

BIO129: PERSPECTIVES IN HUMAN BIOLOGY

FALL 2019

M/W/F 10-10:50, Knox 20

INSTRUCTOR: Dr. Meredith Ezak

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COURSE DESCRIPTION: This is a non-majors, 3-credit course focusing on human biology. The course will provide fundamental information on how the body works at a level appropriate to non-scientists. Emphasis will be placed on human disease/drug treatments. The role of stress in health and disease will be emphasized. The effects of recreational drugs will also be discussed. At completion of the course, students should have assimilated a general understanding of how various organ systems of the body function together to maintain health. In addition, they should have a basic understanding of how malfunctions in various organ systems cause disease, as well as medical interventions to treat diseases.

COURSE MATERIALS:

- **REQUIRED:** Reef/iClicker mobile app. Instructions to register are provided on UBLearn.
- **RECOMMENDED:** "Human Biology" by Sylvia Mader and Michael Windelspecht (16th edition). McGraw Hill. ISBN: 9781260233032

COURSE SCHEDULE: This course is organized into five units of study, each focused on a specific aspect of human health/disease. Within each unit the biological principles covered will be linked to these broader, real-life issues. The following is a tentative schedule of topics and assignments; any changes will be announced in class and on UBLearn.

UNIT 1. FOCUS: DIABETES			
TOPIC	CHAPTER	START DATE	UNIT ASSIGNMENTS
1.1: Organization	1	8/28	Quiz 1: 9/6 Quiz 2: 9/13 Exam 1: 9/20
1.2. Chemistry	2	8/30	
1.3 Cells	3	9/9	
1.4 Organ Systems and Homeostasis	4, 16	9/16	
UNIT 2. FOCUS: CARDIOVASCULAR DISEASE			
2.1: Heart and Blood Vessels	5	9/23	Quiz 3: 10/2 Exam 2: 10/11
2.2: Blood	6	10/4	
UNIT 3. FOCUS: VACCINES AND ANTIBIOTIC RESISTANCE			
3.1: Immune System	7	10/12	Quiz 4: 10/21 Exam 3: 11/1
3.2: Science as a Process	1	10/23	
3.3: Infectious Diseases	8	10/23	
UNIT 4. FOCUS: DRUGS OF ABUSE			
4.1 Nervous System	14	11/4	Quiz 5: 11/11 Exam 4: 11/18
UNIT 5. FOCUS: CANCER			
5.1 Chromosomal Inheritance	19	11/20	Quiz 6: 11/25 Exam 5: 12/6
5.2 Cancer	20	11/25	
Exam 6: Date to be determined during finals week			

MEANS OF ASSESSMENT: There will be both ungraded assessments, to evaluate the classes understanding of a specific topic, and graded assignments, to measure your overall learning.

- **UNGRADED:** Several poll questions every class will be delivered through the iClicker/Reef app. These questions will assess the classes ability to understand/apply the material being covered during lecture. While not graded, they serve two important functions: (1) Your participation gives the instructor important feedback about the classes understanding before moving on to the next topic. (2) These questions will be similar to exam/quiz questions. You should use them as an honest self-assessment of your own understanding and preparation for exams/quizzes. Polling questions will also periodically be used to provide opportunities for extra credit toward exams.
- **GRADED:** There will be two types of graded assignments:
 - **EXAMS:** 6 in total, each worth 40 points: 5 in-class exams, and a cumulative final exam. The course is divided into five units of study, with in-class exams given at the end of each unit. These exams will consist of 20 multiple choice questions, each worth 2 points. The cumulative final exam will be given during exam week. It will consist of 40 multiple choice questions, each worth 1 point. You may use your class notes for all exams. After each exam an answer key and scores will be posted to UB Learns as soon as they are available. It is your responsibility to check your scores when they're posted. If you believe there is an error in your grade, you must contact me as soon as possible to resolve the issue. *NOTE: In calculating your final grade, I will drop your lowest of these 6 exams.*
 - **QUIZZES:** 6 in total, each worth 10 points. In-class quizzes will be given between exams, within units of study. They will consist of 5 multiple choice questions, each worth 2 points. Quizzes will be administered through the iClicker/Reef app and you may use your notes. *NOTE: In calculating your final grade, I will drop your lowest of these 6 quizzes.*
 - **MAKE-UPS:** There are no make-up exams or quizzes given after the class has taken a scheduled exam or quiz. If you unexpectedly miss an exam/quiz, for any reason, you will receive a zero and that will have to be your dropped exam/quiz grade. If you know in advance that you will miss an exam/quiz, you must contact your instructor a minimum of one week prior to the exam/quiz, provide written documentation of the reason for your planned absence (athletic events, religious obligations, etc.), and arrange to take the exam/quiz BEFORE the rest of the class.

