

PURDUE UNIVERSITY

FORT WAYNE

Department of Biology

24108 - BIOL 57710 - 01

23951 - BIOL 57710 - 02I

EMERGING INFECTIOUS DISEASES

SPRING 2022: 1/10/2022-5/8/2022

Credits 3

ONLINE (Brightspace)

Instructor: Dr. Jaiyanth Daniel

Preferred Pronouns: He/ him/ his

Office: SB 380

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Office Hours: WebEx; By appointment

[Dr. Daniel's Webpage](#) (Click to follow link)

Course Description

This course will explore the molecular biology and epidemiology of several emerging infectious diseases caused by viruses, bacteria, fungi and protozoa using recent primary research literature as course material. The objectives will be to understand the nature of the causative agent, how it enters and spreads within the human body and between persons, host response to infection, typical clinical presentation, diagnosis, treatment and prevention.

Prerequisites and Required Materials

BIOL 21800

Course Access

Brightspace:

Information pertaining to this class will be listed on the course Brightspace site. **Partial lecture notes will be posted on Brightspace. Lecture recordings will be available on Brightspace.**

Course Goals

1. Introduce students to the major human infectious diseases that have emerged in the recent past.
2. Educate the students about the molecular biological mechanisms used by the pathogens causing the emerging infectious diseases to infect humans.
3. Explain the symptoms of the diseases and the responses of the human body to the pathogens.
4. Teach the learners about the epidemiology of the emerging infectious diseases.
5. Instruct students about the most up-to-date methods for diagnosis, treatment and prevention of the emerging infectious diseases.

Learning Objectives

When you complete this course, you will be able to:

1. Describe the major infectious diseases that have recently emerged and affect humans.
2. Explain the mechanisms of infection for the infectious diseases studied in the course.
3. Distinguish between the various microorganisms that cause major human infectious diseases currently.
4. Differentiate between the treatments that are effective against the major human pathogens.
5. Read and use scientific publications to understand the most effective therapies used to treat human infectious diseases.
6. Evaluate the functions of antibiotics and vaccines available to treat the infectious diseases.

Learning Resources & Texts

Textbook: None

Course Material: Recent primary research literature, lecture slides and additional material provided by the instructor.

Additional Material: **iClicker2 for classroom quiz participation.**

Course Logistics

Classroom Policies:

Class Participation: Your participation in class will be assessed by your iClicker responses to questions in lecture. You can turn in your responses along with your Study Guide answers on the day of exam for that module. Group discussion will be encouraged during specified times in class. If you maintain more than 95% participation in lecture classes, you will be eligible for a 10 point bonus on your total points (after the final lecture). Your participation will critically affect your performance in this course. If you miss a class, it is your responsibility to find out what was taught in the previous class.

Lecture recordings will be posted on Brightspace by the end of day after each lecture. You will need to check the course web page in Brightspace on each lecture day and utilize the notifications setting in Brightspace to stay up to date.

Assessments:

- **Exams:** The exams will be online on Brightspace and will be administered under proctoring. There will be multiple-choice, short answer and essay questions, all of which will cover the material from lecture and corresponding textbook sections. **There will be one essay-type question per exam requiring a more detailed answer.** Any material from lecture and assigned scientific literature could appear on the exams, even if it is not included in your pre-printed notes- what this means is that the exam material is not restricted to the written lecture notes but will also encompass the verbal lecture that accompanies each set of notes.

Emails: I encourage the use of email to contact me but please consider email etiquette. Use my email address at the top of this syllabus. **Please write "BIOL 57710" in email subject line.**

- **Assignment:** There will be one assignment with two components involving a 15-minute slide presentation and writing a term paper based on a research paper that will enhance your understanding of the subject material.

❖ **Detailed instructions and sign-up sheet will be given in class after Exam 2.**

The assignment will involve a formal slide presentation (15 min) by you of a recent research paper (selected by you) that *analyzes your assigned topic*. You will select a research paper published in one of the journals listed under "Assignments". You will need to get the instructor's approval of your selected paper at least **three weeks** in advance of your presentation. You will also need to submit a 4-6 page written Term Paper using appropriate citations of scientific references on the day of your presentation.

- **Homework:** There will be four homework tasks- one for each exam module. This will involve students turning in handwritten responses (DO NOT USE WORD PROCESSORS) to Study Guide questions in short-answer format using the textbook and lecture slides on the day of exam for each module. **Submit scanned hard copy - scan your homework assignment** (use any free phone app for scanning), **and submit it as one PDF document by email. DUE DATE – on the day of each exam.**

GRADING:

- Exams (4 exams, 75 points each) : 300 points
 - Assignments
 - Oral presentation on assigned topic : 30 points
 - Term paper on assigned topic : 30 points
 - Homework (4 Tasks; 10 points each) : 40 points
 - Participation in Lecture Class (BONUS) : (10 points)
(Your participation in classroom discussions)
- Total = 400 points**

Grading Scale

A: 90-100 %; **B+:** 85-89 %; **B :** 80-84 %; **C+:** 75-79 %; **C :** 70-74 %; **D+:** 65-69 %; **D :** 60-64 % **F :** 0-59 %

- **All exams are the property of the instructor and must be returned after review.** You may request to look over your exam during my office hours or by appointment.
- **Make-Up Exams: Exams will not be given before the scheduled exam date.** You must make every effort to be in attendance for all exams. Make-up exams may be given at the discretion of the instructor for extreme circumstances and students must notify the instructor prior to the exam via email or phone. Make-up exams will cover the same material (not necessarily the same questions) as the original exam but will be designed differently and will include more short-answer and fill-in-the-blank questions than the original exam. **Make-ups must be scheduled within 1 week of the original exam and students must be on time for the scheduled make-up exam, otherwise no credit will be given.** If the university cancels class on the day of an exam the exam will take place on the next regularly scheduled class period.

