## Quinnipiac University Department of Biological Sciences BIO 150 Fall 2020 Common Lecture Course Syllabus

## MWF

## Class attendance is mandatory

**All students must be simultaneously registered for a BIO 150 (Majors) Laboratory All students must attend the classes for which they are duly registered**

*We reserve the right to revise the syllabus, assignment schedule, or assignment guidelines at any point during the semester if we deem that changes are necessary. We will inform you of any changes in class and via email. We will also send and post any revised documents.*

Bio150 General Biology Lecture and Bio150L Lab (3/1 cr.) Bio150: Students will develop sound learning strategies and introductory knowledge within five core concepts in biology: evolution, structure and function relationships, the flow, exchange and storage of information, major pathways and transformations of energy and matter, as well as living systems as interactive and interconnected. Bio150L: Students will take an investigative/inquiry-based approach and become competent within the process of science including experimental design, analysis, as well as scientific communication and collaboration. This is the first course of a three-course sequence for biology and related majors. Every year, Fall.

## Required Textbooks

Knisely, Karin. 2017. A Student Handbook for Writing in Biology,5th Ed. Sunderland: Sinauer Associates, Inc. 288pp.

Mastering Biology Online Study System. ISBN for modified mastering standalone access code with eBook 12/e: **9780135855836**

\* Urry, L. A., Cain, M. L., Wasserman, S. A., Minorsky, P. V., Orr, R. B., Campbell, N.A. 2020 Campbell Biology, 12th edition. New York, NY: Pearson

\*eBook is included Mastering Biology. The hard copy of the textbook is optional, but not required.

## Lecture Objectives and Core Competencies

**Science as a Way of Knowing** To help students to understand major epistemological considerations, e.g., How is science different from other kinds of inquiry, e.g., like faith or other philosophical disciplines? What is the Criterion of Demarcation? What is a hypothesis? What distinguishes treatments and controls? What does the asymmetry of proof and disproof refer to and why is this issue important to understanding what scientific theories are. What are the three hallmarks of a scientific investigation?

**Atoms, Bonds and Molecules** Why do atoms interact and form bonds? What kinds of bonds are common in biological systems and what characteristics do they have?

**Macromolecules: their Chemistry and Biology** What are the four major kinds of organic molecules, their structural features, and functional roles in biological systems? What kinds of bonds are critical to the functioning of each kind of macromolecule? What are the structural features of nucleic acids and proteins that enable reproduction, information storage, mutation, and catalysis?

**Energy, Enzymes and Catalysis** What is catalysis and how is it regulated in biological systems? What are the structural features of biological catalysts that enable them to work with lock-and-key specificity? What are the typical energetics of a catalyzed reaction? What ultimately determines the timing and structure of the various catalysts?

**Prokaryotes and Eukaryotes** What are the structural and functional differences between prokaryotes and eukaryotes?

**Cell Communication** How do membranes work? How is transport across membranes regulated? What are the components of the endomembrane system and how do they interact? How did the double membranes of the nucleus, mitochondria, and chloroplasts originate - what are the contending hypotheses and evidence?

**Respiration and Photosynthesis** How is energy captured and converted to various chemical forms in photosynthesis and respiration? How do photosynthesis and respiration work as biochemical systems, including major inputs and outputs? What is chemiosmosis and how does it function, in both photosynthesis and respiration, and how are membranes and their proteins involved in this work?

**Anatomy and Physiology** How are vertebrate systems organized? What are the major organs in a vertebrate system? How do these major organs function for homeostasis? What are the cellular components that control the function of cells, tissues and organs in an organ system?

**Methods of Evaluation**

The course grade will be computed as a weighted average of the two components described below:

Final score for BIO 150      75% of course grade

Final score for BIO 150L    25% of course grade

Students receive the same grade for BIO 150 and BIO 150L.

If a student fails to meet the minimum grade requirement in BIO 150/L for their major program, or for progression to another class, they will need to retake BOTH BIO 150 lecture and laboratory.

