

## **BIO 1510: Basic Life Mechanisms**

### **Lecture Syllabus, Fall 2020**

3 credits without lab — for civil, chemical, mechanical, and electrical engineering students

4 credits with lab — for all other students

### **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.

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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 contact the Biology Department's Undergraduate Advisor during the first week of class.

### TEXTBOOK INFORMATION

**Textbook** – Biology, 12<sup>th</sup> 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.

**Laboratory Manual** – BIO 1510, Fall 2020 edition (ISBN: 8220115320042).

### ADD/DROP INFORMATION

Students can enroll in the class until **September 15<sup>th</sup>**. If a student signs up for the class and decides to drop it before **September 15<sup>th</sup>**, 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 **September 16<sup>th</sup>** and **November 15<sup>th</sup>**, the tuition will not be reimbursed and a final grade of "WP" (withdrawal with a passing grade, if average of all lecture exam scores earned to date is greater than or equal to 60%), "WF" (withdrawal with a failing grade, if average of all lecture exam

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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 November 15<sup>th</sup>.** 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.**

### STUDENT CODE OF CONDUCT

All participants in the course are bound by the Student Code of Conduct that can be found at <https://doso.wayne.edu/conduct/academic-misconduct>. The University is aware that students often use WhatsApp and/or other group messaging apps for the purposes of cheating on their classwork. Be aware that using group messaging apps in this manner is indeed a violation of the academic integrity honor code and can come with consequences. **Students who knowingly or intentionally conduct or help another student engage in dishonest conduct, acts of cheating, or plagiarism will receive a grade of "F" for the course and may be expelled from the University.**

### 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](mailto:ai7380@wayne.edu)

**Office Phone:** 313-577-2910

**Virtual Office Hours:** 11:30 am - 1:00 pm on Mondays and Wednesdays or by appointment

If you have any questions related to the course material or assignments, please post them on the [Canvas Discussions](#). I will do my best to reply to your question(s) within 24 hours. You can also ask me questions in real time during my virtual office hours on [Canvas Zoom](#).

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](#).

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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. I will do my best to reply to your email within 24 hours.

**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, email: [ax6019@wayne.edu](mailto: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.

## ATTENDANCE

**There will be NO weekly scheduled course meetings that require attendance.** However, weekly quiz due dates will be assigned with the assumption that students are proceeding with the course in the same manner as weekly face-to-face meetings. It is student's responsibility to complete all quizzes and exams on time.

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## INFORMATION ABOUT QUIZZES

Students are expected to take an active role in their learning by listening to pre-recorded lectures, going over PowerPoint slides with my handwritten notes, doing study guides and old exams, reading the textbook, and taking ten online quizzes through [Canvas Quizzes](#). Questions will be drawn from materials covered in the lectures and study guides. Each quiz will be timed and posted for 48 hours. Students will have only one attempt. **The quizzes will turn on from Fridays or Saturdays (11:00 am) to Sundays or Mondays (11:00 am). You must complete the quiz during this time. If you miss the quiz deadline, you will lose the points associated with it. Students will have a chance to earn more than 90 points for completing all ten quizzes, but only 70 points will count toward their final grade.**

## INFORMATION ABOUT EXAMS

**There will be four exams given during the semester and one final, cumulative exam (five exams total).** The regular and final exams will consist of 40 and 50 multiple choice and true/false questions, respectively. Some questions will have images. **All exams are closed book and are related to the material covered in the lecture, study guides, and assigned in reading of the textbook.** The regular and final exams will be worth 120 and 150 points, respectively.

**Every student must take the final exam and it cannot be dropped.** 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 90 out of 120 points, then your exam #2 would be 75% ( $90/120 \times 100\%$ ). 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 96 points ( $80/100 \times 120$  points).

**The FINAL EXAM is scheduled for MONDAY, DECEMBER 21<sup>ST</sup> at 10:15 AM - 11:20 AM. All exams and quizzes will be administered online through [Canvas Quizzes](#) using LockDown Browser and Respondus Monitor, which requires a webcam to ensure academic integrity.** Respondus is

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compatible with Microsoft Windows, macOS, and most Wayne State-managed Chromebooks. However, it is not compatible with personally owned Chromebooks, Android or iOS devices. To download Respondus in Canvas, click **Help** and then **Students: Links and Downloads**. Visit the Respondus Student Resources web page at [web.respondus.com/student-help/](http://web.respondus.com/student-help/) for more information.

Each regular exam will take place on specified Mondays or Wednesdays at 11:30 am - 12:20 pm (see **SCHEDULE OF LECTURES, QUIZZES, AND EXAMS** on the last two pages). All exams will be timed and students will have only a single attempt at the exam itself. **Exam questions will be presented one at a time and locked after answering, which means that students will NOT be able to return to the previous question once it has been answered. Questions will also be locked even if a student clicks the Next button without answering the question.**

**There are no make-up exams. If the student misses a regular 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 108 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. **Once you have finished answering the questions, click the Submit button at the bottom of the exam. When the time is up and you have not submitted your answers, a pop-up window will ask you to submit your answers or Canvas will force your submission. No extra time will be given to those students who start working on their exam too late.**

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

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## CALCULATING GRADES

If you are taking the 3-credit lecture only section of the course, the total points possible for the course are 700 points. If you are taking the 4-credit section that includes the lecture and lab, the total points possible are 1000 points (700 points from lecture + 300 points from lab). **The final scores in the lecture are calculated using scores from the five exams and quizzes. 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 120)
Exam II	_____ (out of 120)
Exam III	_____ (out of 120)
Exam IV	_____ (out of 120)
Final Exam	_____ (out of 150)
Quizzes	_____ (out of 70)

If you are taking the 3-credit lecture only section, add all the scores above, divide by 700, 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 300), 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%

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### **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.

