

BIO 1510: Basic Life Mechanisms

Lecture Syllabus, Winter 2020

3 credits without lab — for engineering students only

4 credits with lab — for all other students

Room 0146 DeRoy Auditorium

4:00 pm - 5:15 pm; Mondays and Wednesdays

Welcome to Biology 1510!

In this document, you will find all the information you need regarding the course structure, the content of the course, grading policies, exam dates, and other important information. By registering for the class, you agree to follow all of the policies listed in the syllabus and those that are mandated by the University. Therefore, **I highly recommend you read the syllabus in a great detail.** I look forward to a fun and exciting semester with all of you!

Dr. Turchyn

COURSE DESCRIPTION AND OBJECTIVES

BIO 1510 is the first of two courses in a two-semester sequence of introductory biology for biology and science majors, including science education, pre-allied health, and engineering students. The objective of this course is to understand the structure, metabolism and reproduction of living things from the perspective of the cell. Thus, the course will focus on the role of biochemical and subcellular components including proteins, nucleic acids, and organelles in the nutrition, inheritance and development of plants and animals. The course will also relate these concepts to topical issues such as nutrition, human genetics, and recombinant DNA technology.

STUDENT LEARNING OUTCOMES

Upon successful completion of the course, students should be able to:

1. how inheritance and mutations are critical for **evolution**.
2. how **structures** of molecules, cells and tissues relate to their **functions**.
3. how **information** (genetic, sensory and regulatory) flows within cells (intracellular signaling, and from DNA to RNA to proteins), between cells, and from parents to progeny.
4. how **energy and matter are transformed** in cellular respiration, photosynthesis and respiration.

5. how the components of cells interact as **systems** to generate emergent properties.
6. how **science is based on evidence** and makes predictions.
7. how to interpret biological data **qualitatively, quantitatively, and graphically**.
8. how to express scientific ideas multiple ways and be able to **communicate across disciplines**.
9. how science informs the decisions of a **society** and how science creates opportunities that require informed citizens and policies.

COURSE PREREQUISITES

Students are required to have completed **either** BIO 1050 (Introduction to Life) with a grade of C- or above; **or** a C- or better in BIO 1500 (Basic Life Diversity), **or** have an ACT score of 24 or higher, **or** have a passing score on the Biology placement exam. Students who managed to enroll in this course without satisfying these prerequisites are not likely to succeed in this course and for this reason will be required to drop it. Students who have questions about these prerequisites should see the Biology Department's Undergraduate Advisor during the first week of class.

TEXTBOOK INFORMATION

Textbook – Biology, 12th edition, by Raven, Johnson, Mason, Losos, and Duncan is available in two forms: print RENTAL and/or eBook (ISBN: 9781260169614) and loose-leaf (ISBN: 9781260494709). Each of them includes the chapters covered in both BIO 1510 and BIO 1500. The course web address for eBook is <https://connect.mheducation.com/class/n-turchyn-bio-1510-mw-winter-2020>.

Laboratory Manual – BIO 1510 by Serreyn (ISBN: 9780738093987).

ADD/DROP INFORMATION

Students can enroll in the class until **January 17th**. If a student signs up for the class and decides to drop it before **January 17th**, the tuition for the class will be cancelled, the student will be reimbursed, and the class will not show on his/her transcript. If the student drops the class between **January 18th** and **March 22nd**, the tuition will not be reimbursed and a final grade of "WP" (withdrawal with a passing grade, if average of all your scores earned to date is greater than or equal to 60%), "WF" (withdrawal with a failing grade, if average of all your scores earned to date is less than 60%), or "WN" (withdrawal never attended) will be shown on his/her transcript. **All withdrawals must be requested through Academica and they will not be granted after March 22nd**. If the student signs

up for the class, stops attending lectures, and fails to withdraw, he/she will receive a failing grade "F" for the course. Please note that "incomplete" grades will not be issued to students in poor standing who are seeking an alternative to a late drop.

CODE OF CONDUCT

Professional behavior is expected in the lecture, which includes respecting your classmates by arriving on time, turning off cell phones, and not talking, texting, surfing internet (facebook, twitter, etc.) or playing any games. If a student is caught performing any of the above during lecture, he/she will be required to leave the room. If a student is caught performing any of the above during an exam, he/she will receive a grade of "F" for the course (see below).

CHEATING POLICY

A student found to be cheating during an exam (using a "cheat sheet" or notes written on a desk, looking at another student's exam, or allowing another student to look at his/her exam) will automatically receive a grade of "F" for the course and may be expelled from the University. For discussions of cheating and plagiarism see the "Student Code of Conduct" that can be found at <https://doso.wayne.edu/conduct/academic-misconduct>.

