December 14, 11am - 7pm ***More details in week 4!***

Textbook:

Biology 2e from OpenStax, Print ISBN 1947172514, Digital ISBN 1947172522, www.openstax.org/details/books/biology-2e

Good news! Your textbook for this class is available for free online! If you prefer, you can also get a print version at a very low cost.

Your book is available in web view and PDF for free. You can also choose to purchase on iBooks or get a print version from OpenStax on Amazon.com.

You can use whichever formats you want. Web view is recommended -- the responsive design works seamlessly on any device. If you buy on Amazon, make sure you use the link on your book page on openstax.org so you get the official OpenStax print version. (Simple printouts sold by third parties on Amazon are not verifiable and not as high-quality.)

Internet Connection:

For this course, a reliable and consistent internet connection is required. Please review the RIT Computer Policy. A problem with your Internet access may not be used as an excuse for late, missing, or incomplete coursework. If you experience problems with your Internet connection while working on this course, it is your responsibility to find an alternative Internet access point, such as the library or Wi-Fi ® hotspot.

RIT MyCourses: https://mycourses.rit.edu/

Look here for: lecture materials, study materials, quizzes, worksheets, assignments, assessments, and your grades.

Zoom: https://rit.zoom.us/

We will use Zoom for any meetings / office hours / review sessions. You will need to login to Zoom using your RIT account to get access to the meetings.

Educational Resources:

Everyone in the RIT Community is dedicated to your success. With this, you need to avail yourself of help when you need it! Faculty are your first stop. What can we do to help you in the course, or with navigating RIT? Your Academic Advisor should be on speed dial! They are an amazing wealth of information for you and can help you with everything professional, personally, and beyond!

In some cases you already know that you need very specific help. 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/academicaffairs/writing/online-writing-commons-0), just do not let writers block keep you from succeeding! Have a presentation to give 4 weeks from now and you already have stage fright?! Check out the Tips for Developing an Effective Presentation (https://www.rit.edu/studentaffairs/atc/tips-develops-effective-presentation) to get started. 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. Hey – and 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 (https://library.rit.edu/staff). 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 me or your Academic Advisor and we will help you pinpoint that resource. Of course, asking more than two hours before you need to submit your assignment is always preferred!

Participation in the learning space:

RIT does not have a requirement for attendance in courses (https://www.rit.edu/academicaffairs/policiesmanual/d040), however, engagement in this course every week day is critical for success in the courses.

I expect that students in my course will engage with the modality of my course as outlined, barring any unforeseen issues such as illness, quarantine, etc. Engaging in class materials with me and your peers is important for your learning the materials. In this class, participation expectations can be met by attending class every day, working collegially with your group / science team, and working professionally with your instructor, TA, and all support staff in the class.

What students in this course can expect of your instructor

- Grades will be posted on myCourses within 2 weeks of artifact submission, unless otherwise noted in the assignment. This is in accordance with the RIT Policy D05.0 Grades which states in part,
    - "*Faculty members must provide feedback for all submitted work within two weeks of the submission deadline. Posting grades to RIT's Electronic Course Management System is required. The two-week posting requirement is waived in the case of deadline extensions, late submission of work, any extraneous circumstances, or when explicitly stated in the evaluation criteria.*" (https://www.rit.edu/academicaffairs/policiesmanual/d050.

- Office hours will be held virtually and in person. Posting of office hours and the location can be found on myCourses and will be updated as needed. If those times do not work for you, I encourage you to request an appointment via email. Please include your available times when requesting an appointment so I can find something that will work for you and me.

- Email / Communication policy:
    - For this class, I will respond to your emails within **24 hours Monday through Friday**. Over the weekend, do not expect a response. Now, it is quite likely that you will receive your response in less than 24 hours during the week, but it is not a guarantee.

Course Artificial Intelligence Policy:

ChatGPT and other generative AI products are widely used at this point in our world. In this class, we will focus on developing skills such as critical thinking, creativity,

generating hypotheses or new ideas, and communication. These are all skills designed to help you in your development and future, which is why for this course, I am requiring that you refrain from using generative AI tools when completing assignments, quizzes, or exams. This includes, but is not limited to, using them to generate or summarize ideas, create text or code, answer questions or discussions, or review material that you have written yourself to obtain feedback. Any such use of generative AI tools will be considered academic dishonesty (refer to RIT's Student Academic Integrity Policy for detailed information). Instead, I encourage you to develop your own ideas and engage in independent thinking, as this will help you learn and grow as a student and as a future professional

[Adapted from the University of Wisconsin-Green Bay, Center for the Advancement of Teaching and Learning]

Late Assignment Policy:

Every assignment in this course has a due date.

