## Quinnipiac University Department of Biological Sciences

## BIO 151 Spring 2021 Common Lecture Course Syllabus

## MWF

## Class attendance is mandatory

**All students must be simultaneously registered for a BIO 151 (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.*

Bio151 General Biology Lecture and Bio151L Lab (3/1 cr.) Bio151: 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. Bio151L: 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

**Gene Expression**

How do the molecular structures of DNA, RNA, and protein enable expression of the same information in the three different kinds of molecules? What is the genetic code and how was it elucidated? What are the roles of ribosomes, tRNA, rRNA, and mRNA in protein synthesis? What major kinds of regulation of gene expression are exhibited in prokaryotes? How is this system more complicated in the multicellular eukaryotic descendants of prokaryotes?

**Cell Communication**

How do cells receive and interpret information from their surrounding environment? How do cells communicate with one another? What are the major signaling pathways in eukaryotic cells and how do they influence cell behavior? What are the apoptotic pathways and what signals trigger them? What is the cell cycle? How do cyclin and cyclin-dependent kinases influence cell cycles? How does loss of cell cycle control lead to cancer?

**Genetics**

What are the fundamental processes of meiosis? How are the traits of parents transmitted to their offspring? How is genetic variation produced and the evolutionary importance of this variation? What two laws of inheritance did Gregor Mendel discover using a scientific approach? What is the importance of Morgan’s discovery and how does it apply to patterns of inheritance? How do alterations of chromosome number or structure result in a genetic disorder? What are non-Mendelian patterns of inheritance?

**Evolution**

What is the central dogma of biology and how does it relate to the biological capabilities of the hereditary molecule, to the very existence and nature of evolution? What are viruses and how do they replicate? What are the key concepts of Darwin’s Theory of evolution? What is the biological species concept? How does natural selection influence adaptive evolution? What roles do genetic drift and gene flow have in natural selection? How has life evolved?

**Methods of Evaluation**

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

Final score for BIO 151      75% of course grade

Final score for BIO 151L    25% of course grade

Students receive the same grade for BIO 151 and BIO 151L.

If a student fails to meet the minimum grade requirement in BIO 151/L for their major program, or for progression to another class, they will need to retake BOTH BIO 151 lecture and laboratory.

1. A single, final course grade will be submitted for BIO151 Lecture (75%) and BIO151L Lab (25%). A minimum final course grade of C- in Bio151/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 (May 4 – 8, 2021).
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. **March 26, 2021** Last day to withdraw from undergraduate classes with a grade of “W”:

**Lecture Evaluation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Unit** | **Meeting Dates** | **Exam Date** | **Exam Value** |
| One | January 25 – Feb 10 | February 12, 2021 | 17.5% |
| Two | February 15 – March 10 | March 12, 2021 | 17.5% |
| Three | March 15 – April 5 | April 7, 2021 | 17.5% |
| Four | April 9 – April 30 | Final Exam Week\*  May 4-8 | 17.5% |
| Assignments | Throughout SP21 semester |  | 30% |

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

**Lecture Examinations (70%)**

Lecture exams will consist of objective questions (may be multiple choice, matching, true/false, fill-in-the-blank) and subjective questions (e.g. short answer and/or essay). Exams will be taken online and submitted through the SafeAssign program. No outside sources may be used. 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) January 25 First Day of Undergraduate Classes (first week online)

(F) January 29 Last day for late registration or schedule changes

(M) February 1 First day of in person instruction

(T) March 9 Self-care day, no classes

(W) March 17 Midterm grades are due

(F) March 26 Last Day to withdraw from a course with a “W”

1. April 2 University Holiday, Good Friday, no classes

(W) April 21 Self-care Day/Bobcat Day

(Sa) May 1 Last day of undergraduate classes

(M) May 3 Study Day

(T-Sa) May 3-8 Final Exam week

(M) May 10 Final grades are due

**Attendance Policy**

Attendance is mandatory for all lectures. Attendance will be taken each class.

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 three (3) unexcused absences. Absence from a single lecture 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 three unexcused absences will receive a final numerical course grade of 83% (B).
  + A student with a total of four unexcused absences will be penalized 1 point and receive a final numerical course grade of 82 (B-).
  + A student a total of seven 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 151 Spring 2021**

**(Subject to Change)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Week** | **Major Topic** | **Topic Area** | **Text Chapter** |
|  |  |  |  |
| Week 1  1/25 M  1/27W  1/29 F\* | Unit 1: Gene Expression | Syllabus and Course Policies  History of Life  DNA is the Genetic Material | Ch. 25.1  Ch. 16.1 |
| Week 2  2/1 M  2/3 W  2/5F | Unit 1: Gene Expression | Transcription and Translation  Regulation of gene expression: Operons | Ch. 17 (all)    Ch. 18.1 |
| Week 3  2/8 M  2/10W  2/12 F | Unit 1: Gene Expression | Eukaryotic gene expression    **Unit 1 Exam** | Ch. 18.2 |
| Week 4  2/15 M  2/17 W  2/19 F | Unit 2: Cell Communication | The cell cycle  DNA replication | Ch. 12 (all)  Ch. 16.2,16.3 |
| Week 5  2/22M  2/24 W  2/26 F | Unit 2: Cell Communication | **PBL #1** cancer  Cell signaling, reception | PBL as indicated by instructor  Ch. 11.1, 11.2 |
| Week 6  3/1M  3/3W  3/5 F | Unit 2: Cell Communication | Cellular response, apoptosis  Muscle signaling  Cancer and cell cycle control | Ch. 11.3-11.5  Ch. 50.5  Ch. 18.5 |
| Week 7  3/8 M  3/10 W  3/12 F | Unit 2: Cell Communication | Innate and adaptive Immune responses    **Unit 2 Exam** | Ch. 43.1-43.3 |
| Week 8  3/15 M  3/17 W\*\*  3/19 F | Unit 3: Genetics | Meiosis  Mendelian Genetics | Ch. 13 (all)  Ch. 14.1 and 14.2 |
| Week 9  3/22 M  3/24 W  3/26 F | Unit 3: Genetics | Incomplete Dominance, Codominance, Epigenetics  **Case Study**: Genetic disorders | Ch. 14.3 and 14.4  Case study as indicated by instructor |
| Week10  3/29 M  3/31 W  4/2 F | Unit 3: Genetics | Sex-Linked Traits,  Chromosomal Inheritance  **University Holiday-Good Friday** | Ch. 15.1-15.3 |
| Week 11  4/5 M  4/7 W  4/9 F | Unit 3: Genetics  Unit 4: Evolution | Chromosomal Inheritance  **Exam 3**  Darwinian evolution | Ch. 15.4, 15.5  Ch. 22 (all) |
| Week 12  4/12 M  4/14 W  4/16F | Unit 4: Evolution | Evolution of Populations    **PBL** **#2** viruses | Ch. 23 (all)  PBL as indicated by instructor |
| Week 13  4/19 M  4/21W  4/23 F | Unit 4: Evolution | **PBL #2**  **Self-care Day/Bobcat Day**  Viruses | Ch. 19 (all) |
| Week 14  4/26 M\*\*\*  4/28 W  4/30 F | Unit 4: Evolution | Biological Species Concept  Phylogeny/Lineages | Ch. 24 (all)    Ch. 26 (all) |

\*Add/drop period ends

\*\*Midterm grades due

\*\*\*Last day to withdraw with a grade of “W” March 26