BIOL F662 INFECTIOUS DIEASES
SYLLABUS – SPRING 2023

Dept. of Biology & Wildlife, CNSM, University of Alaska Fairbanks

1. Course Information:

Title:	Infectious Diseases
Number:	F662
Credit:	3
Prerequisites:	Graduate standing; or permission of instructor
Location:	Classroom: UAF Margaret Murie Building Room 107
	Online: Zoom (https://alaska.zoom.us/j/84854664276)
Meeting time:	T R 3:40 am - 5:10 pm
Course type:	In person

2. Instructor Information:

Name:	Jack Chen, Ph.D., MB(ASCP), HCLD(ABB)
Office Location:	Murie Building Room 223B
Office Hours:	T R 1:00 pm - 3:30 pm
Office Phone:	907-474-6966
Email:	j.chen@alaska.edu

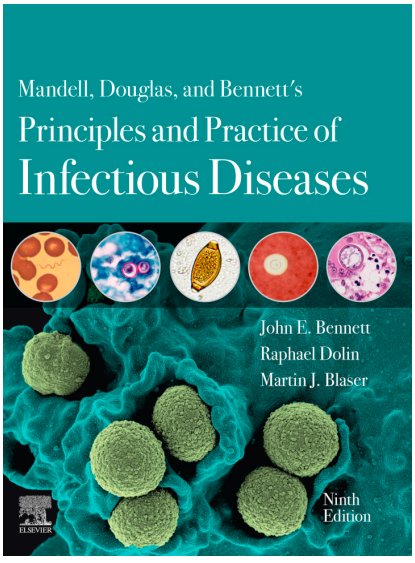
Email is the best way to reach the instructor. You should receive a response to your email within 24 hours when it is received. If you do not receive a reply within this time frame, assume that the email was not received and please resend your message.

3. Course Description:

This course covers infectious disease biology using examples of different pathogens and exploring the concepts of their biology and the implication of these principles on pathology, epidemiology and sociology of infectious diseases.
Lecture + Lab + Other: 3 + 0 + 0

4. Representative Course Reference:

Title:	Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases
Authors:	John Bennett, Raphael Dolin, Martin J. Blaser
Edition:	9th Edition, 2020
Publisher:	Elsevier
ISBN:	978-0-323-48255-4



5. Course Goals:

Infectious diseases, also known as transmissible diseases or communicable diseases, are responsible for millions of deaths worldwide every year. This course will cover the basic concepts of infectious diseases from many perspectives including epidemiology, etiology, pathology,

microbiology, immunology, and treatment of infectious agents. This course will focus on host-pathogen relationships and the mechanisms how pathogens establish themselves within a host to sustain an infection. This course will primarily focus on viral and bacterial diseases, with brief introduction of fungal and parasitic diseases. The goal of this course is to improve your understanding of the basic concepts of infectious diseases, dynamics of disease transmission, and the emerging and re-emerging infectious diseases.

6. **S**tudent **L**earning **O**utcomes:

The course will put emphasis on understanding and applying the concepts of infectious diseases that are covered. This understanding will allow the student to explore the biology and implications of pathogens in independent studies. The course format will therefore be highly interactive with the expectation that the students participate in the lectures and independently explore certain concepts discussed in class.

At the end of the course, students are expected to be able to discuss basic concepts of current infectious diseases. Knowledge of these concepts will enable the students to better understand the impact of pathogen biology on epidemiology and pathology of infectious disease.

7. **I**nstructional **M**ethods:

The course is designed based on the scientific teaching method. This method includes active learning and group activities as well as formative assessments. The students are expected to read assigned material ahead of class so that class time can be spend on discussion of assigned reading, problem solving as well as other active learning activities. Assessment will be used throughout the course to help students judge their learning progress and help identify areas in need of focused attention.

This course will use UAF Blackboard (https://classes.alaska.edu/) to make lecture material and additional course information available. All information associated with this course will be posted there, including lecture notes, slides, assignments, handouts, study guides, and grades. After each exam, you should check your grades and make sure the information about your record is accurate. Student version of lectures (PDF version) will be posted before each lecture. Students are expected to download and preview the material before each lecture.

8. **C**ourse **C**alendar:

For detail, refer to the "Tentative Lecture Schedule" section in the end of this syllabus.

9. **C**ourse **P**olicies:

- **Attendance**

  Students are expected to attend all classes. More than two absences will be considered as excessive. Each excessive absence will count for 2-point deduction from "class attendance/participation" points, maximum 10 points of final grades. If you know that you will miss a lecture due to an excused absence (e.g. you are participating in a university-sponsored event, you become ill, you are participating

in a military-required activity) you must inform the instructor of the absence ahead of time in order for the points to be excused for that lecture.

