BIOL 1333: Discovering Biology: Molecules, Cells, and Disease

Fall 2016

Instructor: Melissa Walsh
Office Number: Life Science 461
Office Telephone Number: 817-272-0107
Email Address: mjwalsh@uta.edu
Faculty Profile: https://www.uta.edu/profiles/melissa-walsh
Office Hours: M/W 11:30am-1pm
Section Information: BIOL 1333-01

Time and Place of Class Meetings: LS 124 M/W 10-10:50

Important Dates:

- First day of class: August 29th
- Labor Day holiday: September 5th
- First day of labs: September 12th
- Census date: September 12th. Drops/withdrawals after this must be completed by an academic advisor
- Last day to drop a class with a "W": November 2nd
- Last day of labs: December 1st
- Last day of class: December 7th
- Final Exam: Monday December 12th 8-10:30am

Description of Course Content: Scientific literacy is crucial for navigating health-related issues in today's society. In this lecture and lab course, non-science majors will learn about the molecules of life, the cell, energy and metabolism, cell division, genetics and inheritance and diseases, such as cancer and diabetes. This course will satisfy the laboratory science requirements for students in the Colleges of Liberal Arts and Business Administration, and in the School of Social Work. Formerly listed as BIOL 1433, credit will not be given for both.

Student Learning Outcomes:

This course satisfies the University of Texas at Arlington core curriculum requirement in life and physical sciences. The italicized student learning outcomes required of core courses below will be assessed for each student in the laboratory portion of the course. The writing assignment will be assessed to determine how a student has mastered critical thinking, communication, and empirical and quantitative skills. A teamwork assessment (peer evaluation) will be completed by each student in lab to determine how students work together in lab groups to achieve the student learning outcomes described below.

1. Understand crucial biological processes and structures that maintain life
2. Gain a familiarity with biological concepts related to issues of health, social and environmental concerns by investigating case studies in lecture
3. Learn the scientific process by designing and conducting experiments, collecting and analyzing data, and presenting results, in both written and oral formats
4. *Critical Thinking Skills: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;*

5. *Communication Skills: to include effective development, interpretation and expression of ideas through written, oral and visual communication*
6. *Empirical and Quantitative Skills***:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
7. *Teamwork***:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Required Textbooks and Other Course Materials

TEXTBOOK

- Shuster, Vigna, Tontonoz, Sinha. *Biology for a changing world with physiology.* 2nd edition ISBN: 9781464151132

MATERIALS

- **Laboratory Manual**: Walsh and Wostl. *BIOL 1333: Discovering Biology: Molecules, Cells, and Disease.*
    - Laboratory Manuals are available for purchase from Phi Sigma, the Biology Graduate Student Society. See Blackboard and your lab syllabus for detailed instructions about purchasing your manual.
- **Laptop (preferred) or smartphone is required for participation via Echo360**

SUPPLEMENTAL MATERIALS

- It is vital that you check Bb regularly for announcements and supplemental assignment materials.

Descriptions of major assignments and examinations:

Lecture exams (3) and comprehensive final

Exams will contain a variety of question types including multiple choice, T/F, short answer, diagram identifications. Students will take the three lecture exams individually and then during the following class meeting retake the same exam with their group. The group "do over" approach encourages students to discuss topics, enhances learning and retention of material, and reduces test anxiety. The individual effort will make up 75% of the exam grade and the group effort will make up 25%. Students who perform better on the individual portion will not be penalized. There will be no group component to the final exam. Students will not be permitted to take the group exam on their own.

In-class activities and assignments

This course is structured as an interactive and collaborative learning experience. During many class periods students will engage in group and/or individual assignments including concept maps, minute papers, and discussions of challenge questions. The purpose of these activities will be to deepen student understanding of important topics and concepts. These "brainstorming" assignments will also be used by the instructor to gage student understanding of concepts. Note that these are activities, not quizzes or tests. You must attend class in order to complete these assignments.

Preparing for Class

Participation is a vital part of your success in this course. Before you come to class you are required to read the chapter. Students will be expected to come prepared to discuss chapter content with their group and the instructor and to answer clicker questions embedded in the lecture. Students who are not prepared may not receive full participation credit. Bring your textbook, scrap paper, and your clicker to each class.

