# BIO 15S: Biology in the News

**Summer 2026**
**STLC Rm 115**
**Tu/Th, 1:30 – 3:30 PM**

## *Teaching Team*

Instructor: Dr. David Armenta | darmenta@stanford.edu | Office hours Wednesdays 1:00 – 2:00 PM, STLC213.

Teaching Assistant: TBD

## *Continuing the conversation*

Please come see me at one of my regularly scheduled times (or make an appointment) to chat about the class, ask questions, or just say hi! Normal “office hours” (as they are called in college) are “open door,” meaning that you can join a conversation with other students, too. If you want to speak with me privately, just let me know in advance and we can make an appointment. Office hours are in STLC213.

## *Course description*

Biology is increasingly making its way into various aspects of our lives and will continue to do so throughout the 21st century. Thus, understanding the concepts underlying the headlines and their implications is very important and can help us engage meaningfully with the changing world around us. This course will begin by teaching skills like data interpretation and critical evaluation of logical arguments. With that foundation in place, we will then use specific, real-world events such as the GMO foods and pest control, the development of the COVID-19 vaccines, and the fight against MRSA to explore the concepts in biology that underlie them (e.g. genetic modification, mRNA and vaccine development, and antimicrobial resistance).

Each class will consist of a mini-lecture and in-class learning activities. Students will be divided into groups and each group will be assigned a “Biology In The News” topic. The class will build towards a group Student-Led Lesson (SLL) and final group project consisting of a podcast-style audio report on the biological processes underlying their Biology In The News Topic. This course requires no prior background knowledge in biology and is intended for anyone interested in better understanding recent developments in the world of biology. By taking this course, students will learn basic concepts in biology and develop the skills necessary to critically evaluate arguments and the scientific data underlying those arguments.

## *Learning goals*

In this course, students will:

- Learn to interpret data and critically evaluate logical and scientific arguments
- Develop an understanding for the concepts that underlie recent developments in biology that become major headlines
- Synthesize knowledge via the creation of a group audio report project

## *Course expectations and attendance policy*

1. This course is designed to help you understand the concepts in biology that underlie events in the news.
2. For this to be successful, we expect you to **come to class prepared**. This means reading all the materials, watching the videos, and completing the written assignments BEFORE class. It also means **participating** in class. There are many ways to participate actively in class, and I ask that you please refrain from using electronics in class for purposes other than those directly relevant to the current situation in class. It is distracting to you and your peers to use electronics for other purposes during class, and it is disrespectful to your peers.
3. This goal is only possible **if you are in attendance.** We expect you to attend every section, unless you are unwell. However, we will allow a 2 absence "pass"—no questions asked—which can be made up with alternative work (usually writing/speaking). Arriving > 5 minutes late will result in you losing your participation for the day and arriving very late for the class (more than 10 minutes) will count as an absence.
4. A note on word counts: Usually, assignments will have a word count–either a single number (e.g. 500 words), or a range (e.g. 750 - 1,000 words). Writing within a word count is an important skill to develop (and writing concisely and efficiently to fit within the word count while still meeting the prompt requirements is especially important). Thus, I ask that you please adhere to the word counts. If a single number is given, please stick to +/- 10% of that number (e.g. if we ask for 500 words, you should write between 450 and 550); if a range is given, please stay within the range.
5. Participation in the creation of the final project is required for successful completion of this course.

## *Course structure*

1. Some of the reading assignments can be accessed through this syllabus, either as links or PDFs.
2. Announcements will be made through the Canvas site. Homework should be submitted via Canvas Assignments.

## *Late submissions*

It is imperative to complete and submit assignments **on time**. Barring extenuating circumstances, late assignments will not be accepted for credit.

## *Required texts*

Many course preparation materials will be available through this syllabus. However, readings from ***Campbell Biology: Twelfth Edition*** **(Urry et al, ISBN: 9780135188743)** will also be assigned.

## *Assignments*

Each week, students will be assigned a short assignment based on the important concepts of the week.

During Week 5, groups will have the opportunity to teach their classmates about their assigned Biology in the News topic in a ~25 minute SLL (Student-Led Lesson). These SLLs will be workshopped during the SLL tutorials which will occur **during class time** during Week 4 (giving a week to edit the SLL). Students will also be expected to create a podcast as a group for the final project. See information on Canvas for more information.

## *Grading*

| Grading Item Category | Total Points | Category Description |
|---|---|---|
| Attendance & Participation | **16** | Attend and participate in class (1 pt per session) |
| Weekly Assignments | **24** | Complete and submit 8 Weekly Assignments to Canvas (3 pts each) |
| Tutorial | **8** | Attendance and participation/preparation for 2 required tutorials: SLL tutorial and peer review script feedback (4 pts each) |
| Student-Led Lesson (SLL) | **24** | 1. Lesson Plan (6 pts)<br>2. Individual Discussion (6 pts)<br>3. Team Discussion (6 pts)<br>4. Reflection (6 pts) |

| | | |
|---|---|---|
| Final Project | **28** | 1. Outline (6 pts)<br>2. Script Version 1 (7 pts)<br>3. Final Audio (8 pts)<br>4. Reflection (7 pts) |
| **Total** | **100** | |

Final grades will be assigned according to the below scale.