The following items will not be accepted late:

- Weekly Quizzes
- Quarterly Assessments

The following items will be accepted late, with a 10% penalty per day, **up to three days after the due date (including the weekend!)**:

- Project Pieces

Your instructor will review late requests and circumstances on a case-by-case basis and make decisions accordingly. If an emergency arises that prevents you from completing your work on time, please email the instructor as soon as possible so that arrangements can be made for you to keep up in the class. The late policy may be waived at the instructor's discretion in case of an emergency. Emergencies are defined as anything that is serious and unexpected. Emergencies cannot be written on the calendar in advance. Examples of emergencies are: heart attacks, car accidents, a serious health crisis of the student or in the student's immediate family. Examples of non-emergencies are: family weddings, vacations, conferences or any other event that can be planned around. What kind of "emergency" are you really having? If false emergencies are claimed and discovered ("cry wolf"), you will be reported to Academic Review, and may receive a 0% in the course, not just on the assignment in question.

Grading

I will do my best to have all assessments for this course graded within 2 weeks of the due date of the item (*except for the project pieces!!*).

If you are missing a grade / feedback for an item and feel that that grade / feedback is critical for your progression in the course, please email me and explain the issue. I am happy to help you, if I can!

Rubrics

Rubrics will be posted in advance of the assignment due date where applicable (project).

Answer Keys

Answer keys are not posted in this course. If there is an exception to this, the answer keys will be made available on myCourses for all students.

Final Grade Calculation

Weekly Quizzes *(14 total - 2 will be dropped)*	15%
Project - all pieces *(no pieces of the project are dropped)*	30%
Quarterly Assessments (4 per semester - *1 will be dropped at the end of the term)*	55%
Participation (*info in class!*)	*Prizes - not points!*

Total	100%

Grade Scale

Based on the 100% total listed above, letter grades will be assigned as follows:

	A	B	C	D
(+)	--	87.0	77.0	--
(letter)	94.0	84.0	74.0	60.0
(-)	90.0	80.0	70.0	--

Student feedback and evaluation

You are always welcome to provide constructive and professional feedback to your instructor via email. However, there are two instances in the semester where more comprehensive feedback will be requested from all students.

Final student evaluation

An end-of-course evaluation will be administered by RIT through S-RATE around week 13. The evaluations provide valuable information to the instructor and department. Your feedback will remain anonymous and is used by departments and RIT to improve your educational experience.

Statement on Reasonable Accommodations:

RIT is committed to providing academic adjustments to students with disabilities. If you would like to request academic accommodations 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 accommodation agreement, it is imperative that you see me during office hours so that we can work out whatever arrangement is necessary.

No extensions on projects will be given without an Assignment Agreement that we must complete together.

The final exam period at RIT was changed in the 2018-2019 academic year. The New York State Education Department (NYSED) and Middle States Commission on Higher Education (MSCHE) contact hour requirements, for three credit hour classes, states that classes must meet 2250 minutes in the semester.

Our calendar change to 14-weeks does not afford this time, as the class periods are MWF 50 minutes and TR 75 minutes on a 14 week block. To meet the requirement of the state, all courses must have a "meaningful educational activity" for 150 minutes in the final exam week. To facilitate compliance with NYSED and MSCHE contact hour requirements, all three credit in-person classes will be scheduled for a 2.5 hour exam block in the final exam week.

Faculty are governed on this requirement by RIT University Policy D11.0; in particular: “If the instructor chooses not to give a formal final examination, it is the expectation that the instructor will treat the exam week as a full component of the academic term. During this exam week, appropriate educational activities should be scheduled, including the opportunity for students to benefit from the instructor's professional counsel.”

In this course, there will not be a formal written exam during the final exam period assigned to us, but we will have a presentation day during finals week. We will be in person for these presentations. We will discuss this further in the project assignment.

Changes to the syllabus:

I have provided this syllabus as guide to my course and have made every attempt to provide an accurate overview of the course. However, as your instructor, I reserve the right to modify this document during the semester, if necessary, to ensure that we achieve course learning objectives. You will receive advance notice of any changes to the syllabus through myCourses.

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.