1. A single, final course grade will be submitted for Bio150 Lecture (75%) and Bio150L Lab (25%). A minimum final course grade of C- in Bio150/L is required to progress to BIO151/L.
2. A final examination will be given at a time determined by the Registrar’s Office during final exam week (December 7 – 12, 2020).
3. Letter grades will be assigned based upon correlation of the course numeric average with the grading scale published in the Quinnipiac University Catalog.

GRADE SCALE

1. 100-93; (A-) 92-90; (B+) 89-87; (B) 86-83; (B-) 82-80; (C+) 79-77; (C) 76-73; (C-) 72-70; (D)

69-60; (F) 59-0

1. Grades (individual or averaged) will not be curved or scaled, and no extra-credit opportunities will be offered or provided.
2. **Due dates for assignments are listed on the syllabus.** If you miss a deadline, either assignment or exam, you are required to contact the instructor as soon as possible. Communication is the key.  All assignments and exams should be made up as soon as possible, generally within one week of the original deadline or missed exam.  Acceptable reasons for missing deadlines or exams include medical absences, sanctioned University athletic competition, and religious holidays.  An unexcused absence will result in a grade of “0” for the assignment or exam. Students are responsible for all the material in missed lectures, plus any supplemental material on the Blackboard system
3. Student athletes must notify the instructor at least 1 week in advance of any absences related to athletic events. All absences due to athletic events will be verified with the Athletic Department. Practice is not an acceptable reason for missing class or an examination.
4. **October 30, 2020** Last day to withdraw from undergraduate classes with a grade of “W”:
5. **Thanksgiving Recess** Thanksgiving recess is scheduled from November 25 - 28, 2020. Do not plan an early departure or a late return. Faculty are not obligated nor expected to accommodate your schedule

**Lecture Evaluation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit** | **Meeting Dates** | **Exam Date** | **Exam Value** |
| One | August 24 – September 16 | September 18 2020 | 17.5% |
| Two | September 21 – October 14 | October 16, 2020 | 17.5% |
| Three | October 19 – November 4 | November 6, 2020 | 17.5% |
| Four | November 9 – December 4 | Final Exam Week\* December 7-12 | 17.5% |
| Assignments | Throughout FA20 semester |  | 30% |

\*Determined by the Registrar’s Office Total: 100%**\*\***

**Lecture Examinations (70%)**

Lecture exams will be 50% objective (may be multiple choice, matching, true/false, fill-in-the-blank) and 50% subjective (e.g. short answer and/or essay). The format of the exams will be take-home/ open-book. Exams will be taken online and submitted through the SafeAssign program. Plagiarized exams will receive a grade of zero. Exam grades will be posted to Blackboard. Students may review exams during individual faculty office hours. The fourth exam will be given only during finals week as scheduled by Quinnipiac University, and it is NOT cumulative.

## Lecture Assignments (30%)

Assignments may be in the form of electronic portfolio creation and use (e-portfolio), research papers, group video projects, blogs, wiki discussion boards, homework questions, in-class problem solving activities, problem-based learning group/individual assignments, etc. Some assignments will be completed as a group, with each member contributing equally, and therefore receive a group grade. Individual instructors will provide guidelines, due dates and information about these assignments.

## Semester Calendar

(M) August 24 First Day of Undergraduate Classes

(M) September 28 No Classes – Yom Kippur

1. October 30 Last Day to withdraw from a course with a “W”

**Attendance Policy**

Attendance is mandatory for all lectures and power hour. Attendance will be taken each class AND at each power hour session.

This is a synchronous course that will run concurrently in person and on Zoom on its scheduled day & time. The in-class attendance rotation will be finalized by the second week of classes (following the add/drop period). On your assigned dates, you will attend class in person (referred to henceforth as “on campus”). On the remaining dates, you will attend class remotely via Zoom. It is expected that you will have your **video ON** during our classes. Please contact your Instructor to discuss exceptions. All students are expected to participate fully during the class. The zoom cart allows for any student connected via zoom to ask questions, raise hands, respond to polls etc. All course material is posted on Blackboard. You are responsible for regularly checking Blackboard and your QU email for updates from your Instructor.

