

Integrated Principles of Biology I

BSC 2010, Section 40, Fall 2022 Syllabus

Steve C. Schenk, Associate Professor of Biological Science

Course Description

This course covers the chemistry of biological molecules, the architecture and organization of cells, the reactions that enable living systems to obtain and utilize energy, as well as classical, modern and human genetics. To receive lab credit, students should also register for BSC2010L. This course is intended for science majors.

Course Credit Hours: 3

Prerequisites / Corequisites: None

Course Time and Location

Tuesdays and Thursdays 8:00am – 9:15am

Citrus Campus, Building C3, Room 204

Required Course Materials

OpenStax Biology Second Edition (downloadable PDFs of the book are available in Canvas; a print copy can be purchased from the bookstore) (ISBN: 9781947172517)

A folder or binder in which to keep all of your other course materials. All homework and support materials will be provided through Canvas. You are expected to have all completed note-taking assignments with you in class during every class period.

Instructor Contact Information

Office: Citrus Campus, Building C3, Room 208G

Office Phone: 352-746-6721 ext 6133

CF Email: schenks@cf.edu

Please use Canvas email – not my CF email listed above – as your primary way to communicate with me on classroom issues. I will always reply to emails as quickly as I can, but do not expect rapid responses to emails sent on weekday evenings or over weekends, as I frequently have family activities scheduled at those times. If you do need to contact me through my CF email address, please send your message using your Patriots Mail account.

Instructor Office Hours

Mondays: 9:30am – 12:30pm

Tuesdays: 9:30am – 10:45am and 2:30pm – 4:30pm

Wednesdays: 11:30am – 12:30pm

Thursdays: 9:30am – 10:45am and 12:30pm – 2:00pm

I can be available to meet with you at other times by appointment. Please request alternate times for an appointment and I will do my best to accommodate you. If you cannot attend in-person during scheduled office hours, I can set up one-on-one Zoom meetings to meet with you at those times remotely. If you would like to meet through Zoom, please do not set up a Zoom session. I need to arrange the session so I can protect your privacy.

Instructional Philosophy / Instructor Expectations

This course exists to prepare students to transfer into bachelor's degree programs at universities for majors including biology, biochemistry, and pre-medicine. As such, it covers a large amount of material, and students need to be able to synthesize as much of it as possible.

My goal is to prepare students at the highest level of competence that they are not only admitted to the program of their choice, but so after admission they successfully complete that program and enter the workforce or continue on in graduate work. To this end, I emphasize not only the acquisition of knowledge but also the development of strong analytical skills. I have high standards, but I also provide extensive support to help students achieve those standards.

Given the large amount of material processed in this course, students should plan to spend a minimum of 8 – 12 hours per week working on this course (not including class time) if they wish to earn a grade of A or B.

Institutional Student Learning Outcomes

The following list offers students a consistent way to see how CF's global learning outcomes are assessed in each class. This is for information purposes only and does not change the grading system used in this class. Only those learning outcomes relevant to this course are included below.

Critical Reasoning:

The student will reflect, analyze, synthesize, and apply critical thinking.

1. Accurately interpret evidence, statements, graphics, questions, etc.

How Measured: Homework, Exam

2. Identify important arguments.

How Measured: Homework, Exam

4. Draw valid conclusions.

How Measured: Homework, Exam, Quiz

5. Justify and explain assumptions and reasons.

How Measured: Classroom Activity, Exam

Quantitative and Analytical Reasoning:

The student will understand and apply mathematical and scientific principles and methods.

1. Perform accurate computations using order of operations with and without technology.

How Measured: Classroom Activity, Homework, Exam

2. Identify and organize relevant information and complete the solution of an applied problem.

How Measured: Classroom Activity, Homework, Exam

3. Interpret and communicate understanding of visual representations of data.

How Measured: Classroom Activity, Exam

Student Assessment

This course will be graded out of 1000 total possible points. Grades will be assigned as follows.

A = 900 to 1000 points

C+ = 770 to 799 points

D = 600 to 699 points

B+ = 870 to 899 points

C = 700 to 769 points

F = 0 to 599 points

B = 800 to 869 points

I allow partial points on most assignments. At the end of the course, I will round your final grade to the nearest whole number of points. For example, a final grade of 899.4/1000 will be rounded to 899 points, which is a B+.

I reserve the right to modify the cut-offs for particular letter grades in response to statistical patterns in grade distributions. When I do this (which is rare!), it will never be because of a student request and it will apply equally to all students. I will never raise the minimum requirement for any letter grade.

