COURSE SYLLABUS

**BIOL 715 Microbial Physiology**

# Spring 2025

##### Online (via Blackboard) and In Person

##### Wednesdays, 4:30pm-7:10pm

(at least 4 lectures will be provided in person and via zoom)

**George Mason University**

**College Of Science**

**School Of Systems Biology**

**Science and Tech campus (Manassas), Katherine Johnson Hall, Rm#246**

**PROFESSOR: Dr. Sallie Crenshaw**

Office hours: TBD, by email

Email address: scrensha@gmu.edu

**SPECIAL NOTES:**Wed Jan 22 -Wed April 30th 2025.

**Examination Period:** Wed. May 7th-Wed. May 14th

**Student Evaluations of Teaching/Course**: Will be done online via Blackboard. ~ mid-April.

**COURSE DESCRIPTION**

1. **Prerequisites:** An undergraduate lecture/lab course in microbiology, and a course in biochemistry.
2. **Course description from the university catalog:** Comprehensive study of the functioning of microbial cells, with emphasis on bacterial pathogens. Growth, transport, cell-to-cell signaling, biofilm formation, antibiotic resistance, and secondary metabolites will be stressed. Viral surface structures will also be explored.
3. **Course objectives:** To introduce the student to more advanced concepts of the functioning of bacteria, with a focus on pathogenic bacteria. The relationship of cell structure to function and the role of that function in pathogenicity will be emphasized. Lectures will each cover a topic to give students a deep understanding of the particular topic.
4. **Assigned readings and video presentations are a requirement for this class.** Assigned readings will cement the concepts and facts and are covered by the exams.
5. **Peer-to-Peer: S**tudents must also comment on other students’ videos for points towards grade.
6. **Paper Presentations:** Three pertinent published papers will be discussed following most lecture topics, emphasizing to the student current research in that particular area of microbial physiology. Each student must present their assigned paper on the assigned date or negotiate an alternative paper, presentation mode or date in advance with the instructor. The number of presentations per week and per student will depend on the number of students enrolled.
7. **Homework:** Additional activities for grades may include worksheets, a class blog or other small projects.

**REQUIRED ASSIGNEMNTS:**1. **Readings:** Students will need to read any assigned material before the designated class period. Reminders will be sent, but it is the student’s responsibility

2. **Presentations:** Each paper will be presented by one or a pair of students, depending on enrollment (30 minutes long). Other non-presenting students are expected to read the assigned presentation papers before class and be prepared to discuss them following the presentation. Note that students will pre-record and upload their presentations.  Presentations will be viewed in class following lectures.  Students are required to post at least 2 questions into the chat during the presentation.  Following each presentation, the presenter will answer any questions.

3. **Peer evaluation:** Students will evaluate their peer’s paper presentations. The student DOING the evaluation will get some points for completing this task for each presenter. The presenting student will receive an evaluation that combines student and instructor evaluation into one score. Feedback comments may be provided back to the student in an anonymized fashion.

4. **Other Homework:** Blog posts, worksheets, etc.

**EXAMS:**

1. Midterm Exam

2. Final Exam.

**GRADING:**

**OVERALL GRADE:**

**Class Presentation 20%**

**Participation/Commenting 20%**

**Homework 10%**

**Midterm 20%**

**Final Exam 30%**

**TOTAL POINTS= 100%**

**A+ ≥95%, A = 94-90%, A- = 89-85%, B+ = 84-80%, B = 79-75%, B- = 74-70%, C = 69-65, F = <65%**

**REQUIRED TEXTS:** none, but there is required reading of papers and as much background material as needed for student’s level of knowledge.

**SUGGESTED TEXTS**

**Bacterial Pathogenesis: A Molecular Approach, Fourth Edition,** 2019.Brenda A. Wilson, Malcolm E. Winkler, Brian T. Ho. Available online free via GMU Library. <https://wrlc-gm.primo.exlibrisgroup.com/permalink/01WRLC_GML/1prj2t5/alma9947119172504105>

White, D. 2006. **The Physiology and Biochemistry of Prokaryotes**. 3rd edition. Oxford University Press. New York, NY.

**TENTATIVE CLASS LECTURE AND PRESENTATION SCHEDULE - TBA**

**Note Special Lecture dates with invited speakers.** The number of presentations and homework assignments will be adjusted according to the class size.

# Other Academic Policies: All GMU academic policies will be followed.

**Plagiarism:** Plagiarism is not acceptable, and assignments may be subject to manual or computer scanning for plagiarized material. This includes all written assignments and plagiarism from AI assistants. Assignments with plagiarized material will receive a score of ZERO.

**GMU Honor Code:** *The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code with clear guidelines regarding academic integrity. Three fundamental and rather simple principles to follow at all times are that: (1) all work submitted be your own; (2) when using the work or ideas of others, including fellow students, give full credit through accurate citations; and (3) if you are uncertain about the ground rules on a particular assignment, ask for clarification. No grade is important enough to justify academic misconduct. Plagiarism means using the exact words, opinions, or factual information from another person without giving the person credit. Writers give credit through accepted documentation styles, such as parenthetical citation, footnotes, or endnotes. Paraphrased material must also be cited. A simple listing of books or articles is not sufficient. Plagiarism is the equivalent of intellectual robbery and cannot be tolerated in the academic setting. If you have any doubts about what constitutes plagiarism, please consult your professor.*

**GMU Student Resources & Disability Services:** If you are seeking accommodations for this class, please first visit <https://ds.gmu.edu/> for detailed information about the Disability Services registration process. Then please discuss your approved accommodations with me after class or by email. If you need other assistance or support, please consult the GMU Provost (provost.gmu.edu) or College of Science (cos.gmu.edu) for additional services.