OFFICE HOURS AND COMMUNICATION

Any questions/comments regarding the lecture portion of the course should be directed to:

Dr. Nataliya Turchyn

Office Location: Room 3119, Biological Sciences Building

E-mail: ai7380@wayne.edu

Office Phone: 313-577-2910

Office Hours: 2:15 pm - 3:45 pm on Mondays and Wednesdays or by appointment

If you have a question about the lecture/textbook material, please post your question in **Canvas**

Discussions: https://canvas.wayne.edu/courses/120854/discussion_topics.

I will not reply to e-mails when the answer can be found in the syllabus or on Canvas. In addition, I will not reply to e-mail questions that have already been answered on the **Canvas Discussions**.

If you would like to make an appointment to meet with me, please contact me through e-mail or in person after lecture.

If you have a question about your lecture grade, please send me an e-mail containing the scores you have in your records and I will check them with my records.

Any questions regarding the lab portion of the course should be directed to a student's lab teaching assistant (TA) and/or lab coordinator, Dr. Madelyn Tucker, Room 2012 Science Hall, email: ax6019@wayne.edu.

When e-mailing me, Dr. Tucker, or TA, please use professional style with your course number in the subject, a proper greeting (e.g., "Dr. Turchyn, Dr. Tucker, or Ms/Mr/Mrs. Teaching assistant"), and correct punctuation including capitalization and no texting abbreviations. E-mails that do not follow these rules may take longer to get a reply or may be returned for correction.

This course may be assigned a **student supplemental instructor (SI)**. The SI has already taken this course and succeeded in it. He/she will help you develop effective study strategies. You are encouraged to approach the SI with questions about the lecture material as you would your instructor. You will be provided with directions on how to contact him/her during the first or second week of the class.

In addition to that, the Academic Success Center offers individual **tutoring** and **group workshops** to the students, which are free of charge. You can also make a free appointment with a learning specialist to design study strategies just for you. See <https://success.wayne.edu/> for more information.

INFORMATION ABOUT EXAMS

There will be four exams given during the semester and one final, cumulative exam (five exams total). Every student must take the final exam. If the percentage of your final exam score is higher than the percentage of your lowest semester exam score, your lowest semester exam score will be replaced.

For example, if you score on exam #2 105 out of 150 points, then your exam #2 would be 70%

($105/150 \times 100\%$). If you score on the final exam 120 out of 150 points, then your final percentage would be 80% ($120/150 \times 100\%$). Your exam #2 score would be recalculated using the 80% you received on the final exam and your new exam #2 score would be 120 points ($80/100 \times 150$ points).

Each exam will consist of 50 multiple choice and true/false questions. **All exams are closed book and are related to the material covered in the lecture, study guides, and assigned in reading of the textbook.** Each exam will be worth 150 points.

YOU MUST BRING YOUR STUDENT ID (ONECARD) TO EVERY EXAM! Scantrons are provided at the exams. Each semester exam begins promptly at 4:00 pm and ends at 5:15 pm. **The FINAL EXAM is scheduled for MONDAY, APRIL 27th at 2:45 PM - 4:15 PM.** All exams are held in 0146 DeRoy Auditorium. **There are no make-up exams.** If a student misses a semester exam for any reason, the percentage the student receives on the final exam will be used as the percentage for the missed exam.

For example, if you score on the final exam 135 out of 150 points, then your percentage on the final exam would be 90% ($135/150 \times 100\%$). So, if you missed exam #2 for any reason, your percentage on exam #2 would be 90%, which is 135 points.

The final exam is scheduled as designated in the Schedule of Classes for this term. No other time for the final exam will be available, and no exception will be made for conflicts such as student travel plans or other exams the same day. Students arriving late to an exam will **NOT** be given extra time. Students will not be able to leave and re-enter the room once the exam begins for any reason (including bathroom breaks). No students will be allowed to enter and take an exam after one student has finished an exam and left the exam room. **Students who arrive after another student has left will receive a zero for their exam score.**

If more than 75% of the class answers an exam question incorrectly, everyone will receive credit for that question.

CALCULATING GRADES

If you are taking the 3-credit lecture only section of the course, the total points possible for the

course are 750 points. If you are taking the 4-credit section that includes the lecture and lab, the total points possible are 1000 points (750 points from lecture + 250 points from lab). **The final scores in the lecture are calculated using scores from the five exams. There is absolutely no opportunity for extra credit or alternate assignments under any circumstances.** All exam scores will be posted in the **Canvas Grades**. Exams will not be given in advance.

It is the student's responsibility to keep track of his/her scores. You can fill in the blank lines below to keep track of your scores.

Exam I	_____ (out of 150)
Exam II	_____ (out of 150)
Exam III	_____ (out of 150)
Exam IV	_____ (out of 150)
Final Exam	_____ (out of 150)

If you are taking the 3-credit lecture only section, add all the scores above, divide by 750, then multiply by 100 to determine your final percentage.

