MCB 4203: BACTERIAL PATHOGENS (sections RES1, UFO1) SPRING 2024

Course Delivery: This course is taught 100% online, a combination of weekly asynchronous lectures and **synchronous LIVE ZOOM MEETINGS (live attendance is optional) on Wednesdays period 8 (3:00 pm – 3:50 pm- see schedule of dates for live zoom meetings under Course format on page 2)**. Live meetings are recorded and posted to MCB 4203 Canvas course website. All course content is delivered through the MCB 4203 Canvas course website.

Instructor: Dr. Kelly Rice
Office: Room 1147, Microbiology and Cell Science Bldg.
Ph: 352-392-1192, email: kcrice@ufl.edu *(**please use this email for all correspondence, as I check this more often than email through the Canvas course website**)*
Instructor Office hours: Tuesdays 9:00 am – 10:30 am on Zoom (see Canvas course website for link).

Course Description (from catalogue): Host-microbe relationships in the diseases of humans and animals, including the virulence characteristics of bacterial pathogens, the techniques used in their isolation/identification, and molecular approaches to the study of their virulence. Credits: 3; Prereq: MCB 3020 or MCB 3023 with minimum grade of C.

Course Objectives: At the completion of this course, students should be able to:

1. Recognize the complex nature of microbial virulence, especially with respect to the multi-faceted interplay between the host immune system and pathogen
2. Describe (using specific examples from select bacterial pathogens) the strategies used by bacterial pathogens that are required for host manifestation of disease (attachment and entry into host tissues, evasion of host immune defenses, multiplication in vivo, dissemination and transmission)
3. Identify strategies of treatment and prevention of host infection (ie. vaccines, antibiotics, protective role of normal microbiota) and (where applicable) the ensuing response of the pathogen
4. Understand the theory behind various molecular, in vitro, and in vivo techniques used to assess microbial diversity and virulence
5. Analyze case studies and scientific articles using the knowledge gained from objectives 1-4 above.

Required Textbook:
1. Wilson et al. Principles of Bacterial Pathogenesis, A Molecular Approach (4th Edition),
ISBN-10 : 1555819400, ISBN-13 : 978-1555819408
This course will be participating in the UF All Access program.
Login at https://www.bsd.ufl.edu/G1CO/IPay1f/start.aspx?TASK=INCLUDED and Opt-In to gain access to your required course materials - UF All Access will provide you with your required materials digitally at a reduced price and the charges will post directly to your student account, allowing any available Financial Aid funds to cover the cost of your materials. This option will be available starting 1 week prior to the first day of classes and ending 3 weeks after the first day of class.

Overview of Course Format and Policies:

- This course is co-taught with MCB5205 (Microbiology of Human Pathogens).

- **Email will be primary mode of course correspondence**. Each student is responsible for checking their "**ufl.edu**" email accounts and the Canvas course website daily for course messages and announcements.

- Course syllabus, lecture notes, and other tools all are available through the Canvas Learning Support System homepage [http://lss.at.ufl.edu/]. You will need to enter your Gatorlink username and password to access the system. If you do not have an active GatorLink ID, cannot remember your GatorLink login information, or if your ID does not work, please refer to the GatorLink website [http://gatorlink.ufl.edu] or to the UF Computing Help Desk (The Hub, 392-HELP) for assistance.

- **Course format:** All course lectures (pre-recorded), quizzes, open-book assignments, etc. will be posted no later than the beginning of each week (Sunday evening) on the Canvas course website. A series of live-online review sessions will be held throughout the semester using the "zoom conferences" function in Canvas on **Wednesdays during period 8**. Attendance to these live-online weekly reviews is optional. These sessions will be recorded and accessible through the "zoom conferences" function in Canvas. Please see the Canvas course website for link to these meetings.

  ➢ **Live zoom meetings on the following dates:** January 17, January 31, February 14, February 28, March 6, March 27, April 10, April 22**(special Monday meeting for Exam 3 review)

- **A note regarding course materials and copyright:** All course materials posted on the Canvas course website are assembled and intended for students taking MCB4203/MCB5205 ONLY, and therefore they are only available for student use from our secure Canvas course website. Verbatim re-posting of any of these materials to online note-taking services or other websites such as studysoup, "course-hero", You Tube, quizlet, Facebook, etc. is not permitted by the course instructor. Unauthorized re-posting of course materials (including textbook pdfs) may infringe on UF's copyright policies and the "Fair Use" Act (http://www.generalcounsel.ufl.edu/faq/Copyright.pdf).

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at: https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at: https://gatorevals.aa.ufl.edu/public-results/.

Attendance and Make-Up Work: Attendance and Make-Up Work Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/. Excused absences follow the criteria of the UF Undergraduate Catalog and should be communicated to the instructor prior to the missed exam whenever possible.

