# Bridges Course information

Upon acceptance into the Bridges to the Baccalaureate program students will enroll in a one credit course—Directed Reading: Biology

A general syllabus is below.

#### Towson University Biological Sciences DIRECTED READING: BIOLOGY Spring 20--

Course Number and Section:	BIOL 481	
Course Title:	Using Information Effectively in Science	
Number of Units:	1	
Prerequisites:	Acceptance into the Bridges' Program	
Lecture:	2.5 hrs/wk	

Course Text(s)/Manual(s) Provided to Students:

On Being a Scientist A Guide to Responsible Conduct in Research Third Edition National Academy of Sciences, National Academy of Engineering (US) and Institute of Medicine (US) Committee on Science, Engineering, and Public Policy. Washington (DC): <u>National Academies</u> <u>Press (US)</u>; 2009. ISBN-13: 978-0-309-11970-2ISBN-10: 0-309-11970-7

The Immortal Life of Henrietta Lacks by Rebecca Skloot ISBN-10:1400052181 ISBN-13:9781400052189

#### Course Description:

Introduction to information processing, problem solving techniques, critical thinking skills, communication skills, team building and professional ethics in a scientific environment. Emphasis will be placed on the use of information technology and primary research literature to retrieve, filter, process, and evaluate data and information. Required background:

In order to take this class, you will have applied and been selected for participation in the Towson NIH Bridges to Baccalaureate Program. Successful completion of this course allows you to participate in the summer internship at Towson.

Course Objectives:

Scientific and research ethics, including plagiarism and practical examples of research ethical issues. Information processing, critical thinking and problem solving. Using information

technology and primary research literature to retrieve, filter, process, and evaluate data and information.

Topics include:

- What is the importance of scientific and research ethics and how can they applied? We will learn about ethics and explore ethical questions using scenarios to determine the most ethical path. We will consider bioethical issues that are current concerns in science.
- 2) How to read a scientific paper? We will learn about the different types of articles (research, review, etc) and techniques to effectively read a research article.
- 3) How to interpret graphical data presented in research articles? Data is often presented graphically or represented in models that can be difficult to understand at first glance. We will analyze data presented in various ways (bar graphs, pie charts, dot plots, etc.).
- 4) What makes an effective scientific presentation? The semester will culminate with student presentations of a research article. Students will select an article and get approval by their assigned mentors. Students will provide background, provide details on methodology, interpret the data and explain the conclusions from a research article.

Upon completion of this course, students should be able to:

- 1. Describe scientific and research ethics.
- 2. Discuss current topics in bioethics.
- 3. Explain plagiarism.
- 4. Recognize various types of graphical data.
- 5. Identify the components of a research paper.
- 6. Explain how to read a paper.
- 7. Interpret data presented in multiple ways (graphically, tabular, modeled, etc).
- 8. Demonstrate the ability to read and present findings from the scientific literature.

# Disabilities:

If you are a qualified student with a disability seeking accommodations under the Americans with Disabilities Act, you are required to self-identify with Disability Student Services in the Administration Building. Accommodations cannot be provided without a letter from Disability Services. This should be done *no later than* the first week of class. Cheating and Plagiarism:

Any form of cheating or plagiarism on any exam or assignment is prohibited by the Towson University Code of Conduct.

(https://inside.towson.edu/generalcampus/tupolicies/documents/03-01.00 Student Academic Integrity Policy.doc).

Cheating is: Using unauthorized material to complete a test, quiz, examination, laboratory report, or other assignment. Cheating includes, but is not limited to, copying from other students (including your lab partner[s]), relying upon aids or notes during a test, quiz or exam, consulting outside sources without the instructor's permission, or giving unauthorized assistance to other students.

Plagiarism is: Representing the words, ideas, research, or works of another as one's own. Plagiarism can involve submitting work prepared entirely or in part by another person or commercial service or borrowing material as direct quotation, partial quotation, or paraphrase from published or unpublished sources without proper acknowledgement. Be careful of copy – paste from online sources, it is an easy way to plagiarize.

Unauthorized assistance is: Preparing an assignment with the help of another student or allowing another person, such as a tutor, to alter or revise an assignment beyond the scope of collaboration the instructor has defined.

Cheating will result in a zero for the assignment, a permanent note on your record via Judicial Affairs, *and* a failing grade for the course, at the discretion of the instructor. Any plagiarism on term papers will result in a zero for the assignment.

## Cell Phones and Laptops:

All of these should be turned off when attending lecture. If any of these devices is audible or you are observed text messaging during class, the batteries will be confiscated, to be returned to their owner in my lab or office at 5PM that day. A first violation will result in a warning; each subsequent violation will result in a 10 point deduction from your final grade. Anticipated emergency calls are exempt but inform me before class and relocate near the door so as to disturb the class minimally.

## Attendance/tardiness:

**Lecture:** Your attendance and active participation is a major component of the course. You must contact your instructor if you are going to miss a class and should know that without a valid excuse, your grade will be negatively impacted if you are late or absent. **Late work:** No late work is accepted.

**Missed presentations:** The dates for presentations and other assignments are listed in the syllabus and will be held on those dates. Please do not schedule appointments or commit to other obligations during these times. **Presentations cannot be made up. The final presentation cannot be made up.** 

In the event that the university is closed, due to bad weather or some other major problem, the scheduled work will be given during the first lecture class that we meet after the university reopens.

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Week	ΤΟΡΙϹ	
1/31	Introductions and expectations Ethics timeline	
2/7	On Being A Scientist - Discussion of ethical dilemmas presented	

#### TENTATIVE LECTURE SCHEDULE – subject to change

2/14	On Being A Scientist part 2 – Continued discussions of ethical dilemmas
2/21	On Being A Scientist part 3 – Final discussions of ethical dilemmas, if needed The Immortal Life of Henrietta Lacks – Introduction
2/28	Finish Henrietta Lacks discussion Watch 'Never Let Me Go'
3/7	Case study: Golden Rice -An Intimate Debate Case Introduction to PubMed How to read a scientific paper
3/14	Case Study: Bad Blood A Case Study of the Tuskegee Syphilis Project Practice and find article for mini presentation
3/21	Mini-presentations – Students will each give a five minute talk about the article they found using the reading matrix Case Study: Is That Pill You're Taking Safe? A Case Study About the Drug Development Process
3/28	Interpreting graphical data Case study: Do Corridors Have Value in Conservation? Retrieve article for mini-presentation
4/4	Mini presentations and data analysis discussion
4/11	Spring Break – No Class
4/18	Case study: The Dilution Effect How Biodiversity Can Affect Human Health
4/25	Case study: Butterflies in the Stomach Is Genetically Modified Corn Harming Monarch Butterflies?
5/2	Presentation practice and critiques by classmates
5/9	Final Presentations
5/16	Finish presentations, if needed