If you are taking the 4-credit section, add all the scores above to the total score from your lab (out of 250), divide by 1000, then multiply by 100 to determine your final percentage.

Final grades are assigned based on the following percentage:

A	93.5 - 100%	C	72.5 - 75.4%
A-	89.5 - 93.4%	C-	69.5- 72.4%
B+	85.5 -89.4%	D+	65.5 - 69.4%
B	82.5 -85.4%	D	62.5 - 65.4%
B-	79.5 - 82.4%	D-	59.5 - 62.4%
C+	75.5 - 79.4%	F	≤ 59.4%

GRADE DISPUTES

Students will have one (1) week after the return of an exam to challenge a grade for any question. Failure to challenge the grade within this period indicates a willingness to accept the grade as is. The

challenge should consist of a written description of why the answer is correct based on other published material that you cite. It is not an opportunity to complain. Be advised that an exam challenge constitutes an entire re-grade of your exam.

UNEXPECTED UNIVERSITY CLOSURES

If the University is officially closed on an exam day, the exam will be held on the next regularly scheduled class day. Closure of the University is announced by the following mechanisms:

- The University Newsline (313) 577-5345*
- WSU Homepage (www.wayne.edu)*
- WSU Academica (<https://academica.wayne.edu/>)* and
- By other local radio and television stations.

* Note: The information on closures and class cancellations is likely to be found at these locations before local radio and television stations broadcast it.

EXAM TIME CONFLICTS

Students are not required to take more than two exams in one day. A student with more than two scheduled final exams on one day may (not must) contact the instructor of the course with the lowest number of students enrolled to arrange an alternate time for the final exam. Such petitions must be made at least one week prior to the scheduled date of the exam. Our class has ~220 students.

RELIGIOUS HOLIDAY CONFLICTS

Students who have a conflict with any of the scheduled exam times due to religious reasons must notify Dr. Turchyn in writing by class time on **Monday, January 20th.** **Accommodations will not be provided unless she is notified in writing by this date.**

STUDENTS WITH DISABILITIES

If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. The SDS telephone number is 313-577-1851 or 313-202-4216 for videophone use. Once you have your accommodations in place, the instructors will meet with you privately during office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible

community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. You can learn more about the disability office at www.studentdisability.wayne.edu.

To register with Student Disability Services, complete the online registration form at:

https://wayne-accommodate.symplicity.com/public_accommodation/

SCHEDULE OF LECTURES AND EXAMS

The lectures will be audio- but not video-recorded and posted in the Echo360 Recordings on Canvas. If there are any problems with the lecture capture system, please contact Computing & Information Technology (C& IT) at (313) 577-4778 or helpdesk@wayne.edu. You are welcome to record lectures for your personal use and to take pictures of my handwritten notes, questions, and concept maps. All lecture PowerPoint slides, study guides, and syllabus can be found at <https://canvas.wayne.edu/courses/120854/modules>.

Here is the schedule with dates of all the exams and a tentative schedule indicating which chapter(s) will be covered each class day. Note that some chapters may take more or less time than indicated on the schedule below.

Date	Topic	Chapter(s)
1/6	Course Introduction	
1/6	Nature of molecules and properties of water	2
1/8	Nature of molecules and properties of water	2
1/8	Chemical building blocks	3
1/13	Chemical building blocks	3
1/15	Chemical building blocks	3
1/20	NO CLASS – MARTIN LUTHER KING JR. DAY	
1/22	Cell structure	4
1/27	Cell structure	4
1/27	Membranes	5
1/29	Exam #1	2-5
2/3	Membranes	5
2/5	Energy and metabolism	6
2/10	How cells harvest energy	7
2/12	How cells harvest energy	7
2/17	Photosynthesis	8
2/19	Photosynthesis	8
2/19	Cell communication	9
2/24	Exam #2	5-8

<u>Date</u>	<u>Topic</u>	<u>Chapter(s)</u>
2/26	Cell communication	9
3/2	How cells divide	10
3/4	How cells divide	10
3/4	Sexual reproduction and meiosis	11
3/9-3/14	NO CLASSES — SPRING BREAK	
3/16	Sexual reproduction and meiosis	11
3/16	Patterns of inheritance	12
3/18	Patterns of inheritance	12
3/23	Patterns of inheritance	12
3/23	Chromosomes, mapping, and the meiosis	13
3/25	Exam #3	9-12
3/30	Chromosomes, mapping, and the meiosis	13
4/1	DNA: the genetic material	14
4/6	DNA: the genetic material	14
4/8	Genes and how they work	15
4/13	Genes and how they work	15
4/15	Exam #4	13-15
4/20	Control of gene expression	16
4/27	Final Exam	2-16