Course Assessments and Grading:

- **Weekly quizzes (open book):** There will be 14 weekly online quizzes, based on the weekly lecture material and/or posted readings. Each quiz is worth 5 points and will typically consist of multiple-choice questions. *At the end of semester your lowest 4 quiz scores will be dropped from your grade calculation. In other*

words, the top 10 quiz scores will be used in calculating your grade (10 x 5 points = 50 total points). These are open-book quizzes (administered through Canvas) that are meant to help you review the course material and practice for the exams. Students are welcome to study together and in fact collaboration is encouraged on these quizzes. However, each student is responsible for submitting his/her own quiz by the posted due date. The structure of the final course grade calculation with respect to the quizzes (dropping the 5 lowest quiz scores) is designed to give you a "buffer" for those rare occasions where a quiz cannot be completed due to illness, absence, or random forgetfulness. For review and study purposes, answers to quiz questions will be available in Canvas following each quiz due date. Weekly quiz answers will also be discussed during the live weekly online reviews.

➢ CANVAS HINTS for ONLINE QUIZ AND ASSIGNMENT SUBMISSION (provided by UF Computing Help Desk): It is recommended that you take online assessments during Help Desk hours whenever possible. If you have a problem while taking an Assessment, log out and log back in as quickly as possible. If the assessment is timed, the timer will continue to run while you are logged out*. If you still encounter difficulties, take a screen shot of the problem (Hit the "Print Scrn" button on your keyboard and paste "CTRL+V" into a program like Word or Paint) so the Help Desk can investigate and you will have "proof of technical difficulty" of the problem for your Instructor*. Call the Help Desk (352-392-4357) immediately. When you submit an Assignment/Assessment you get a confirmation screen that contains a confirmation number. You might want to make a habit of capturing a screen shot or printing it for your records. The Assignment/Assessment list will also show this Assignment/Assessment as "submitted" including the date and time of your submission. If you do not get the confirmation screen and your Assignment/Assessment is not listed as "submitted," you have not submitted the Assignment.

- **Case-studies (open book):** There will be 3 online case studies, **each is worth 20 points** and will typically consist of several multiple-choice questions that are based on a case-study scenario with an associated set of problem-solving questions. These are made available ahead of time so you can answer all the questions prior to starting the case-study quiz. Students are welcome to collaborate on these quizzes. However, each student is responsible for submitting his/her own quiz by the posted due date.

- **Graded discussion boards (open book):** There will be 2 graded discussion board activities assigned throughout the semester; these will be based on assigned videos or readings that supplement the weekly lecture material. **Each discussion board activity is worth 30 points.**

- **Exams (closed book/proctored):** There will be 3 proctored exams throughout the semester (see attached weekly course schedule), **each worth 110 points** towards your final course grade (see grading scheme below). All exams for this course will be administered through Canvas and students will take them online through HonorLock:

Honorlock will proctor your exams this semester. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home. You DO NOT need to create an account, download software or schedule an appointment in advance. Honorlock is available 24/7 and all that is needed is a computer, a working webcam, an external side-view camera (more details will be provided on Canvas), and a stable Internet connection. All exams will be administered through Honorlock using Canvas.

To get started, you will need Google Chrome and to download the Honorlock Chrome Extension. You can download the extension at www.honorlock.com/extension/install. When you are ready to test, log into the LMS, go to your course,

and click on your exam. Clicking Launch Proctoring will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session by webcam as well as recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it is on a secondary device. Good luck! **Honorlock support is available 24/7/365. If you encounter any issues, you may contact us by live chat, phone (844-243-2500), and/or email (support@honorlock.com). If you encounter issues within the LMS, you may contact Your School's Online Support Services team at their number.**

Prior to the start of each exam, you will need the following:
● Government issued photo ID (or Student photo ID).
● Working camera and microphone.
● Stable internet connection.
● Google Chrome browser (https://chrome.com).

During the test: The online testing environment should mimic the 'in class' testing environment, and has the following guidelines:

Testing Area:
● Sit at a clean desk or table (not on a bed or couch)
● Lighting in the room must be bright enough to be considered "daylight" quality. Overhead lighting is preferred; however, if overhead is not possible, the source of light should not be behind the student
● Ensure your desk or table is cleared of all other materials.
● Make sure your laptop is fully charged or keep the charger within arm's reach.

The following items/actions are not permitted:
● No writing visible on desk or on walls.
● No websites other than Canvas and the Honorlock proctoring extension should be used or open while taking a proctored exam.
● Close all other programs and/or windows on the testing computer prior to logging into the proctored test environment.
● Make sure music/televisions are not playing in the background.
● Communication or receiving assistance from others is not permitted during a proctored assessment. Exceptions: contacting Honorlock support or your institution's help desk.
● No other persons except the test-taker should be in the room during testing.
● Using a phone or any other electronic device, other than your test-taking device, is not permitted.
● Remain visible in the web camera during the entire duration of the exam.
● Leaving the room during the testing period is not permitted.
● You must not take the computer into another room to finish testing (exam must be completed in the same room the "Exam Environment View" is completed in).
● Headphones or smart watches are not permitted.
● Dual monitors are not permitted.