- **Classroom Behavior**
  Any type of behavior in the classroom that is disruptive, distracting, or disrespectful to the instructor or to your fellow students will not be tolerated and will result in dismissal from the classroom. This includes, but is not limited to, disrespectful comments, the use of tobacco products, consumption of food, use of cell phones or wireless devices, or use of any type of communicative device. All cell phones or other such devices must be turned off while in the classroom. Do not browse the Internet, text message or IM that is not relevant to the course during the class.
- **Plagiarism**
  Plagiarism is the overt or covert use of other people's work or ideas without acknowledgement of the source. This includes using ideas or data from a classmate or colleague without permission and acknowledgement, including sentences from journal articles in your writing without citing the author, or copying parts of a website into your essay. Plagiarism and cheating are serious offenses that violate the student code of conduct, which may result in an "F" in the course and/or referral to the university disciplinary committee.

10. Evaluation:

- **Grading Scale:**
  Grades will be calculated on a 100-point scale. The absolute scores will be converted into final grades based on the following scales.

100% - 97%	A+	77% - 80%	B-	61% - 64%	D+
93% - 96%	A	73% - 76%	C+	57% - 60%	D
89% - 92%	A-	69% - 72%	C	53% - 56%	D-
85% - 88%	B+	65% - 68%	C-	<53%	F
81% - 84%	B				

  Notes: 1) UAF regulations with regard to the grades of "C" and below are applicable to this course; 2) This course follows the UAF Incomplete Grade Policy: "The letter "I" (Incomplete) is a temporary grade used to indicate that the student has satisfactorily completed (C or better) the majority of work in a course but for personal reasons beyond the student's control, such as sickness, has not been able to complete the course during the regular semester. Negligence or indifference are not acceptable reasons for an "I" grade."

- **Grade Distribution:**
  The point breakdown for this course is approximately as follows. The point of Journal Club/Assignments may be adjusted based on the total number of students.

Component	**% of Grade**
Class attendance/participation	10
Journal Club/Assignments (10)	20
Midterm Exam	20
Final Presentation	20
Final Exam	20
Mini-review Paper	10
Total	**100**

- Class attendance/participation will count for 10% of final grades.
- Journal club/Assignments will count for 20% of final grades. There will be a total of 10 assignments, each counts for 2 points toward final grades.
- There will be one Midterm Exam (20%), which will cover the lectures we have learned by the time. Exams will consist of multiple-choice questions.
- Final Presentation (20%) is 10 minutes, plus 2 minutes for questions. You can choose any topic concerning the world of infectious diseases.
- Final Exam (20%) will cover all lectures we have learned in this class. Exam style will be the same as Midterm Exam, i.e. consist of multiple choices.
- Mini-review Paper will count for 10% of final grades for graduate students only.
- Grades will be posted on Blackboard, you should always confirm that your grade is posted correctly.

- **Extra Requirement for Graduate Students (10%):**

  Because this is a stacked course with BIOL F462, graduate students who take this course will have extra requirements as following:
  - Each graduate student will be required to write a report (mini-review paper). This report will be counted for 10 points toward the final grade.
  - Title: **COVID-19 pandemic – a retrospective review from infectious disease perspectives**
  - This mini-review paper should be:
    - The format of the paper should follow "The Journal of Infectious Diseases" review style.
    - Minimal five pages (single spaced) excluding references.
    - Minimal ten (10) references.
    - This report is due on the day of Final Presentation. You can use the same topic for both mini-review and final presentation.

- **Journal Club:**

  Journal clubs are educational discussions that can improve reading habits, knowledge of basic and translational research, and help understand what is discussed during lectures. The articles will include, but will not be limited to, topics concerning infectious diseases, virology, bacteriology, immunology, vaccinology. During the semester, each of you will lead the discussion of an article proposed by the instructor. This experience fulfills several goals of this course curriculum and in the end, each student will be able to:
  - Conduct structured critical appraisal of the literature.
  - Recognize and understand basic study design.
  - Gain familiarity with research approaches adopted to study the pathological basis of infectious diseases.
  - Explain how epidemiological studies (case-control, longitudinal, etc.) are conducted in the context of infectious diseases.
  - Practice skills related to oral presentations.

- **Journal Club Presenting Student:**
  - Each student will participate once as the presenting student.
  - The students presenting on the day of the JC will automatically receive the grade for that assignment.
  - For each Journal Club, one or two articles will be selected by the instructor. These articles are recent reports in the field of infectious diseases.