| | |
|---|---|
| A+ | 98–100 points |
| A | 94–97 points |
| A− | 90–93 points |
| B+ | 87–89 points |
| B | 83–86 points |
| B− | 80–82 points |
| C+ | 77–79 points |
| C | 73–76 points |
| C− | 70–72 points |
| D+ | 67–69 points |
| D | 63–66 points |
| D− | 60–62 points |
| F | 0–59 points |

## *The Honor Code*

The Stanford Honor Code was composed by students in 1921 (updated in 2023), and expresses the university's expectations for academic integrity. Please read it here. Together with the Fundamental Standard, these documents lay out the rights and responsibilities of Stanford students, in particular with regard to their academic behavior. Some key points:

- Students cannot submit the same written work for different classes.
- Plagiarism (copying passages from other people's work without attribution) is forbidden.
- Having someone else complete an assignment for you is forbidden.
- The use of or consultation with generative AI will be treated analogously to assistance from another person. If you do choose to use generative AI in the completion of an assignment, please write us a note on the submission letting us know how you used generative AI.

## *Classroom Behavior*

I consider the classroom to be a place where you will be treated with respect, and I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, abilities, and other visible

and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming, and inclusive environment for every other member of the class.

Please attend to all university policy and classroom etiquette procedures. Those not heeding the policies will be asked to leave the classroom immediately to maintain the learning environment. Students failing to respect classroom norms and behavior may suffer a reduction in their final class grade through a withdrawal of attendance and participation points.

Stanford recognizes the inherent dignity of all individuals and promotes respect for all people. Hostility toward other students will not be tolerated. Free speech does not permit harassment, intimidation, threats, or other behaviors that impede the learning of other students or the work of faculty and staff. Please refer to the Stanford Policies and Guidance.

## *Preferred Pronouns*

We will gladly honor your request to address you by your chosen name and/or gender pronouns. Please advise us of this preference early in the quarter so that I may make appropriate notes on my records.

## *Access and Accommodations*

Stanford is committed to providing equal educational opportunities for disabled students. Disabled students are a valued and essential part of the Stanford community. We welcome you to our class.

If you experience disability, please register with the Office of Accessible Education (OAE). Professional staff will evaluate your needs, support appropriate and reasonable accommodations, and prepare an Academic Accommodation Letter for faculty. To get started, or to re-initiate services, please visit oae.stanford.edu.

If you already have an Academic Accommodation Letter, we invite you to share your letter with us. Academic Accommodation Letters should be shared at the earliest possible opportunity so we may partner with you and OAE to identify any barriers to access and inclusion that might be encountered in your experience of this course.

Students who are immunocompromised should register with the OAE as soon as possible.

Student athletes who anticipate challenges in being able to participate in class or submit assignments on time should email us as soon as possible about available alternatives or allowances.

## *Current Circumstances*

We are each starting this class in unique circumstances and may be facing a variety of uncertainties, responsibilities, and emotions. We appreciate your participation in our course, and we will do everything we can to support you. There are also campus resources, such as accommodations, the Summer Academic Resources Center, the Vaden Health Center, psychological counseling, and confidential support, for broader needs you might have. If there are additional ways we can support you in the course, please feel encouraged to reach out to us. Without requesting or expecting details of your situation, we will do everything we can to ensure your course learning is productive and enjoyable.

## *Course Readings*

**Subject to change–please heed this live version instead of a downloaded copy**

**Week 1: Interpreting scientific data and forming and evaluating logical arguments**

- *"Understanding Science 101: How Science Works"*, Understanding Science
  - Read through entire module, from "The *real* process of science" to "Summing up the process"
- "Evaluating Scientific Claims". Janet Stemwedel
- "Ten simple rules for reading a scientific paper". Carey, Steiner, and Petri

**Week 2: The Cell**

- "Introduction to Cells: The Grand Cell Tour", Amoeba Sisters
- Skim: Campbell Biology, Chapter 6: A Tour of the Cell

**Week 3: Central Dogma: How information becomes life**

- "Animation: The Central Dogma", Nature Video
- Campbell Biology, Chapter 16
- Campbell Biology, Chapter 17, Concepts 17.1, 17.2, 17.4.

**Week 4: Central Dogma expanded: gene expression and cell signalling**

- Campbell Biology, Chapter 17, Concepts 17.3 & 17.5
- Campbell Biology, Chapter 18, Concept 18.2
- Campbell Biology, Chapter 11, Concept 11.1 - 11.4

**Week 5: Biology in the News**

- Readings TBD

***Final Project Outline due Sunday at 11:59 PM***

**Week 6: Disrupting protein function: drugs, antibodies, and mutations**

- Campbell Biology, Chapter 5, Concepts 5.4 and 5.6
- "How CRISPR lets you edit DNA", Andrea M. Henle

- Campbell Biology, Chapter 43, Concepts 43.2 and 43.3.

***Final Project Draft Script due Sunday at 11:59 PM***

**Week 7: Mutations and evolution: Perturbation and adaptation**

- Campbell Biology, Chapter 17, Concept 17.5
- Campbell Biology, Chapter 21, Concept 21.5
- Campbell Biology, Chapter 22

***Final Project Audio due Sunday at 11:59 PM***

**Week 8: Podcast screening and recap**

- No assigned readings

***Final Project Reflection due Wednesday at 11:59 PM***