### **EXAM TIME CONFLICTS**

Students are not required to take more than two final 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 ~355 students.

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## RELIGIOUS HOLIDAY CONFLICTS

Students who have a conflict with any of the scheduled exam times due to religious reasons must notify me in writing by class time on **Monday, September 14<sup>th</sup>**. **Accommodations will not be provided unless I am 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, please send me an email discussing 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](http://www.studentdisability.wayne.edu).

To register with Student Disability Services, complete the online registration form at: [https://wayne-accommodate.symlicity.com/public\\_accommodation/](https://wayne-accommodate.symlicity.com/public_accommodation/).

## HOW TO SUCCEED IN BIO 1510?

In order to succeed in BIO 1510, you would need to do the following:

1. Download the ppt slides with my handwritten notes and start listening to the lecture. You are encouraged to take more notes on each lecture if you want.
2. Study the ppt slides with my handwritten notes afterwards, paying attention to the images.
3. **Re-listen to the lecture one or more times AFTER studying.** If there is something that you still do not understand, post your questions on [Canvas Discussions](#) and/or ask me during my virtual office hours on [Canvas Zoom](#).
4. To test your knowledge on the material, do the study guide for each chapter **WITHOUT** using ppt slides or notes. If there are any questions that you cannot answer without help, you have to study that material again before moving to the next chapter.

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5. If you still do not understand the material, read the textbook and do the questions at the end of each chapter to test your knowledge again.
6. Always do my old exams one day before an actual exam. If you are struggling on those, it means that you are not prepared to take the exam and you have to study more.
7. Attend SI sessions weekly and/or request weekly study groups at <https://success.wayne.edu/pal/csg> and/or schedule individual tutoring appointments at <https://wams.wayne.edu/tutoring>.
8. Try to study for the lecture portion of the course at least 10 hours per week by understanding, critical thinking, and being able to apply what you have learned. Be aware that biology differs from other classes because it is all about concepts, and it takes time and effort to learn and understand them.

## SCHEDULE OF LECTURES, QUIZZES, AND EXAMS

All lecture PowerPoint slides with my handwritten notes, audio recordings of the lectures, study guides, old exams with answer keys, practice problems, animations, and lecture syllabus can be found on [Canvas Homepage](#). Students have to listen to the pre-recorded lectures on their own time, and use [Canvas Discussions](#) and/or [Zoom](#) meetings to ask questions and get further guidance and support. If there are any issues with Canvas or LockDown Browser, please contact Computing & Information Technology (C& IT) at (313) 577-4778 or [helpdesk@wayne.edu](mailto:helpdesk@wayne.edu).

Here is the schedule indicating what chapters you have to study, and the due dates for the exams and quizzes.

<u>Topics and Assignments</u>	<u>Chapter(s)</u>	<u>Date(s)</u>
Nature of molecules and properties of water	2	9/2, 9/4, and 9/9
Chemical building blocks	3	9/9, 9/11, 9/14, 9/16, and 9/18
<b>Quiz #1</b>	<b>2</b>	<b>9/14</b>
Cell structure	4	9/18, 9/21, and 9/23
<b>Quiz #2</b>	<b>3</b>	<b>9/21</b>
Membranes	5	9/23, 9/25, and 9/28
Energy and metabolism	6	9/28 and 10/5
<b>Quiz #3</b>	<b>4</b>	<b>9/28</b>
<b>Exam #1</b>	<b>2-5</b>	<b>9/30</b>
How cells harvest energy	7	10/5, 10/7, 10/9, and 10/12
<b>Quiz #4</b>	<b>6</b>	<b>10/12</b>
Photosynthesis	8	10/12, 10/14, and 10/16
<b>Quiz #5</b>	<b>7</b>	<b>10/19</b>
Cell communication	9	10/19 and 10/21
How cells divide	10	10/23, 10/28, and 10/30
<b>Quiz #6</b>	<b>8 and 9</b>	<b>10/25</b>
<b>Exam #2</b>	<b>6-9</b>	<b>10/26</b>

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<b>Topics and Assignments</b>	<b>Chapter(s)</b>	<b>Date(s)</b>
Sexual reproduction and meiosis	11	10/30, 11/2, and 11/4
Patterns of inheritance	12	11/4, 11/6, 11/9, and 11/11
<b>Quiz #7</b>	<b>10 and 11</b>	<b>11/9</b>
Chromosomes, mapping, and the meiosis	13	11/11, 11/13, and 11/16
<b>Quiz #8</b>	<b>12</b>	<b>11/16</b>
<b>Exam #3</b>	<b>10-13 (slides #1-18)</b>	<b>11/18</b>
DNA: the genetic material	14	11/20, 11/23, and 11/30
Genes and how they work	15	11/30, 12/2, 12/4, and 12/7
<b>Quiz #9</b>	<b>14</b>	<b>12/7</b>
Control of gene expression	16	12/7, 12/9, and 12/11
Biotechnology	17	12/11
<b>Quiz #10</b>	<b>15</b>	<b>12/13</b>
<b>Exam #4</b>	<b>13 (the rest) and 14-16</b>	<b>12/14</b>
<b>Final Exam</b>	<b>2-17</b>	<b>12/21</b>

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