

Biology 1009 Biological Reasoning (3.0 credits)

Section: 001

BioLife Building Room 332 - **Fall 2017: Mon, Wed, Fri 1.00-1.50pm**

INSTRUCTOR: **Dr. Cinzia Sevigani** – Office: BL248 - Email: csevi@temple.edu

Readings: There is **no assigned textbook** but you should have access to a college level biology text such as Campbell Biology 9th/10th Edition ISBN -10: **0321558235** or Biological Science 4th Edition by Scott Freeman ISBN-10: **0321598202**. Introductory Biology 1111 and 2112 use the Campbell textbook.

I will give you **assigned readings** either in class or posted on Blackboard. All readings and class exercises and readings should be placed in a **Notebook** so you can review them for the midterm exams. Some **readings** will be taken from **scientific literature and others will be from news articles** such as the New York Times or from a biology textbook.

The **notebook will become your textbook and you will bring it to class each day** (see details below).

Here is a **link to a video with information about the class**

<https://www.youtube.com/watch?v=Oulh0Bflsdk>.

Course Goal: The goal of the course is to **increase your success in learning biology** and to provide **insight and inspiration by learning about some of the exciting ideas in contemporary biology**. Biology is a complex subject requiring quantitative reasoning (to understand graphs, data tables, etc.) and the ability to acquire and link concepts with data. Memorization is important but not enough.

Part I: General tools for success in biology. We will develop facility with the following tools:

- **Concept mapping** to illustrate how details are linked to and support concepts and ideas. Concept map link: <http://www.schrockguide.net/concept-mapping.html>
- **Note taking** for success in STEM courses (Science, Technology, Engineering and Math)
- **Communication** through oral presentations and drawing to illustrate ideas and understanding
- **Cartooning** to convey experimental details of a protocol

- **Grant proposal writing**, to experience how science is done, and peer review to understand how scientific proposals are evaluated and funded.

Part II: Linking biological concepts and content.

- **Close reading**—practice reading and analyzing passages from biology texts. This skill is needed for Bio 1111 and for many upper-level biology courses. You will practice linking relationships, identifying core concepts and supporting concepts with experimental details.
- **Diagram analysis**—much of modern biology is complicated especially on a molecular level. Learning how to read and understand a diagram is key to reading your textbook. We will practice on examples from the Campbell textbook.
- **Reading scientific articles** to appreciate how new knowledge is communicated within the scientific community. We will read and analyze results from a scientific article on a topic chosen by the class. Topics to consider might include:
 - evolution of homo species through genomic and fossil data,
 - epigenetics (how your environment can influence gene expression in development and disease),
 - the immunology of the brain considering conditions like chronic traumatic encephalopathy or Alzheimer's disease.

Attendance: This class is **interactive; each student will make contributions** and the quality of our **discussions** will depend on input from everyone. **You are required to attend class and you have only one unexcused absence.**

An EXCUSED absence requires an official note from your physician or college advisor. Unexcused absences after the first one will cost you 25 points each. If you are experiencing particular personal challenges, talk with me. **The attendance** rules are in place to help each student benefit from the class to take advantage of the investment in your education.

Contact information and office hours: You may meet with me **before or after** class in the classroom or in my office of the biology building. Alternatively, **you may set up an appointment by emailing me:** cinzia.sevignani@temple.edu.

Course grading: 500 points Total

150 points Midterm exams: 3 exams with points indicated. The exams will test your biological reasoning skills and the exercises will be similar to in-class assignments.

- **Exam 1 Wed Sept 20th 30 points**
- **Exam 2 Wed Oct 18th 50 points**
- **Exam 3 Fri Nov 17th 70 points**

- 100 points **Final Exam Friday Dec 15th, 10:30-12:30 in regular classroom**
- 50 points **Class participation**
- 200 points **Notebook with in-class assignments and homework**

Notebooks: You need a bound notebook (**lightweight flexible binder**) for class and you must bring it to each class. The notebook will contain your notes and in class work during the semester as well as your re-noting (see below). Bring the notebook to class **on MON 8/28**. You should keep **handouts and reading materials in the notebook which will contain material for your exam preparation.**

Bound notebook assessment: Each Friday, I will collect ~1/2 of the **Notebooks for grading**. I will return them on Mon in class. **Grading** will follow the rubric here.

