

Biology of Plagues: Past and Present

BILD 30

Summer Session I 2023

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Office Hours: Wednesdays @1 PM, York Hall, 300A

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Welcome to BILD 30!

This class is designed to give you a foundational understanding of microbiology, and the role that microorganisms play in human disease. Moreover, I hope to provide you with an appreciation of the role that humans play in pandemics. This class is only open to non-biology majors, and it is my desire that you will also see the connection between your own fields and the plagues of past and present.

Learning Objectives

- 1) Understand basic principles of general biology, microbiology, and immunology that are needed to understand pandemics/epidemics.
- 2) Identify social and biological factors that enable the prevalence, transmission, prevention, and treatment of infectious diseases.
- 3) Appreciate the diversity of microbial life and pandemics they cause.
- 4) Acknowledge the contributions of hard-working individuals to the control/obliteration of various pandemics.
- 5) Appreciate the geographical distribution of ongoing pandemics.
- 6) Defend the role of the scientific process in curbing pandemics.
- 7) Illustrate the impact of society, wealth, and politics on pandemics and vice versa.
- 8) Evaluate current public health systems and devise alternative methods to combat current pandemics.
- 9) Appreciate how cool and essential microbiology and global health are!

Course Website

We will be using [Canvas](#) in this class. All course materials and assignments will be posted here, and you will also submit them here.

If you are taking this class through UCSD Extension, it is imperative that you email the Extension Office to get access to Canvas ASAP.

Zoom Recordings

This class is scheduled to be held in person. However, I understand that things come up. I will try to record all lectures on Zoom and post them on Canvas after.

Lectures and attendance

All lectures will be held on **Mondays** and **Wednesdays** from **2 PM - 4:50 PM** in **York Hall 300A**. Because of the small size of this class, **attendance is required!** This will give you the opportunity to ask questions, and for the immersive experience of active learning (which has been proven to enhance student learning and information retention). I understand that things come up, so please just email me if you need to miss a class, which is okay! **You can miss 2 classes and still get full attendance credit!**

Textbook

In this class we will use *Get Well Soon: History's Worst Plagues and the Heroes Who Fought Them* by Jennifer Wright (2017). To prepare for lectures indicated on the class schedules, you will be asked to read a chapter of *Get Well Soon*. For each of the plagues we study in this class (except for those caused by mosquito-borne viruses), there is a chapter in the textbook.

There are two chapters that you are not required to read: "Lobotomies" and "The Dancing Plague" (but I encourage you to read them in your free time after the class because they're amazing!).

Films, Short Videos and Podcasts

Many films on infectious disease can be found on Canvas but they are not required for you to watch. However, you will be required to watch one film that you will write a paper on. You may choose any of the films listed on Canvas. Instructions will be posted on Canvas.

There will be times when I recommend listening to an episode of the podcast *This Podcast will kill you*. This is **not mandatory**, but this podcast is amazing and does a great job of explaining the history of several plagues that we will discuss in class. You can also get **extra credit** by picking out something mentioned in the podcast that was not highlighted in class (See **Extra Credit**).

Final Exam

The final exam will be on Friday, **August 5th, 2023 3-6pm**.

For each exam, you are required to bring your Student ID - it will be required for you to submit your exams.

The final exam will be **cumulative**.

Missed Exams

Alternate exams will **only** be scheduled in the case of an emergency. Please check your schedule to ensure that you have no clashes. You are responsible for clearing the absence from the exam with me before the exam date (unless it is an *extreme emergency that can be documented* in which case I must be notified within 24 hours).

Exam Review Sessions

An Exam Review Session will be held by me; it will take place before the final, on Monday, July 31, 2023.

Course Grade

Your grade in this course will be weighted. It is worth noting that each exam will be graded on a curve (the final grade will not be curved, just the exam scores)

Category	Percentage of final grade
Attendance (100 points)	10%
Weekly Homework (400 points)	40%
Paper on film (250 points)	25%
Final Exam (250 points)	25%
Total # of points	1000 points

How can I do well in this class?

- 1. Read the chapters before coming to class.** This requires you to read the schedule ahead of time. It is scientifically proven that information retention from lectures is enhanced by taking the time to read relevant material before class (and after too!).
- 2. Take intentional notes.** You are not required to know all the material that is found in the *Get Well Soon* book. It will be helpful for you to take notes and review them before coming to class, although the content will be repeated in class. That way, you can focus more on the discussion and reduce your note-taking then.
 - The name of the organism that causes the disease
 - The type of organism/microbial entity
 - The context and history of the disease
 - Potential treatments for the disease
 - The roles played by specific individuals in disease spreading or elimination
 - Any symptoms that are a hallmark of this disease (will be discussed in lecture)

You will also be encouraged to take notes during class. Regarding lecture notes, I would like to encourage you to take notes on any biological mechanisms and especially to note things that are not explained in detail in the slides. There is only so much that the PowerPoint can explain, and the rest of it will be verbalized by me.

