

## **BIO 2600: Introduction to Cell Biology**

### **Lecture Syllabus, Winter 2018**

3 credits

Room 0145 Macomb Education Center

10:00 am - 11:15 pm; Mondays and Wednesdays

### **Welcome to Biology 2600!**

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**

This course serves to introduce cell biology to undergraduate students majoring in the Biological Sciences or other science majors, including science education, pre-allied health, engineering and all students seeking introductory knowledge of cell biology. The prerequisites for this class include BIO 1500 and BIO 1510.

Cells are the simplest unit of life and serve as the building block of all multi-cellular organisms. The objective of the course is to introduce students to the complexities of structure and function of the major components of living cells. The lectures in this course will focus on cell structures and their functions. The emphasis will be on mammalian cells, although aspects unique to plant or prokaryotes may be mentioned. The information learned from this course will provide a solid knowledge base for future classes in genetics, physiology, and metabolism. The lectures will include materials provided from the textbook as well as supplemental materials from outside resources, including videos and scientific journals.

### **STUDENT LEARNING OUTCOMES**

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

1. Identify and describe basic components of eukaryotic cells as well as understand and integrate

- relationship between structure and function at both molecular and cellular levels.
2. Discuss the flow of genetic information from DNA to proteins. Have a sound understanding of regulatory mechanisms for gene expression at transcriptional and translational levels and integrate these concepts with the process of cellular differentiation.
  3. Explain the structure and function of plasma membranes and cellular compartmentalization. Extend these principles to vesicular transport: secretory and endocytic pathways.
  4. Understand the general principles of cellular signaling through cell-surface and intracellular receptors.
  5. Demonstrate core knowledge of the major components of the cytoskeleton and explain how their dynamic instability allows for various cellular structure and function.
  6. Understand the cell cycle and its regulation at various check-points. Students will know how cell numbers are maintained at the molecular and cellular levels, and how these processes are deregulated in various diseases, including cancer.
  7. Be able to comprehend, interpret and evaluate conclusions drawn from experimental studies. Develop a basic understanding of how hypotheses are proposed and how experiments are designed and executed to test these hypotheses within the discipline of cell biology.

### **COURSE PREREQUISITES**

Students are required to have completed **both** BIO 1500 and BIO 1510 with a final grade of C- or better. 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, Ms. Kim Walkowiak-Hunter ([kwalk@biology.biosci.wayne.edu](mailto:kwalk@biology.biosci.wayne.edu)) during the first week of class.

### **RECOMMENDED TEXTBOOK**

**Essential Cell Biology, 4<sup>th</sup> edition, by Alberts, Bray, Hopkin, Johnson, Lewis, Raff, Roberts, and Walter (ISBN: 9780815344544).** Students are welcome to purchase used copies of the textbook.

### **ADD/DROP INFORMATION**

Students can enroll in the class until **January 22<sup>nd</sup>**. If a student signs up for the class and decides to drop it before **January 22<sup>nd</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 this course between **January 23<sup>rd</sup>** and **February 4<sup>th</sup>**, it will not be shown on the student's transcript, but the tuition will not be reimbursed. If the student drops the class between **February 5<sup>th</sup>** and **March 25<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 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 Academics and they will not be granted after March 25<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.**

#### **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 <http://www.doso.wayne.edu/judicial/index.htm>

#### **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

**Office Hours:** 8:50 am - 9:50 am on Mondays & Wednesdays or by appointment at the **Macomb Education Center**

If you have a question about the lecture/textbook material, please post your question on the **Discussion Board** associated with the course Blackboard website: [www.blackboard.wayne.edu](http://www.blackboard.wayne.edu)

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

When e-mailing me please use professional style with your course number in the subject, a proper greeting (e.g., "Dear Dr. Turchyn"), and correct punctuation including capitalization and no texting abbreviations. Always include your name at the end of your email.

The course has also been assigned a **student supplemental instructor (SI)**. He/she has already taken this course and he/she will help you develop effective study strategies. You are encouraged to approach SI leader with questions about the lecture material as you would your instructor.

In order to further strengthen understanding of the course material, students will voluntarily form study groups and commit to the weekly meetings. Each group will be assigned a facilitator who is a trained peer leader, to help keep the group focus on the discussion and address questions and concerns, as well as offer learning tips and study strategies. Students will determine the topics for each study group meetings. All Course Study Groups are coordinated through the Academic Success Center.

**Course Study Group is for you if you agree with any of the following statements:**

- I like to talk about what I learned in class.
- I want to practice and acquire various ways of learning and studying.
- I would like to prepare and do well in exams.

Visit [success.wayne.edu](http://success.wayne.edu) for more information.