Each student is allowed a maximum of four (4) unexcused absences. Absence from a single lecture or power hour session is considered to be one absence. Three consecutive unexcused absences are reported to the Associate Dean of Student Affairs. Excused absences are medical absences, sanctioned University athletic competition and religious holidays*.* All other absences are considered unexcused and your attendance for that class period will be marked as such.

Closure of the University due to inclement weather does not count as an absence. If, however, the University is officially open and the instructor has not cancelled class via email, you are expected to be in class. If you miss a day because you choose not to drive due to inclement weather, it will be counted as an unexcused absence.

Each unexcused absence beyond the four that are allowed will result in a reduction of the final numerical grade in the course by one point.

Examples with a student who has earned a final numerical course grade of 83% (B).

* + A student with a total of four unexcused absences will receive a final numerical course grade of 83% (B).
  + A student with a total of five unexcused absences will be penalized 1 point and receive a final numerical course grade of 82 (B-).
  + A student a total of eight unexcused absences will be penalized 4 points and receive a final numerical course grade of 79% (C+).

**COVID-19 Compliance Protocols**

See [University Policies](file:///Users/nancyburns/Documents/Syllabi/University%20policies.pdf) for more information. This document is also posted to Blackboard posted under the Syllabus tab. For the latest information, consult the [Back to Bobcat Nation](https://www.qu.edu/back-to-bobcat-nation.html) page.

**Office of Student Accessibility (OSA)**

*Quinnipiac University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with me. If you have a disability, or think you may have a disability, you may also want to meet with the Office of Student Accessibility, to begin this conversation or to request reasonable accommodations. Quinnipiac University complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.  Please contact the Office of Student Accessibility by emailing*[*access@qu.edu*](mailto:access@qu.edu)*, or by calling* *(203) 582–7600.*

**Statement of Inclusive Values**

*At Quinnipiac University, we believe excellence is inclusive and built upon equity, so all groups feel welcome to fully participate in and contribute to our mission. For more information, please review* [*Quinnipiac’s Statement of Inclusive Values*](https://www.qu.edu/student-life/diversity-and-inclusion/our-vision/)

**Academic Integrity**

*In its Mission Statement, Quinnipiac University emphasizes its commitment to be an academic community. As an academic community, our students, faculty, and staff work together to acquire and extend knowledge, develop skills and competencies and serve the greater good of our nation and local communities. Our individual and collective inquiry and pursuit of knowledge are only possible when each of us in the community is aware of and strives to maintain a code of ethical practice and integrity. All communities, though diverse in their individual members, are based on a shared set of beliefs and values that serve as their foundation. At Quinnipiac, our community has chosen integrity as one of its guiding principles. For more information, please review* [*The Academic Integrity Policy*](https://myq.quinnipiac.edu/Academics/Academic%20Integrity/Document%20Library/Academic%20Integrity%20Policy.pdf)

The reading assignments listed below should be reviewed prior to lecture. Be advised that all the material covered in your reading assignments may not be reviewed in class. Similarly, all the material presented during lecture may not be contained in your text