Honorlock support: 1-(844) 243-2500

➢ Each exam is designed to be completed in 75 minutes or less. However, **the time-limit on each exam will be set at <u>100 minutes as a buffer in case of any unexpected technical difficulties with Honorlock</u>.**
➢ If you are unable to take an exam because of a technical glitch on your end (computer broken, poor internet connectivity), that is your responsibility and does not constitute an excused absence for an exam.
➢ *For additional questions, please review the Honorlock Student Handout (available under Modules on Canvas course website).*

➢ The dates and window for completing each exam is specified in the weekly course schedule (last page of syllabus).

➢ **Make sure you sign-up for the correct exam course number - MCB4203 + your section number.**

➢ The rules and format for each Exam will be reviewed prior to each exam period. Materials such as cell phones, scratch paper, books, notes, calculators, etc. <u>are NEVER allowed during the exam</u>.

➢ **Exam videos will be reviewed by the course instructor and/or TA to verify that academic integrity of your exam has not been breached.**

GRADES - The grading scheme for this course is as follows:

Weekly quizzes: 10 @ 5 points each (50 points total)
Graded discussion boards: 2 @ 30 points each (60 points total)
Open-book case studies: 3 @ 20 points each (60 points total)
EXAM 1 (Honorlock, Weeks 1-5 material): 110 points
EXAM 2 (Honorlock, Weeks 6-10 material): 110 points
<u>EXAM 3 (Honorlock, Weeks 11-14 material):</u> 110 points
TOTAL POINTS = 500

 Final letter grades will be assigned based on the number of points earned, as follows:

A = 465-500 points	C+ = 385-399.9 points	E = 0-299.9 points
A- = 445 – 464.9 points	C = 365-384.9 points	
B+ = 435 – 444.9 points	C- = 350-364.9 points	
B = 420 – 434.9 points	D+ = 325-349.9 points	
B- = 400-419.9 points	D = 300-324.9 points	

For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/.

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity." You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information on the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

FOR MCB 4203<u>, it is assumed that you will complete all work independently unless the instructor provides explicit permission for you to collaborate on specific course tasks</u>. UF academic honesty policies will always be vigorously upheld in this course.

Software Use: All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

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Services for Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, https://disability.ufl.edu/

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu. Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library Wellness Coaching

U Matter We Care, www.umatter.ufl.edu/

Career Connections Center, First Floor JWRU, 392-1601, https://career.ufl.edu/.

Student Complaints:

• Residential Course: https://sccr.dso.ufl.edu/policies/student-honor-code-studentconduct-code/.

• Online Course: http://www.distance.ufl.edu/student-complaint-process

SCHEDULE OF WEEKLY LECTURE TOPICS (final version may change slightly):

WK (DATES)	TOPIC(S)	TEXTBOOK CHAPTERS
1 (1/8-1/12)	Koch's Postulates, Barry Marshall guest lecture	Wilson Ch. 6
2 (1/16-1/19)	Microbial Census, *H. pylori*	Wilson Ch. 5
3 (1/22-1/26)	Microbial shift disease (*S. mutans*)	No textbook reading
4 (1/29-2/2)	Physical Defenses, Innate Immunity	Wilson Ch. 2-3
5 (2/5-2/9)	Adaptive Immunity	Wilson Ch. 4
	EXAM 1 WINDOW: FEB. 15 @ 6 AM EST – FEB. 18 @ 11:59 PM EST, 2024	**Covers weeks 1-5 material**
6 (2/12-2/16)	Measuring Infectivity and Virulence	Wilson Ch. 8, Assigned documentary (Discussion board #1): https://www.youtube.com/watch?v=3I3vPgJNFwg
7 (2/19-2/23)	Bacterial Evasion of Host Defenses I	Wilson Ch. 11
8 (2/26-3/1)	Bacterial Evasion of Host Defenses II	Wilson Ch. 11
9 (3/4–3/8)	Bacterial Toxins	Wilson Ch. 12
3/11-3/15	*SPRING BREAK, NO CLASSES*	
10 (3/18-3/22)	Identification of Bacterial Virulence Factors (bacterial and host approaches)	Wilson Ch. 9-10

	EXAM 2 WINDOW: MAR. 28 @ 6 AM EST – MAR. 31 @ 11:59 PM EST, 2024	**Covers weeks 6-10 material, excludes discussion board activity**
11 (3/25-3/29)	Delivery of Virulence Factors (*Yersinia pestis*), Quorum Sensing	Wilson Ch. 13-14
12 (4/1-4/5)	Antibiotic Targets	Wilson Ch. 15 Assigned documentary (Discussion board #2): https://www.pbs.org/video/frontline-trouble-antibiotics/
13 (4/8-4/12)	Antibiotic Resistance Mechanisms, MRSA	Wilson Ch. 16, Ch.18 (pp. 516-524 only)
14 (4/15-4/19)	Biosecurity (*Bacillus anthracis*)	Wilson Chapter 20
15 (4/22)	**EXAM 3 review on Monday April 22 at 3 pm EST (Live on Zoom, will also be recorded and posted to Canvas)**	**Zoom link will be posted on Canvas**
	EXAM 3 WINDOW: APR. 23 @ 6 AM EST – APR. 28 @ 11:59 PM EST, 2024	**Covers weeks 11-14 material (excludes discussion board activity)**