Homework (Directed-Note-Taking) (16% of the course grade)

This is a 15-week course and there is a directed-note-taking assignment due every week, including the first week. These take the form of Worksheets which guide you in your note-taking and allow you to document that you are coming to class prepared. You will get very little out of the course if you consistently come to class without your Worksheets or with incomplete Worksheets. Students who consistently come to class unprepared consistently do poorly on examinations.

To complete each note-taking assignment, print or download the Worksheet from Canvas. Each Worksheet will give you something to do (e.g. read from the textbook or a handout, watch a video lecture) followed by a series of questions to answer. By answering the questions as you do the reading or watch the video, you are taking notes on that subject. All material that will be tested in this course will come directly from notes you take in completing your worksheets.

After completing your assignment, you will need to digitally submit evidence of completion into Canvas. This can be done one of two ways.

- If you write directly on printed Worksheets as you take notes or if you take notes on loose-leaf paper or in a notebook, take photographs of your completed work and upload them to Canvas using the Student Canvas App on your phone.
- If you download the Worksheet file and complete it digitally, upload your saved PDF, DOC, or similar file into Canvas.

Submitted worksheets are graded on two criteria.

(1) Is the worksheet at least 90% complete? If it is not, it will receive no credit. If it is 90% or more complete...

(2) ...it will be graded for being submitted on-time according to the following rubric.

Submitted on-time = 10.0 / 10 points

Submitted 2 to 4 days late = 6.5 / 10 points

Submitted up to 1 day late = 8.5 / 10 points

Submitted 4 to 7 days late = 5.0 / 10 points

Submitted 1 to 2 days late = 7.5 / 10 points

Submitted 7+ days late = 2.5 / 10 points

Worksheets will not be accepted for credit after 11:59pm on Friday, December 2, 2022.

Note that with exceptions clearly spelled out in the course calendar, worksheet submissions are due no later than 12:00pm (noon) on Sundays.

Class Preparation Quizzes (2.0% of the course grade)

During the first week of class, all students are required to complete a 4-point Syllabus Check Quiz in Canvas. This quiz has no time limit, is open-syllabus, and can be taken as many times as you like. However, you are required to earn a perfect score on this quiz. Any students who have not earned a perfect score of 4/4 on this quiz by 11:59pm on Wednesday, August 24 will receive a grade of 0/4. Students who do not complete this quiz will also be marked as not-in-attendance for financial aid purposes.

Each week, to support the Worksheets, you will be given access in Canvas to a Sample Question Set (SQS). This PDF file contains a series of sample/practice examination questions for the topics covered in that week's worksheet. It is an extremely important study tool that every student needs to use. To ensure every student looks at the SQS at least one time, there will be an SQS Reader Quiz in Canvas every week. These are called Reader Quizzes because all questions can be answered simply by reading the SQS.

Each Reader Quiz will be worth 1-point and will consist of 2 – 4 questions about the associated SQS. Reader Quizzes have no time limit, are open-note (i.e. you can look at the SQS while you take the quiz), and have unlimited attempts through the deadline. Reader Quizzes will unlock when the SQS becomes available (typically 12:00pm (noon) on Sunday) and will remain available until 11:59pm on Friday (when that week's Instructor Commentary unlocks).

Examinations (78.0% of the course grade)

The bulk of your course grade will be determined by three major examinations. Exams will consist of short answer format, fill-in-the-blank, labeling, drawing, and justified multiple-choice questions. To help you practice for each exam, you will be given a set of practice questions (Sample Question Sets or SQSs) in Canvas. Each SQS will unlock when its respective worksheet is due, meaning you will have access to a full set of potential exam questions well before you take each test. All exams are cumulative and closed-note/closed-book. The three exams will be administered in-class on the following dates:

Examination #1 – Tuesday, September 20 (200-points)

- 200-points covering topics from Worksheets #1 - #5

Examination #2 – Tuesday, November 1 (260-points)

- 200-points covering topics from Worksheets #6 - #11
- 60-points covering topics from Worksheets #1 - #5

Examination #3 – Tuesday, December 6 (320-points) (This is the Tuesday of Final Exam Week)

- 200-points covering topics from Worksheets #12 - #16
- 120-points covering topics from Worksheets #1 - #11

I cannot give you the number of exam questions in advance. Given the format of my exams and the fact that some questions take more time to answer than others, the actual question count varies from one exam to the next. However, every exam is designed to be completed by a prepared student in under 75-minutes, and I always test-drive my exams to be sure this is plausible.