# Course Schedule General Biology 150 Fall 2020

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Major Topic** | **Topic Areas** | **Text Chapter** (*pgs*) |
| **Week 1** | Unit 1: Science as a  Way of  Knowing/Chemistry of Life | *In-class problem-solving activity: Mystery boxes*  Intro to How a Scientist Thinks, How to Study in  Biology, the Scientific Method  *In-class Discussion of Scientific Writing – The*  *Research Journal Article* | Ch 1.2-1.3  As indicated by  instructor |
| **8/24 M** |
| **8/26 W**  **8/28 F\*** |
| **Week 2**  **8/31 M**  **9/2 W**  **9/4 F** | Unit 1: Science as a Way of Knowing/Chemistry of Life | Biological Organization,  Homeostasis/Feedback Mechanisms  Diversity of Life  Atoms, Bonds and Molecules | Ch 40.1-40.2  Ch 1.1  Ch 2 *(all)* |
| **Week3**  **9/7 M**  **9/9 W**  **9/11 F** | Unit 1: Science as a Way of Knowing/Chemistry of Life | Properties of Water  Organic Molecules | Ch 3 *(all)*  Ch 4.1-4.2 *(* |
| **Week 4**  **9/14 M**  **9/16 W**  **9/18 F** | Unit 1: Science as a  Way of  Knowing/Chemistry  of Life  Exam 1 | Chemical Groups  Carbohydrates, Lipids, Proteins, Nucleic Acids  **Exam 1 (Unit 1)** | Ch 4.3  Ch 5 *(all)* |
|  |
| **Week 5**  **9/21M**  **9/23 W**  **9/25 F** | Unit 2: Cells and Cellular Processes | Prokaryotes, Eukaryotes  Cellular Organelles/Function  Biological Membrane Structure and Function  Transport of Biological Molecules | Ch 6.2-6.7  Ch 7 *(all)*  ***Hmwk for PBL1****:*  *(as indicated by instructor)* |
| **Week 6** | Unit 2: Cells and | ***PBL 1*** | ***Hmwk for PBL 1 &&10/3:*** |
| **9/28 M**  *Yom Kippur, no classes*  **9/30 W**  **10/2 F** | Cellular Processes | *Prepare for in-class discussion* |
| **Week 7**  **10/5 M**  **10/7 W**  **10/9 F** | Unit 2: Cells and  Cellular Processes | ***PBL 1***  Metabolism and Thermodynamics  Exergonic/Endergonic Reactions/ATP | Ch 8 *(all)* |

|  |  |  |  |
| --- | --- | --- | --- |
| **Week 8**  **10/12 M**  **10/14 W**  **10/16 F** | Unit 2: Cells and  Cellular Processes | Properties of Enzymes  **Exam 2 (Unit 2)** | Ch 8 *(all)* |
| **Week 9**  **10/19 M**  **10/21 W\*\***  **10/23 F** | Unit 3: Transformation of Energy | Cellular Respiration | Ch 9.1-9.4  ***Hmwk for PBL 2***  *As indicated by instructor* |
| **Week 10 10/26 M**  **10/28 W**  **10/30 F \*\*\*** | Unit 3: Transformation of Energy | ***PBL 2*** | **Hmwk for PBL 2**  Prepare for class discussion |
| **Week 11**  **11/2 M**  **11/4 W**  **11/6 F** | Unit 3:  Transformation of  Energy | Fermentation/Anaerobic Respiration  Photosynthesis  **Exam 3 (Unit 3)** | Ch 9.5  Ch 10 *(all)* |
| **Week 12**  **11/9 M**  **11/11 W**  **11/13 F** | Unit 4: Anatomy & Physiology | Cardiovascular and Respiratory system  Renal System | Ch 42.1-42.2    Ch 42.4-42.5    Ch 44.4 |
| **Week 13**  **11/16 M**  **11/18 W**  **11/20 F** | Unit 4: Anatomy & Physiology | Endocrine system   * Osmoregulation * Reproduction | Ch 44.5  Ch 46.3 |
| **Week 14 11/23 M**  **11/25 W**  **11/27 F** | Unit 4: Anatomy & Physiology  NO CLASSES  11/25-11/28 | Endocrine System   * Reproduction   THANKSGIVING RECESS | Ch 46.4 |
| **Week15**  **11/30 M**  **12/2 W**  **12/4 F** | Unit 4: Anatomy & Physiology | Nervous system  **Exam 4 (Unit 4)** (Finals Week 12/7-12/12) | Ch 48.1-48.3  Ch 49.1 |
|  |

\* Last day of add/drop Aug 28

\*\* Midterm grades are due Oct 21

\*\*\* Last day to withdraw from the course with a grade of “W” Oct 30