Testing Policy:

- **No material other than pencils and erasers are permitted out on your desk during testing.** All book bags and purses must be stored under the desk.
- No cell phones or other electronic devices are permitted for any reason during testing!
- No student will be permitted to start the exam late, after the first student finished has left the room. Therefore it is imperative that you be on time for exams.
- No student will be allowed to leave the room and return during an exam.
- You may come to the front of the room to speak with me if you have any questions- do not ask the teaching assistants they will not be able to assist you for the lecture exams.
- **Bring a #2 pencil and your ID# to all exams.**

Virtual Office Hours

I will be available (by appointment) through WebEx for discussing any questions you might have regarding the course content in lectures, study guides and assignments. Please email me to fix an appointment.

[Dr. Jaiyanth Daniel's WebEx Meeting Room: https://purdue.webex.com/join/daniel58](https://purdue.webex.com/join/daniel58)

Course Evaluation

During the last two weeks of the course, you will be provided with an opportunity to evaluate this course and your instructor. You will receive an invitation to complete an anonymous evaluation from the Department of Biology, Purdue University Fort Wayne. Your participation is an integral part of this course, and your feedback is vital to improving education at Purdue University. I strongly urge you to participate in the evaluation system.

How to Succeed in this Course

Tools for Success

- Review the lecture recordings posted in the Content section of the course in Brightspace.
- After each lecture, complete the relevant part of the Study Guide *by hand*, reviewing your previous lecture notes and textbook chapter being taught.
- Come to each lecture with your questions from previous lecture/ your reading/ study guide for DISCUSSION TIME.
- Keep up with lectures by going over each lecture at home and making your own notes.
- Studying only on the night before the exam is unlikely to help you achieve a good grade.
- FORM STUDY GROUPS.
- Feel free to meet me over WebEx or email me for additional assistance.

Lecture recordings will be made available on Brightspace at the end of day for each lecture.

Important Dates

Please consult the Purdue University Fort Wayne [academic calendar](#) for the Last Day to Request to Withdraw from Course. I will appreciate you consulting me prior to withdrawing.

Academic Dishonesty

Cheating, including but not limited to copying another student's work, will not be tolerated. Any offense will result in failing the entire course and will be reported to the student's major department Chair and Dean of their school per the Student Handbook.

Diversity and Nondiscrimination:

Purdue Fort Wayne prohibits discrimination against any member of the university community on the basis of race, religion, color, sex, age, national origin or ancestry, genetic information, marital status, parental status, sexual orientation, gender identity and expression, disability, or status as a veteran..."

Disability Statement

- **Students with Disabilities:** Special arrangements can be made to accommodate most needs. Contact the Director of DISABILITY ACCESS CENTER (Walb Union, Room 113, telephone number 481-6657). For more information, please visit the website for SSD at <https://www.pfw.edu/ssd>

Student Support Services

Technical Support: Call the PFW helpdesk at 481-6030.

Purdue University Fort Wayne is committed to your academic and personal success. Visit the [student support services page](#) for a list of student support services, including academic services, technology services, health and wellness, and support from administrative offices.

Emergency Statement

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. I will post updates as needed, on Course Announcements in Brightspace.

TENTATIVE LECTURE SCHEDULE

Lecture	Topic
1.	Introduction; Influenza – Influenza Virus
2.	Middle East/ Severe Acute Respiratory Syndrome - Coronavirus
3.	Ebola & Marburg Virus Disease
4.	Lassa Fever; Hantavirus disease
5.	Dengue; Nipah Virus
6.	T 2/1 <u>EXAM – 1</u>
7.	Hepatitis – Hepatitis Virus C
8.	AIDS – Human Immunodeficiency Virus
9.	Encephalitis - Rabies Virus
10.	Encephalitis – West Nile Virus
11.	Genital Herpes – Herpes Simplex Viruses
12.	Gastroenteritis – Rotavirus
13.	T 3/1 <u>EXAM – 2</u>
	T 3/8; T 3/10 SPRING BREAK
14.	Gastroenteritis – <i>Helicobacter pylori</i>
15.	Multi Drug-Resistant Tuberculosis – <i>Mycobacterium tuberculosis</i>
16.	Nosocomial Infections MRSA- <i>Staphylococcus aureus</i> ; Drug-resistant <i>Neisseria gonorrhoeae</i>
17.	Nosocomial Infections – Carbapenem-resistant enterobacteriaceae
18.	Nosocomial Infections - <i>Clostridium difficile</i>
19.	R 3/31 <u>EXAM – 3</u>
20.	Opportunistic fungal infections – Cryptococcal Meningitis
21.	Opportunistic fungal infections – <i>Pneumocystis pneumonia</i>
22.	Opportunistic fungal infections – <i>Candida albicans</i>
23.	Malaria – <i>Plasmodium</i>
24.	Zika Virus Infection
25.	T 4/21 <u>EXAM – 4</u>
26.	T 4/26 STUDENT PAPER PRESENTATIONS - I
27.	R 4/28 STUDENT PAPER PRESENTATIONS - II