Biology is the study of life and living organisms, interacting factors as different in scale as molecules and forests. Influence flows across these levels of scale, and this semester we will dive into the world of molecules and cells and study how processes at the microscopic level influence the function of whole animals and plants - including ourselves - as well as how what happens in the environment influences the function of cells and molecules. To better understand the links from one level to another, we will learn about genetics, cell structure and function, and the evolutionary processes that have forged these links over billions of years. Most importantly, we will become familiar with the manner in which scientific knowledge is gained and refined, the scientific process. We will engage in reading literature, debating meanings and interpretations, and designing semi-independent research projects in the laboratory.

I reserve the right to alter this syllabus as needed during the course.

Course goals:
By the end of this course, students should understand
1. The process of science as a way of understanding our world
2. The role of natural selection in shaping how organisms capture and utilize resources
3. How genetic information is structured, transmitted, and expressed
4. How cells receive, amplify, and respond to signals from their environment

Learning outcomes:
By the end of this course, students will be able to
1. Understand how scientific knowledge is created and tested by evidence
2. Dissect texts from the popular media to evaluate the quality of science presented
3. Communicate scientific processes and outcomes to a "general audience"

General Course Expectations

A. Contributions: Prepared participation in all classes and activities is essential to learning new material. I expect all students to read and think critically about assigned materials, and listen carefully and respond appropriately to fellow classmates in the discussions and other collaborative work. Participation is a significant portion of your grade.

B. Work-load expectations: I expect all students to spend at least an hour each evening during the on-campus portion of the class working on materials related to this course, including readings and viewing on-line powerpoint lectures. You are expected to
attend all meetings. During the on-line portion of the course, I expect all students to spend on average 6 hours/week working on material and preparing final projects.

C. Face-to-face weekly meetings. The weekly meetings are not going to be lectures. I expect all students to have covered the content presented in the text and powerpoints, and to arrive prepared to ask questions. Once we are certain that everyone is comfortable with the content, we will turn our attention to the discussion topic and problems.

C. Religious Observance:
The official policy for excused absences for religious holidays: Students have the right to practice the religion of their choice. Each semester students should submit in writing to their instructors by the end of the second full week of classes their documented religious holiday schedule for the semester. Faculty must permit students who miss work for the purpose of religious observance to make up this work.

D. Academic Honesty and Professionalism:
All students are required to be familiar with and adhere to the “Academic Honesty Policy Procedures” delineated in the following website: http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf. Academic dishonesty includes:
- Acquiring from other persons or from commercial organizations, or other sources, or utilizing other unauthorized assistance, and submitting, unattributed and as one's own work, homework assignments, term papers, research reports, laboratory reports, or comparable documents prepared in whole or in part by others than oneself.
- Academic dishonesty also includes:
  - Presenting the same or substantially the same written work term paper, research report, essay or the like - as part of the requirements of more than one course, without the express prior written permission of the instructors involved.

E. Accommodations:
Accommodations will be provided to eligible students with disabilities. Please obtain an accommodation letter from the ACCESS office and contact me early in the course to discuss what accommodations will be necessary. If you are unfamiliar with ACCESS, visit their website at http://www.uvm.edu/access to learn more about the services they provide. ACCESS: A-170 Living Learning Center, University of Vermont, Burlington, VT 05405. PH: 802-656-7753, TTY: call 711 (relay), Fax: 802-656-0739, Email: access@uvm.edu, Instant Messenger: UVMAccess. General office hours: 8:30am – 4:30pm Monday through Friday. Call to make an appointment.
Grading Criteria
My goal is to help you not only acquire factual knowledge about biology, but to become comfortable engaging in critical discussion of science and media reports about science. To help you overcome any fears, I have designed the class to allow you many opportunities to work individually and with your classmates. Your final grade will be calculated based upon five components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Journals</td>
<td>20%</td>
</tr>
<tr>
<td>Participation</td>
<td>20%</td>
</tr>
<tr>
<td>Projects</td>
<td>30%</td>
</tr>
<tr>
<td>Short exams (4)</td>
<td>30%</td>
</tr>
</tbody>
</table>

**Reading:** Because we are focusing our face-to-face time on processes and problem solving, everyone must come to class having read the assignments and viewed the powerpoint lectures. I will evaluate this by using **content question sets** that you will hand in each evening via Blackboard Quizzes.

**Journals:** Scientific reasoning underlies all good scientific writing, and to provide practice and regular feedback every student will do a weekly short writing exercise. Each week, you will write a brief paper (journal entry), which only I can see. These will be the foundation for our discussions at our meetings.

**Participation:** In class: You are expected to come to class prepared to thoughtfully and logically respond to the discussion question (journal question) and to your classmates' ideas.

On-line: The best way to become comfortable with new skills is to practice. The course web page will have threaded discussions for each topic (two/week during the first two weeks, one/week during the last two weeks) that you will be required to participate in, through one unique contribution and two comments for each topic. During the on-line portion of the course, I will allow you to start unique discussion topics so long as they are related to the course.

**Projects:** Group project: I will break the class into groups of four to five students, and you will work together to create a wiki describing the development of scientific thought and knowledge in a topic related to course content. You are required to discuss the topic together (I will create a group discussion board for this), and present me with your topic and an outline of the content of the wiki by the end of the on-campus phase of the course. The structure of the wiki and the content are of your design, but must be appropriate for the content you have chosen. The rubric for grading the group project will be posted during the first week of class.

Final project: Using a format of your choosing (web page(s), mini documentary, written blog or term paper), describe a scientific process or problem that (1) is often misunderstood in the general public, (2) has a consensus opinion at least in basic principles among scientists, and (3) is important for society. After providing evidence for each of these three points, your project should then present a comprehensible explanation of the process. Be prepared to share your final product with the class, and to watch/read and comment upon at least three of the projects from classmates.

**Tests:** I have designed on-line tests that you are required to take every week. These are to help you evaluate your understanding of the material. You are allowed to take
every one up to three times, and only your top score will count towards your final grade. The exams draw from a large question database, so you will see some new questions every time you attempt it. I will maintain a weekly on-line discussion related to the exams. You can query each other (and me) about the rationale behind solutions. Also, I sometimes make mistakes. The discussion board is an excellent place to notify me of an error in a question. Always identify the question by content (not the number) because the numbering changes every time you take the quiz. The exams will be cumulative: each one will include some questions from the prior exam(s) databases.

Technical Help Resources
Technical help can be obtained on-line Blackboard help

For Blackboard telephone support, call
UVM Computing Helpline:
(802) 656-2604
helpline@uvm.edu
Academic hours: Mon - Fri, ……Closed on UVM Holidays
test taking tips