- 3. Attend lectures.** Even better than reading the material ahead of time is that the information will be reiterated in class. There is a lot of material that will be covered in class that is not covered in the textbook. In order to do well in this class, you will have to read the text *and* attend lectures.
- 4. Review (or rewrite) lecture notes within 24 hours.** While it is helpful to read ahead, pay attention during lectures and take notes, the final piece to this puzzle is to reread the

notes within 24 hours. There is also extensive research showing the role of note review in the retention of lecture material in the long term.

5. **Formulate questions from the learning objectives and practice answering them.** The learning objectives are what I (and all course instructors) use to devise the lecture material and the examinations. They are the things I want you all to know by the time the course is over! It will be in your best interest to devise questions for yourself to practice based on the learning objectives of the class, and of each lecture.
6. **Collaborate with your classmates.** You're all in this together! Please know that you are not alone as you endure the challenges associated with taking a new class. You guys can help each other. Moreover, there is scientific evidence that collaboration can lead to long-term retention of information.
7. **Come to office hours.** I am here as your instructor to ensure that you can succeed in this class. Please communicate with me if there is a challenging topic, and we can go over it together during office hours.
8. **Give me feedback when asked!** This is not my class - it is ours. I want to ensure that you all have the best learning experience that you can have. I was once a student too, and I still am, so I understand what it is like to learn new material in a new context. As part of your minute paper, you have the option to write if something in the class is not working (e.g. Do you feel that the workload is overwhelming? Would you like to improve the inclusiveness of the class?). I will literally take any feedback!

Extra credit

I am a proponent of inclusive learning strategies, and I know that some students are built to do well in some assignments, while others might struggle with them. I also know that life happens and sometimes you might miss an assignment. I have devised what I think is a fair way for students to get extra credit while still having the opportunity to learn the material thoroughly:

- (1) Exam Review Exercises: Before the final exam, there will be an exam review session in class. In this review session, I will give you all an exercise to help you prepare for the exam. It is not mandatory, but if you complete it, you will get extra credit **on the exam in question**. You can get **10 extra credit points on the final exam**. For those unable to attend the class in person, it will also be posted on Canvas. It must be completed before the exam in question to get full credit!
- (2) *This Podcast Will Kill You*: In the class schedule, there are a few episodes of the podcast that I have suggested, but which are **not mandatory**. They are good to listen to mindlessly, to help the information to stick more (or perhaps they do a better job of explaining things than I do). If you listen to any of the episodes and write a short paragraph to describe the contribution of one person, mentioned in the podcast, to science, you can get a **maximum of 10 extra credit points added to your paper**.
- (3) Artwork/Social Media Post/Literature Piece. As you will learn in this class, diseases are caused by microorganisms but pandemics are caused by people. For many of the plagues we will discuss in this class, art and literature were critical in shaping people's perceptions of diseases. As an extra credit assignment, you can create any artwork, social media post, or literature piece about one of the plagues we study in this class. For this assignment, you can receive **10 extra credit points on your weekly homework**.

Academic Integrity

The University of California, San Diego has an established [Academic Code of Conduct](#) which outlines the high priority that the school places on **academic integrity**. BILD 30 students are expected to adhere to the highest standards of academic integrity and honesty. In summary, all academic work assigned in this class will be completed by those to whom it is assigned, and only authorized aid is permitted for use. This means that the minute papers, midterm, and final exams are to be done individually. You are prohibited from cheating on exams, plagiarizing papers, submitting the same paper for credit in two courses without authorization, buying papers, submitting fraudulent documents, and forging signatures. However, you are allowed to collaborate for the podcast assignment, and for the weekly assignment (for the latter, collaboration is mandatory), and you are allowed to communicate personal and academic challenges that might affect your performance with me.

Academic dishonesty is any means employed to attain course credit in any unauthorized manner. BILD 30 students are academically honest; they work hard for their grades, collaborate with their colleagues, and communicate any personal or academic challenges with the instructor. Academic dishonesty will not be tolerated in this or any class on campus. Any student who is caught participating in academic dishonesty may receive a failing grade or may be suspended. Your future is not worth risking trying to get a better grade by cheating.