Attendance (2.5% of the course grade)

Beginning with the second class-meeting and ending with the final class meeting before Final Exam Week, students will be assigned 1-point for being in attendance. There will be an Attendance Log provided at the start of the class for 15-minutes and the last 15-minutes of class. Students are expected to sign-in and out each period.

- Each day one which you sign-in and sign-out you will earn 1-attendance point.
- Each day on which you sign-in or out but not both you will earn 0.5-attendance points.
- Each day on which you neither sign-in nor sign-out you will earn 0-attendance points.

Note that the full attendance grade is out of 25-points, but there are 28-days receiving an attendance grade. This means that you can miss up to three classes without having your attendance grade reduced. Any student who attends more than 25-classes will receive bonus attendance points up to 28/25. Falsifying the sign-in sheet will result in a 10-point attendance grade penalty.

Outside Activity Points (OAPs) (1.5% of the course grade)

Of your 1000-points in this course, 15 must be earned through completing activities outside the classroom. To earn these points, you must participate in workshops, attend film viewings and discussions related to class, or engage in other activities that relate to your coursework. Participation in any approved activity earns you 5-points, meaning that you need to participate in 3 activities to earn all 15-points.

In the past, students have earned these points in a variety of ways, including...

- Attending approved on-campus presentations or workshops.
- Attending a screening of a TV show or film and participating in a discussion about working in biology or health science afterward. I schedule a few of these each semester.
- Working professionally or volunteering in activities related to biology or health care.

These 15-points are not extra credit. Failure to earn OAPs will result in a grade of 0/15. It is your responsibility to remember to engage in these activities and take advantage of opportunities announced in class.

Important Dates

- Monday, September 5 (Labor Day) – No Classes/College Closed
- Tuesday, October 4 (Faculty Development Day) – No Classes
- Friday, November 11 (Veterans Day) – No Classes/College Closed
- Wednesday, November 23 – Friday, November 25 (Thanksgiving) – No Classes/College Closed
- Tuesday, October 25 – Last day to withdraw with a grade of W. I cannot assign a student a grade of W and ceasing to attend class does not constitute student withdrawal. If you wish to withdraw from this or any C-term class with a grade of W, you must initiate that process by October 25.

Course and Institutional Policies

Extra Credit and Dropped-Grades

Aside from bonus points for good attendance and occasional bonus exam questions, I do not allow extra credit in any of my classes. There are no exceptions. If you want a good grade in my class, keep up with the course work, ask for help as needed, and do well on the exams.

I do not drop lowest assignments. There is no topic I cover in any of my classes where it is okay if a student does poorly. Do not request lowest assignment drops; I don't do that.

Student Services

The College of Central Florida is committed to helping you succeed and achieve your academic, personal and career goals. There are a wide range of resources and support services available to you. When students are connected early to resources and support systems on campus, they are more likely to stay in classes, perform better in those classes, and complete their path more quickly. One example is through an Early Support Program, where you may receive an email indicating your professor or advisor is reaching out directly to help connect you to support services. This may include connecting you to tutoring, financial support, psychological support services, and disability services just to name a few. Be aware, you can also reach out to these services on your own as well. Additionally, we offer disability services, a testing center, and many other resources which are all available to you. [Please refer to the College Resources, Dates, and Policies document in your Canvas course to learn more about these supports.](#)

Electronic Devices

Personal electronic devices such as smart phones are permitted at your desk during class only if they are kept turned off and screen-down, in plain sight on your desk. There will be occasions when we use your phones in class, at which time you will be allowed to use them but only for class-related activities. If you prefer not to tempt yourself, I will provide boxes for safe storage of phones during class. Students who violate these rules will be required to keep their phones in the storage boxes. Exceptions to keeping the phone on will be made only for students anticipating phone calls for emergencies and only if they have talked to me before class.

Per the recently passed HB 233, you are permitted under law to make audio or video recordings of classes without the instructor's explicit permission. However...

- Per HB 233, this permission does not extend to laboratory environments.
- Per HB 233, these recordings must be for personal use only and cannot be published or otherwise shared without the instructor's consent. I explicitly do not give consent for any student to do this.

While I cannot legally prohibit you from taking photographs of notes that I put on the board, I am **strongly discouraging you from doing this**. Taking photos of notes seems like a fast and easy way to get accurate notes. **But you do not learn when you do this!** Writing down notes is the most effective way for getting that information into your memory, and using photography or video as a replacement will hurt, not help, your performance in any class.