SUMMARY OF GRADED COURSE REQUIREMENTS			
Assignment		Point Value	Contribution to Overall Grade
Exams	Exam 1	40	200 points (best 5 of 6 exams)
	Exam 2	40	
	Exam 3	40	
	Exam 4	40	
	Exam 5	40	
	Final	40	
Quizzes	Quiz 1	10	50 points (best 5 of 6 quizzes)
	Quiz 2	10	
	Quiz 3	10	
	Quiz 4	10	
	Quiz 5	10	
	Quiz 6	10	
COURSE TOTAL:			250 POINTS

GRADING DETERMINATION: Your overall grade is based on 250 points earned from exams and quizzes. Your points will be converted to letter grades as follows:

Letter Grade	Total Points for Course (<i>corresponding %</i>)
A	232 - 250 (93-100%)
A-	225 - 231 (90-92%)
B+	217 - 224 (87-89%)
B	207 - 216 (83-86%)
B-	200 - 206 (80-83%)
C+	192 - 199 (77-79%)
C	182 - 191 (73-76%)
C-	175 - 181 (70-72%)
D+	165 - 174 (66-69%)
D	150 - 164 (60-67%)
F	<149 (<60%)

INCOMPLETES: Incomplete grades are permissible only in cases when a student is unable to complete the course due to documented, severe unforeseen problems. The student must be receiving a passing grade in the class at the time the 'I' is issued. The student then will be allowed up to 15 months to complete only that portion of the work that was not completed. An 'I' grade cannot be used as a way to "start over" next year. The university policy on incompletes can be found here: <https://catalog.buffalo.edu/policies/explanation.html>

SAFE SPACE: It is critical that this classroom is a safe place that encourages learning for all students. I expect all students to be respectful of fellow learners regardless of race, ethnicity, citizenship, age, disability, gender, sexual orientation, gender identity, or religion. Any type of harassment is against UB's Discrimination and Harassment Policy and will be reported, as such. Feel free to email me or make an appointment to speak with me if you have questions or concerns about this policy or about incidents in the classroom.

ACADEMIC INTEGRITY: Academic dishonesty, as defined at UB, includes submitting previously submitted work, plagiarism, using unauthorized materials, the giving and receiving of unauthorized assistance during an exam or on an assignment, falsification of academic materials, misrepresentation of documents, receipt or distribution of confidential academic materials, and selling or purchasing academic assignments. Any sort of academic dishonesty is unacceptable and can result in course failure. The academic integrity policy can be found here: <https://catalog.buffalo.edu/policies/integrity.html>

ACCESSIBILITY RESOURCES: If you have a disability and require exceptional accommodations to enable you to participate in this course, such as note takers, readers, or extended time on tests and assignments, please contact the Office of Accessibility Resources, Capen Hall, 645-2608. You must register with that office in order to receive accommodation for physical and learning disabilities. Accessibility resources can be found at: <http://www.student-affairs.buffalo.edu/ods/>

UB PORTFOLIO: If you are completing this course as part of your UB Curriculum requirements, please select an 'artifact' from this course that is representative of your learning and upload it to your UBPortfolio (powered by Digication) account. Templates have been created for this purpose. Artifacts include homework

assignments, exams, research papers, projects, lab reports, presentations, and other course materials. Your final UB Curriculum requirement, UBC 399: UB Curriculum Capstone, will require you to submit these 'artifacts' as you process and reflect on your achievement and growth through the UB Curriculum. For more information, see the UB Curriculum Capstone website: <https://www.buffalo.edu/ubcurriculum/capstone.html>. Please know that the UB Curriculum office provides UBPortfolio support to students and instructors during the fall and spring semesters, Monday- Friday in 17 Norton Hall. For hours, visit https://buffalo.digication.com/ub_portfolio/ubportfolio-walk-in-lab-hours

STUDENT LEARNING OUTCOMES: Upon completion of the Scientific Literacy and Inquiry sequence, students will:

Course Learning Outcome	Maps to the Following Program Outcomes / Competencies:	Delivered through the Following Instructional Method(s):	Student Achievement Assessed with the Following Method(s)/Assignments:
1. Demonstrate detailed knowledge in three domains of the natural and/or physical sciences. a) micro b) human c) macro	a) chemistry/ biochemistry including but not limited to structure of atoms and molecules, proteins, nucleic acids; cellular: eukaryotic and prokaryotic cells, viruses b) functioning of the human body including but not limited to water and ion balance, circulation and blood pressure control, immune system, stress and stress responses, the nervous system c) human contributions to development of antibiotic resistance; environmental factors that alter the cell cycle.	Lectures	Exams, quizzes, in-class polling questions
2. Understand and employ the scientific method	Introduction to the scientific method and discovery of penicillin	Lecture, in-class case study	Quizzes, in-class polling questions.
3. Analyze how the understanding of scientific phenomena has changed through time, demonstrate that science is a continuous process and identify different factors that may contribute to scientific	History of antibiotic development, and antibiotic resistance	Lectures	Quizzes, in-class polling questions

discoveries while recognizing a path of a scientific discovery (or a set of discoveries) through history.			
4. Examine the role science plays in everyday life.	Each of the courses 5 units are related to human health/disease (diabetes, heart disease, vaccinations, drugs of abuse, cancer). Within a unit, biological principles covered are linked to these broader, real-life issues:	lectures	Exams, quizzes, in-class polling questions
5. Identify key ethical issues in scientific research.	Explore the history of HeLA cells in cancer research	Lecture, in-class case study	In-class polling questions
6. Distinguish scientific information from pseudo-scientific information, evaluate the role of pseudo-science on public opinion, and assess the effect of society (or historical pressures) on discovery.	Explore the link between autism and childhood immunizations	Lecture, in-class case study.	In-class polling questions
7. Question specific interpretations of data and debate current scientific controversies	Explore the link between autism and childhood immunizations	lecture	In-class polling questions
8. Utilize the e-portfolio to compile work that demonstrates this learning.			Associated lab course (BIO129Lab)