Accessibility

The University of California, San Diego is committed to providing an educational environment that is accessible to all students. In accordance with this policy, students in need of accommodations due to a disability should contact the [Office for Students with Disabilities \(OSD\)](#) for verification and determination of reasonable accommodations as soon as possible at the beginning of each quarter. After you do this, please notify me of the accommodations being made.

Discrimination and Harassment

The University of California, in accordance with applicable federal and state laws and university policies, **does not discriminate** on the basis of race, color, national origin, religion, sex, gender, gender identity, gender expression, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition, genetic information, ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The university also prohibits harassment based on these protected categories, including sexual harassment, as well as sexual assault, domestic violence, dating violence, and stalking. The nondiscrimination policy covers admission, access, and treatment in university programs and activities.

If students have questions about student-related nondiscrimination policies or concerns about possible discrimination or harassment, they should contact the [Office for the Prevention of Harassment & Discrimination \(OPHD\)](#) at (858) 534-8298. You may also [report bias](#) here.

Campus policies provide for a prompt and effective response to student complaints. This response may include alternative resolution procedures or formal investigation. Students will be informed about complaint resolution options. A student who chooses not to report may still contact [CARE at the Sexual Assault Resource Center](#) for more information, emotional support, individual and group counseling, and/or assistance with obtaining a medical exam. For off-campus support services, a student may contact the Center for Community Solutions. Other confidential resources on campus include [Counseling and Psychological Services](#), [Office of the Ombuds](#), and [Student Health Services](#).

Inclusion

If you have any ideas on how we can make this class more inclusive, please email me at sravisha@ucsd.edu, or you can contact the Office of Diversity, Equity and Inclusion:

Email: diversity@ucsd.edu

Website: <https://diversity.ucsd.edu/> <https://students.ucsd.edu/student-life/diversity/index.html>

Class Schedule: MW, 2-5pm

Date	Lecture #	Topics to be covered	Reading in <i>Get Well Soon</i> , Film, or podcast episode
7/3	1	Basic Microbiology	Life On Us: A Microscopic Safari Episode 1 and 2 How Bacteria Rule Over Your Body <i>*This Podcast Will Kill You: Ep 26</i>
7/5	2	Basic immunology	You are Immune Against Every Disease How The Immune System Actually Works
7/10	3	Influenza Leprosy	<i>Get Well Soon: Spanish flu</i> <i>Get Well Soon: Leprosy</i> <i>*This Podcast Will Kill You: Ep 1</i> <i>*This Podcast Will Kill You: Ep 2</i>
7/12	4	Bubonic plague	<i>Get Well Soon: Bubonic Plague</i> <i>*Plague 101</i> <i>*This Podcast Will Kill You: Ep 5</i> <i>*This Podcast Will Kill You: Ep 6</i>
7/17	5	Ebola Typhoid	<i>Get Well Soon: Typhoid</i> <i>*This Podcast Will Kill You: Ep 8</i> <i>*This Podcast Will Kill You: Ep 10</i> <i>*This Podcast Will Kill You: Ep 11</i> <i>*This Podcast Will Kill You: Ep 42</i> <i>*This Podcast Will Kill You: Ep 86</i>
7/19	6	Cholera Polio	<i>Get Well Soon: Cholera</i> <i>Get Well Soon: Polio</i> <i>*Part I: Suffering the disease</i> <i>*Part II: Progress in the Americas</i> <i>*Part III: The Polio Endgame</i> <i>*This Podcast Will Kill You: Ep 4</i> <i>*This Podcast Will Kill You: Ep 7</i>
7/24	7	HIV Smallpox	<i>Get Well Soon: Antonine Plague</i> <i>*Bending the Arc (Netflix)</i> <i>*This Podcast Will Kill You: Ep 12</i> <i>*This Podcast Will Kill You: Ep 3</i>
Paper due: July 24th 2023 @ 11:59 PM			
7/26	8	Tuberculosis Vaccines and Antibiotics	<i>Get Well Soon: Tuberculosis</i> <i>*This Podcast Will Kill You: Ep 9</i> <i>*The Side Effects of Vaccines</i> <i>*The Antibiotic Apocalypse Explained</i>

			<i>*This Podcast Will Kill You: Ep 50</i> <i>*This Podcast Will Kill You: Ep 51</i> <i>*This Podcast Will Kill You: Ep 26</i>
7/31	9	COVID-19	<i>*This Podcast Will Kill You: several episodes on COVID</i> <i>*Coronavirus Pandemic</i>
FINAL: August 5th 2023 @ 3-6 PM			

* Not mandatory but extremely helpful and can give you extra credit.