Testing and Academic Integrity

During exams, the following rules will be in effect for all students.

- Hats and bulky coats or sweatshirts cannot be worn during the exam.
- No personal items will be permitted at your desk except for writing implements and a snack.
- If you leave the room during the exam – even to use the restroom – your exam will be considered finished and you will not be permitted to continue upon returning to the classroom.

Violation of these rules will lead to a score of 0 on your exam.

Any student determined to be cheating, engaged in plagiarism, or assisting another student in dishonest behavior as set forth in the CF Catalogue will be reported to the Chief Student Affairs Officer in accordance with institutional policy (see Academic Integrity in Section 7 of the Student Handbook). Cheating and/or plagiarism will not be tolerated and students that I determine to have engaged in academically dishonest behavior will receive a zero for the assignment in question (first offense) or an “FF” grade for the course (second offense or egregious first offense) as well as related disciplinary action under the Code of Student Conduct.

Testing and Written Language

Precision in both written and spoken language is critical in science and health care. As such, grammar and spelling will count on examinations. I typically give a small amount of leeway for spelling of “challenging words,” but close may not be close enough for some words. Credit or lack of credit for spelling, grammatical, and word choice errors is at my discretion. Students are expected to learn and use proper abbreviations and shorthand, especially in chemistry, and there will be deductions on exams for failure to do this.

Absences and Course Make-Up Policy

- Worksheets and Quizzes cannot be made-up. In the case of Worksheets, students have a minimum of 7-days in which to complete each assignment and grading is based on when the assignment is turned in. Late submissions will be marked down, regardless of the reason it is late. In the case of Quizzes, each has a 5-day window in which it can be completed. If it is not submitted within that window, it will not be accepted for any reason.
- Attendance – As noted in the Attendance section, students can miss up to four full class periods without grade penalty.
- Examinations – If you miss an exam with a documented medical, legal, or similar excuse, you will be permitted to take a make-up exam. You must provide documentation and then make the exam up within 7 calendar days of the scheduled exam. Note: A parent’s note does not count as medical documentation...medical excuses require a note from a doctor’s office, hospital, or similar facility. Students who miss exams without an excuse may be permitted to take a make-up exam at the instructor’s discretion, but will do so with a 20% penalty to their exam grade.

Laboratory Disclaimer

I teach this lecture in conjunction with a laboratory section of BSC 2010L. While these two courses are not perfectly synchronized, I do teach both my laboratory and lecture sections on a related time table. If you are taking laboratory with another instructor and find you are expected to know something from lecture we have not yet covered, it is your responsibility to contact me for support. I am happy to help you but I need to know that the need is there.

Course Calendar

This is a tentative schedule, subject to adjustment by the instructor as need arises. As much advance notice as possible will be given prior to changes in examination dates or worksheet due dates, particularly where tropical weather or pandemic conditions are concerned.

Day	Month	Date	Assignment Due/Class Topic
Tue	Aug	16	Course Orientation
Thu	Aug	18	Worksheet #1 Due by 7:00am (10-points) SQS #1 Available & SQS #1 Reader Quiz Opens Classroom Topic: Scientific Reasoning & Methodology
Fri	Aug	19	SQS #1 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #1 Available
Sun	Aug	21	Worksheet #2 Due by 12:00pm (noon) (10-points) SQS #2 Available & SQS #2 Reader Quiz Opens
Tue	Aug	23	Classroom Topic: Principles of Matter & Energy
Wed	Aug	24	Syllabus Quiz Due in Canvas by 11:59pm (4-points)
Thu	Aug	25	Classroom Topic: Chemical Bonding / Chemical Reactions
Fri	Aug	26	SQS #2 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #2 Available
Sun	Aug	28	Worksheet #3 Due by 12:00pm (noon) (10-points) SQS #3 Available & SQS #3 Reader Quiz Opens
Tue	Aug	30	Classroom Topic: Water Chemistry / pH
Thu	Sep	1	Classroom Topic: Introduction to Organic Molecules
Fri	Sep	2	SQS #3 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #3 Available
Sun	Sep	4	Worksheet #4 Due by 12:00pm (noon) (10-points) SQS #4 Available & SQS #4 Reader Quiz Opens
Tue	Sep	6	Classroom Topic: Proteins
Thu	Sep	8	Classroom Topic: Carbohydrates & Lipids
Fri	Sep	9	SQS #4 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #4 Available
Sun	Sep	11	Worksheet #5 Due by 12:00pm (noon) (10-points) SQS #5 Available & SQS #5 Reader Quiz Opens
Tue	Sep	13	Classroom Topic: Nucleic Acids & Cell Theory
Thu	Sep	15	Classroom Topic: Eukaryotic Organelles
Fri	Sep	16	SQS #5 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #5 Available
Tue	Sep	20	Examination #1 (200-points)
Thu	Sep	22	Worksheet #6 Due by 7:00am (10-points) SQS #6 Available & SQS #6 Reader Quiz Opens Classroom Topic: Plasma Membranes
Fri	Sep	23	SQS #6 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #6 Available