- The presenting student will need to read and understand the articles before the day of presentation.
- Once you have read and reviewed the article, you should have a general understanding of the main question asked by the specific study, how it was addressed, and what conclusions the authors can draw from the results.
- The presenting student will develop a power point presentation and make an oral presentation on the class.
- The presenting student is strongly encouraged to stop by the instructor's office during the office hours and one or two days before the paper is presented to discuss about your presentation.
- The presenting student should also be able to attempt to address other students' questions.

- **Journal Club Participating students and Assignments:**
  For each Journal Club, all students except the presenting student are participating students who will need to complete an Assignment. The student presenting on the day of the Journal club will automatically receive the grade for that assignment. Each Assignment counts for 2 points toward final grades. Assignments will be based on the content of each Journal club article that ask the following questions and seek for answers:
  - Issues addressed by the article - What is the research question? Why does it matter? What is already known about the question? How does the study fit with what already is known?
  - Design of the study and methods - Is the study design appropriate for the question? What kinds of methods are used? How can it help solve important problems?
  - Main findings - Does this study advance current knowledge, Does the main question(s) find an answer? How do results be interpreted?
  - Implications - How can the information be used at the translational level?
  - Next steps/new questions - What are the next steps in interpreting or applying the findings? What new questions arise and how might they be best answered?
  - Assignment is due before the next lecture.

11. Final Presentations**:**

As part of your final grade, you are asked to prepare a 10-minute presentation (+ 2 minutes for questions) of a topic concerning the world of infectious diseases. You have the broadest choice of topic: you can discuss a book you have read concerning an infectious disease, a movie or a TV show you watched, a commentary you have read in a science journal relative to emerging infectious diseases or a column in the New York Times criticizing COVID-19 policy. Anything can be object of your presentation, as long as it is evidence-based, scientific argument constitutes a liaison between what we have discussed about infectious diseases and lay people's perception of them, or their broader impact on people's lives. Once you have selected the topic of your presentation, share it with the instructor at least 2 days before the day of Final Presentations, along with the rationale for your choice, and I will come back to you with my comments.

Scoring Rubric for Final Oral Presentations:

Description	**Maximum Points Possible**	**Points Earned**
Title	5	
Subject Command (Depth of background knowledge)	20	

Extent of Information Presented	20	
Delivery of Presentation (Poise, voice, enthusiasm, timing)	20	
Slide Visual Organization and Quality	10	
Ability to Generate Interest	10	
Clarity of Information Presented	10	
Quality of Responses to Questions	5	
Total Points Earned	**100**	

12. **No Make-Up Exams:**
Exams must be taken at the scheduled time. Exam cannot be taken before or after the scheduled date/time.
***Exception:** If you have a conflict due to a university-sponsored event, you must notify the instructor prior to the exam with a confirmation letter from University authority.
If you or your immediate family member has a medical emergency, a letter for the doctor is required.

13. **COVID-19 Statement:** Students should keep up-to-date on the university's policies, practices, and mandates related to COVID-19 by regularly checking this website: https://sites.google.com/alaska.edu/coronavirus/uaf?authuser=0 Further, students are expected to adhere to the university's policies, practices, and mandates and are subject to disciplinary actions if they do not comply.

14. **Student Protections Statement:** UAF embraces and grows a culture of respect, diversity, inclusion, and caring. Students at this university are protected against sexual harassment and discrimination (Title IX). Faculty members are designated as responsible employees which means they are required to report sexual misconduct. Graduate teaching assistants do not share the same reporting obligations. For more information on your rights as a student and the resources available to you to resolve problems, please go to the following site: https://catalog.uaf.edu/academics-regulations/students-rights-responsibilities/.

15. **Disability Services Statement:** I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities.

16. **ASUAF Advocacy Statement:** The Associated Students of the University of Alaska Fairbanks, the student government of UAF, offers advocacy services to students who feel they are facing issues with staff, faculty, and/or other students specifically if these issues are hindering the ability of the student to succeed in their academics or go about their lives at the university. Students who wish to utilize these services can contact the Student Advocacy Director by visiting the ASUAF office or emailing asuaf.office@alaska.edu.

17. **Student Academic Support:**
    - Speaking Center (907-474-5470, uaf-speakingcenter@alaska.edu, Gruening 507)
    - Writing Center (907-474-5314, uaf-writing-center@alaska.edu, Gruening 8th floor)
    - UAF Math Services, uaf-traccloud@alaska.edu, Chapman Building (for math fee paying students only)
    - Developmental Math Lab, Gruening 406

- The Debbie Moses Learning Center at CTC (907-455-2860, 604 Barnette St, Room 120, https://www.ctc.uaf.edu/student-services/student-success-center/)
- For more information and resources, please see the Academic Advising Resource List (https://www.uaf.edu/advising/lr/SKM_364e19011717281.pdf)