In addition to the study group meetings, students wish to have additional support are encouraged to schedule individual tutoring appointments.

## EXAMS

**There will be four exams given during the semester and one final, cumulative exam (five exams total).** 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 is worth 140 points.

**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 98 out of 140 points, then your exam #2 would be 70% ( $98/140 \times 100\%$ ). If you score on the final exam 112 out of 140 points, then your final percentage would be 80% ( $112/140 \times 100\%$ ). Your exam #2 score would be recalculated using the 80% you received on the final exam and your new exam #2 score would be 112 points ( $80/100 \times 140$  points).

**YOU MUST BRING YOUR STUDENT ID (ONECARD) TO EVERY EXAM!** Scantrons will be distributed at the beginning of each exam. Each midterm exam begins promptly at 10:00 am and ends at 11:15 am. **The FINAL EXAM is scheduled for WEDNESDAY, APRIL 25<sup>TH</sup> at 10:00 AM - 11:15 AM.** All exams are held in 0145 Macomb Education Center. **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 126 out of 140 points, then your percentage on the final exam would be 90% ( $126/140 \times 100\%$ ). So, if you missed exam #2 for any reason, your percentage on exam #2 would be 90%, which is 126 points ( $90/100 \times 140$  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

The total points possible for the course are 700 points. **The final scores 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 Grade Center on Blackboard. **Exams will not be given in advance.**

It is the student's responsibility to keep track of his/her scores. All exam scores will be posted in the Grade Center on Blackboard. You can fill in the blank lines below to keep track of your scores.

Exam I	_____ (out of 140)
Exam II	_____ (out of 140)
Exam III	_____ (out of 140)
Exam IV	_____ (out of 140)
Final Exam	_____ (out of 140)

In order to determine your final percentage in the course, you should add all the scores above, divide by 700, and then multiply by 100%.

**Final grades are assigned based on the following percentage:**

A	92.5 - 100%	C	72.5 - 75.4%
A-	89.5 - 92.4%	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](http://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 11 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 22<sup>nd</sup>**. 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. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, we will be glad to meet with you privately during office hours to discuss your special needs. Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students:

<http://studentdisability.wayne.edu/>



## SCHEDULE OF LECTURES AND EXAMS

The lectures will be audio- but not video-recorded and posted in the Echo360 Cloud on Blackboard. 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](mailto:helpdesk@wayne.edu). You are welcome to record lectures for your personal use and to take pictures of my handwritten notes and questions. **All lecture PowerPoint slides can be found in the Lecture Slides on Blackboard.**

Here is the schedule with dates of all the exams and the 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.

<u>Date</u>	<u>Topic</u>	<u>Chapter(s)</u>
1/8	Course introduction	
1/8	Introduction to cells	1
1/10	Introduction to cells	1
1/10	Protein structure and function	4
<b>1/15</b>	<b>NO CLASS — MARTIN LUTHER KING JR. DAY</b>	
1/17	Proteins structure and function	4
1/22	Proteins structure and function	
1/22	Membrane structure	11
1/24	Membrane structure	11
1/29	Transport across cell membranes	12
<b>1/31</b>	<b>Exam #1</b>	<b>1, 4, 11 &amp; 12</b>
2/5	Transport across cell membranes	12
2/7	Energy generation in mitochondria	14
2/12	Energy generation in mitochondria	14
2/12	Intracellular compartments and transport	15
2/14	Intracellular compartments and transport	15
2/19	Cell signaling	16
2/21	Cell signaling	16
2/26	DNA and chromosomes	5
<b>2/28</b>	<b>Exam #2</b>	<b>12 &amp; 14-16</b>

<b>Date</b>	<b>Topic</b>	<b>Chapter(s)</b>
3/5	DNA replication, repair, and recombination	6
3/7	DNA replication, repair, and recombination	6
<b>3/12-3/16</b>	<b>NO CLASSES — SPRING BREAK</b>	
3/19	From DNA to protein: how cells read the genome	7
3/21	From DNA to protein: how cells read the genome	7
3/26	Control of gene expression	8
3/28	Control of gene expression	8
<b>4/2</b>	<b>Exam #3</b>	<b>5-8</b>
4/4	Cytoskeleton	17
4/9	Cytoskeleton	17
4/9	The cell division cycle	18
4/11	The cell division cycle	18
4/16	Cellular communities: tissues, stem cells, and cancer	20
4/18	Cellular communities: tissues, stem cells, and cancer	20
<b>4/23</b>	<b>Exam #4</b>	<b>17, 18 &amp; 20</b>
<b>4/25</b>	<b>Final Exam</b>	<b>All topics covered</b>