Day	Month	Date	Assignment Due/Class Topic
Sun	Sep	25	Worksheet #7 Due by 12:00pm (noon) (10-points) SQS #7 Available & SQS #7 Reader Quiz Opens
Tue	Sep	27	Classroom Topic: Diffusion and Passive Membrane Transport
Thu	Sep	29	Classroom Topic: Active Membrane Transport
Fri	Sep	30	SQS #7 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #7 Available
Sun	Oct	2	Worksheet #8 Due by 12:00pm (noon) (10-points) SQS #8 Available & SQS #8 Reader Quiz Opens
Tue	Oct	4	Faculty Professional Development Day / No Class Meeting
Thu	Oct	6	Classroom Topic: Cellular Signaling
Fri	Oct	7	SQS #8 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #8 Available
Sun	Oct	9	Worksheet #9 Due by 12:00pm (noon) (10-points) SQS #9 Available & SQS #9 Reader Quiz Opens
Tue	Oct	11	Classroom Topic: DNA: A Lesson in History & Chemistry
Thu	Oct	13	Classroom Topic: DNA Replication
Fri	Oct	14	SQS #9 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #9 Available
Sun	Oct	16	Worksheet #10 Due by 12:00pm (noon) (10-points) SQS #10 Available & SQS #10 Reader Quiz Opens
Tue	Oct	18	Classroom Topic: Transcription & Translation
Thu	Oct	20	Classroom Topic: Gene Expression Control & Chromosomal Theory
Fri	Oct	21	SQS #10 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #10 Available
Sun	Oct	23	Worksheet #11 Due by 12:00pm (noon) (10-points) SQS #11 Available & SQS #11 Reader Quiz Opens
Tue	Oct	25	Classroom Topic: The Cell Cycle & Mitosis Last Day to Withdraw from Classes with Grade of "W"
Thu	Oct	27	Classroom Topic: Regulation of the Cell Cycle
Fri	Oct	28	SQS #11 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #11 Available
Tue	Nov	1	Examination #2 (260-points)
Thu	Nov	3	Worksheet #12 Due by 7:00am (10-points) SQS #12 Available & SQS #12 Reader Quiz Opens Classroom Topic: Introduction to Metabolism
Fri	Nov	4	SQS #12 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #12 Available
Sun	Nov	6	Worksheet #13 Due by 12:00pm (noon) (10-points) SQS #13 Available & SQS #13 Reader Quiz Opens
Tue	Nov	8	Classroom Topic: Glycolysis & the Fate of Pyruvate
Thu	Nov	10	Classroom Topic: Citric Acid Cycle, the ETC, and Chemiosmosis
Fri	Nov	11	SQS #13 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #13 Available

Day	Month	Date	Assignment Due/Class Topic
Sun	Nov	13	Worksheet #14 Due by 12:00pm (noon) (10-points) SQS #14 Available & SQS #14 Reader Quiz Opens
Tue	Nov	15	Classroom Topic: Photosystems & Chloroplasts
Thu	Nov	17	Classroom Topic: Photosynthesis
Fri	Nov	18	SQS #14 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #14 Available
Sun	Nov	20	Worksheet #15 Due by 12:00pm (noon) (10-points) SQS #15 Available & SQS #15 Reader Quiz Opens
Tue	Nov	22	Classroom Topic: Meiosis & Sexual Reproduction
Thu	Nov	24	Thanksgiving Holiday / No Class Meeting
Fri	Nov	25	SQS #15 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #15 Available
Sun	Nov	27	Worksheet #16 Due by 12:00pm (noon) (10-points) SQS #16 Available & SQS #16 Reader Quiz Opens
Tue	Nov	29	Classroom Topic: Heredity & Mendelian Patterns of Inheritance
Thu	Dec	1	Classroom Topic: Complex Patterns of Inheritance
Fri	Dec	2	SQS #16 Reader Quiz Due by 11:59pm (1-point) Instructor Commentary #16 Available
Tue	Dec	6	Examination #3 (320-points)