18. Student Resources:

- Disability Services (907-474-5655, uaf-disability-services@alaska.edu, Whitaker 208)
- Student Health & Counseling [6 free counseling sessions] (907-474-7043, https://www.uaf.edu/chc/appointments.php, Gruening 215)
- Center for Student Rights and Responsibilities (907-474-7317, uaf-studentrights@alaska.edu, Eielson 110)
- Associated Students of the University of Alaska Fairbanks (ASUAF) or ASUAF Student Government (907-474-7355, asuaf.office@alaska.edu, Wood Center 119)

19. Nondiscrimination Statement:

The University of Alaska is an affirmative action/equal opportunity employer and educational institution. The University of Alaska does not discriminate on the basis of race, religion, color, national origin, citizenship, age, sex, physical or mental disability, status as a protected veteran, marital status, changes in marital status, pregnancy, childbirth or related medical conditions, parenthood, sexual orientation, gender identity, political affiliation or belief, genetic information, or other legally protected status. The University's commitment to nondiscrimination, including against sex discrimination, applies to students, employees, and applicants for admission and employment. Contact information, applicable laws, and complaint procedures are included on UA's statement of nondiscrimination available at www.alaska.edu/nondiscrimination. For more information, contact:

UAF Department of Equity and Compliance
1692 Tok Lane, 3rd floor, Constitution Hall, Fairbanks, AK 99775
Phone: 907-474-7300
Email: uaf-deo@alaska.edu

Additional syllabi statement for courses including off-campus programs and research activities:
University Sponsored Off-Campus Programs and Research Activities.
We want you to know that:

1. UA is an AA/EO employer and educational institution and prohibits illegal discrimination against any individual: www.alaska.edu/nondiscrimination.
2. Incidents can be reported to your university's Equity and Compliance office (listed below) or online reporting portal. University of Alaska takes immediate, effective, and appropriate action to respond to reported acts of discrimination and harassment.
3. There are supportive measures available to individuals that may have experienced discrimination.
4. University of Alaska's Board of Regents' Policy & University Regulations (UA BoR P&R) 01.02.020 Nondiscrimination and 01.04 Sex and Gender-Based Discrimination Under Title IX, go to: http://alaska.edu/bor/policy-regulations/.
5. UA BoR P&R apply at all university owned or operated sites, university sanctioned events, clinical sites and during all academic or research related travel that are university sponsored. For further information on your rights and resources click here.

Tentative Lecture Schedule

1. **Important Dates (Spring 2023):**
   - Tue., Jan. 17 First day of instruction
   - Fri., Jan. 27 Last day for student- and faculty-initiated drops with refund
   - Wed., Feb. 1 Deadline to apply for spring 2021 graduation
   - March 13-17 Spring break begin (no classes)
   - Fri., Mar. 17 University holiday
   - Fri., Mar. 31 Last day for student- and faculty-initiated withdrawals (W)
   - Mon., May 1 Last day of instruction
   - May 6 Commencement
   - Wed., May 10 Deadline for faculty to post grades, noon

2. **Tentative Lecture Schedule**

Topic	Anticipated Dates
Section I: Basic Principles in the Diagnosis and Management of Infectious Diseases	
1. Course Introduction and History of Infectious Diseases	Week 1
2. Host Defense Mechanisms - I	
3. Host Defense Mechanisms - II	Week 2
4. Immunology and Vaccination	
5. Epidemiology of Infectious Disease	Week 3
6. Clinical Microbiology	
7. Anti-infective Therapy - I	Week 4
8. Anti-infective Therapy - II	
Midterm Exam	Feb. 14 (Week 5)
Section II: Major Clinical Syndromes	
9. Upper Respiratory Tract Infections	Week 6
10. Pleuropulmonary and Bronchial Infections	
11. Central Nervous System Infections	Week 7
12. Gastrointestinal Infections and Food Poisoning	
13. Sexually Transmitted Diseases	Week 8
14. Hepatitis	
15. Acquired Immunodeficiency Syndrome	Week 9

Topic	Anticipated Dates
Section III: Infectious Diseases and Their Etiologic Agents 16. Biology of Viruses and Viral Diseases 17. Viral Diseases Caused by DNA Viruses 18. Viral Diseases Caused by RNA Viruses 19. Prion Diseases 20. Chlamydial Diseases and Mycoplasma Diseases 21. Bacterial Diseases - I 22. Bacterial Diseases - II 23. Fungal Infections (Mycoses) and Parasitic Diseases 24. Zoonotic diseases and Other Infectious Diseases	Week 10 Week 11 Week 12 Week 13
Student Final Presentations	Apr. 25 (Week 14)

Final Exam	**Apr. 27**