Notebook Grading Rubric:

Grade	Criteria
A (91-100%)	<ul style="list-style-type: none"> • All assigned exercises from in-class and homework are included • Each assignment is completed in full following the instructions for the assignment • Evidence of thought-processing and care with the assignments
B (81-90%)	<ul style="list-style-type: none"> • All assigned exercises from in-class and homework are included • Each assignment is completed in full following the instructions for the assignment • Rushed job with the assignments; little evidence of thought-processing and care with the assignments
C (71-80%)	<ul style="list-style-type: none"> • Missing exercises from assigned exercises and homework • Incomplete assignments with no evidence of high-level thinking
D (61-70%)	<ul style="list-style-type: none"> • Missing exercises • Minimal value-added in presentation of data and exercise analysis • Little evidence of engagement with the material.

Optional to add points only IF your notebook grade is lower than you find acceptable. Science class re-notes. The goal of this exercise is to provide you with a powerful tool to connect information in your classes that prepare you for understanding the material. Each submission has 3 components. If you are taking biology, you will make notes on one of one of the classes for that week. If you are not taking biology, take notes on your chemistry class. Use the same course throughout the semester. Indicate which course you are annotating, the class date and the name of the Professor.

- Part 1: **Summarize** the main point of the class in 30 words or less.
- **Rewrite** the class notes **using drawings**. I will grade the notes based on the clarity of your notes, the comprehension and coherence. The drawings will link details from the lecture to the concepts covered.
- **Select one detail** from the class either that interested you in particular or that you did not understand. **Describe** the point in **150 words or less** and relate the detail to the main point.
- **Grant proposal: Extra credit 25 points for top proposal.** The grant proposal development and review process will be explained in class.

Bloom's taxonomy of learning: You should Google **Bloom's taxonomy of learning** to develop an appreciation of why the taxonomy is important. We will discuss Bloom's taxonomy throughout the semester and you will find it very helpful in analyzing your own learning style. For now, you can see the relationship between **the Bloom's taxonomy and the steps in CREATE**.



Feedback: Assessment will be a central tool in the course. During the first few class periods, I will ask you to **complete a pre-course assessment so we** (both you and I) can assess your strengths and weaknesses in terms of reading, quantitative reasoning and analysis. I will encourage you to **analyze your own learning**, not just in this class but in all your classes especially in the sciences. Feel free to give me **feedback** by talking with me personally or by sending email. I will need your honest feedback to improve the course and help students develop strong academic skills with regard to learning biology.

Attention: Cell phones or other electronic devices must be off during class.

You should not put your phone on vibrate—leave it on silent. Acceptance into this class implies a social contract between us: my job as the learning coach is to facilitate your academic success in biology and your job is to achieve as much as you can during the semester. In exceptional circumstances, talk with me about a particular concern. In that case, we can leave your phone on the front table.

Honesty and Civility: You must abide by Temple's Code of Conduct (see <http://www.temple.edu/assistance/udc/coc.htm>), which prohibits: **1.** Academic dishonesty and impropriety, including plagiarism and academic cheating. **2.** Interfering or attempting to interfere with or disrupting the conduct of classes or any other normal or regular activities of the University.”

Do not try to cheat; avoid all appearance of cheating. We have a "zero tolerance" policy. The Temple Honor code, which you will sign before you take all of the exams in the course, provides disciplinary action for cheating which may include expulsion from the University.

Disabilities: Any student who needs accommodation because of a disability should contact us privately to discuss the specific situation as soon as possible. The Office of Disability Resources and Services (215-204-1280) in Ritter Annex 100 can coordinate reasonable accommodations for students with documented disabilities. Students who are eligible for extra time on exams need to talk with me in advance of the exam to make arrangements for extended time.