Attendance: At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section I have the following policies:

1. I will take attendance and it will count toward your final course grade.
2. Students who miss class, arrive late, or leave early, will receive a reduction in their attendance and participation grade for that day.
3. If you need to miss a class let me know ahead of time if possible and be prepared to provide documentation (such as a medical excuse in the form of a physician's note, death in the immediate family, illness of a family member for which you are the primary care provider). **No absence will be considered excused without appropriate documentation regardless of cause.** Conflicts with work will not be considered excused. Absences due to a planned trip will not be excused. Extreme circumstances will be considered case-by-case basis.
4. Students who are not present will not receive a grade for in class activities. You will be allowed to miss two in class activities without penalty or documented excuse. With an excused absence, missed in-class work will be exempted from your grade. There will not be an opportunity to make-up in class assignments.
5. Students who miss the group portion of a lecture exam will receive their individual grade as the final grade for the exam. A documented excuse does not change this policy. There is no make-up for the group exam.
6. In cases where a make-up exam is permitted, it must be taken within one week of the absence. It is the student's responsibility to schedule the make-up exam.

Grading: For grading purposes, the lecture comprises 2/3 of your grade while other 1/3 is your lab grade. Therefore, you can multiply your final lecture grade by 0.67 and your lab grade by 0.33 and add them together to get your complete class grade.

- You are not permitted to drop/withdraw from the lecture OR laboratory separately. Drops and withdrawals will be applied to both.
- Your lab TA will provide a syllabus with details on grading and assignments for the lab component of the course
- There will be no extra credit offered and low exam or assignment grades will not be dropped.
- Exam grades will not be curved.
- Your lecture grade will be determined as follows:

Participation/In-class Assignments – 5% Attendance – 5% Midterm exams (3 total) - 20% each, 60% total Comprehensive Final Exam - 30%

Make-up Exams: Make-up exams will be considered on a case-by-case basis and only with a documented absence. Students who miss an exam with a documented excuse may be permitted to take a make-up exam within one week of the absence. The format of this exam will be 4-5 essay questions.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 6 hours per week of their own time in course-related activities, including reading required materials, preparing for exams, etc. This is in addition to time spent on lab related work.

E-mail Communication Policy

I will make every effort to respond to your inquiry within a reasonable time, no longer than 24 hours. Be advised that I check email less frequently in the evening and on weekends. Emails should be polite, clear, and in sufficient detail that I can respond appropriately.

Before sending an email, ask yourself the following questions:

1. *Can I find this information in my syllabus or on Blackboard?* Check available resources BEFORE emailing.
2. *Was this information made available during a class I missed?* If so, it is your responsibility to ask a classmate.
3. *Do I need to discuss my grades?* University policy prohibits discussion of grades over email. Make an appointment or see me during office hours.
4. *Do I need help with course material or an assignment?* Email is NOT intended to take the place of meeting with me during office hours.

IMPORTANT UNIVERSITY POLICIES

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD).** Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364.
Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit* www.uta.edu/titleIX.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University.

Lab Safety Training: Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., through the following August) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located as you turn left out of the classroom. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

Course Schedule

NOTE: This schedule is tentative and may be adjusted according to student needs and progress as determined by the instructor. You will be given one week notice for all exams.

Monday 8/29: First day of class. We will discuss course objectives, learning outcomes, curriculum, expectations and format/design.

Unit 1: What is Life Made of? Chemistry, Cells, and Energy

Chapter 1: Process of Science
Chapter 2: Chemistry and Molecules of Life
Chapter 3: Cell Structure and Function
Chapter 4: Nutrition, Metabolism, Enzymes

Exam 1: September 26 (individual), September 28 (group)

Chapter 5: Energy and Photosynthesis
Chapter 6: Dietary Energy and Cellular Respiration

Unit 2: How Does Life Perpetuate? Cell Division and Inheritance

Chapter 7: DNA Structure and Replication
Chapter 8: Genes to Proteins

Exam 2: October 24 (individual), October 26 (group)

Chapter 9: Cell Division and Mitosis
Chapter 10: Mutations and Cancer
Chapter 11: Single Gene Inheritance
Chapter 12: Complex Inheritance

Exam 3: November 28 (individual), November 30 (group)

Chapter 13: Stem Cells and Differentiation
Course Review: December 7 (last day of classes)

Comprehensive Final Exam: Monday, December 12 8-10:30am