Dr. Gary Schultz

schultzga@marshall.edu

Office: 309 Science Hall. Phone: 304-696-7057

Office Hours:MW 9-11 PM; T 10–12 PM

Classroom: S376 Time: MWF 12-12:50

**Course Description -** Microbial Genetics (BSC 443/543) covers the essential functions of DNA replication and gene expression in prokaryotic cells. The course includes molecular genetics of bacteria and phages, and discussion of the latest work being done in microbiology.

|  |  |  |
| --- | --- | --- |
| **Course Student Learning Outcomes** | **How students will practice each outcome in this Course** | **How student achievement of each outcome will be assessed in this Course** |
| Students will have gained an understanding of the basic principles related to Microbial Genetics including:   * Replication. * Translation and Transcription. * Gene Expression. * Mutagenesis * Various molecular techniques necessary for the study of Microbial Genetics in the laboratory. | Answer study questions in text.  Attend class and pay attention.  Study lecture notes, including Powerpoints.  Read ASM – Small Things Considered as assigned | Quizzes on lectures and Journal Club.  Participating in and leading a Journal Club class on various topics at the cutting edge of microbiology. |

**Important Policies**

**Grading and Course Requirements:**

Exams (2) 50 pts each

Journal Club 50 pts

Midterm 100 pts

Presentation Quiz 10 pts

Total 260 pts

Participation 0.5 points ADDED to final grade PERCENTAGE (must ask at least 1 question during presentations)

1. points SUBTRACTED from final grade PERCENTAGE if no questions are asked.

Attendance 0.5 points ADDED to final grade PERCENTAGE (miss 2 or fewer presentations)

1. points SUBTRACTED from final grade PERCENTAGE if 3 or more presentations are missed.

**Grading:** A = >90% of total, B = 80 - 89% of total, C = 70 - 79% of total, D = 60 - 69% of total, F < 60% of total

**Attendance.** Required for presentations. You are responsible for all material presented in class. If you miss an exam or a journal presentation, you ***will receive a score of zero for that exam or presentation***. Approved excuses for legitimate absences **must be obtained**. Make-up exams may be given in any format including short answer or essay format. Missed journal presentations **with an approved excuse** will be made up as a research term paper. If you miss more than 2 presentations, **you will be penalized 1 point from your final grade**.

**Conduct in class:** Please behave respectfully during class. Behaviors such as excessive chatting with other students, note passing, texting, etc., are disruptive to the instructor and to other students. Students habitually engaged in these activities may be asked to leave the class that day. If you need to text, e-mail, or surf the web during class, please **DO NOT COME** to class. These activities are potentially disruptive to other students who are trying to learn. Please turn off (silence) your cell phones, pagers, etc. No electronic devices will be needed, and none will be permitted, during exams. The use or access of an electronic device during an exam will be considered evidence of academic dishonesty.

**Office Hours –** Feel free to drop by at any time during posted office hours, however people who call ahead for an appointment will be given priority. ***An appointment is required outside of posted office hours.***

**Blackboard -** PowerpointOutlines or notes will be made available on Blackboard. These outlines are provided by the instructor as a courtesy to the students. The instructor reserves the right to change, delete, update or otherwise modify these files at any time. There is **no guarantee** that outlines will be posted in a timely manner. These outlines are not intended to substitute for taking your own notes in class. They are not guaranteed to be comprehensive. There may be information given during lectures that is not in the PowerPoints. These outlines are not a substitute for regular class attendance. Generally, students who rely solely on the PowerPoint notes do not do as well on the tests as students who take their own notes or use a combination of their own notes and the posted PowerPoints. **ANNOUNCEMENTS will be sent to Marshall emails. You are expected to check regularly so as not to miss any important course-related information.**

**Approximate Schedule and Material to be Covered –** The following is an ***estimated*** class schedule of topics to be covered. Specific lecture topics covered may vary. Listed lectures and the order in which they are covered is subject to change at any time.

**Responsibility.** This is a senior/graduate level class. At this point in your education you should no longer be “tape recorders” that are only capable of taking up information and repeating it back verbatim. You should also strive to be more than “computers” that are capable of recovering the proper information only if someone taps on the correct keys. It is time to start critically examining the information that you encounter, and incorporating it into the context of your knowledge base. **It requires effort on your part.** More importantly, it requires that you take full responsibility for your learning experience. The amount that you get out of this course will depend upon the amount of work you are willing to put into it. Decide now if an A in this class is worth your effort. There will be **NO EXTRA CREDIT OR CURVING OF GRADES**. Don’t ask.

**Potential topics will include:** Replication, Transcription, Translation, Gene Expression, Phage Biology, Mutagenesis, DNA Repair, Environmental Metagenomics, Microbiomes, Generation of Genetic Diversity, others.

**Tentative class schedule:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Class** | **Date** | **Day** | | **Topic** |
| 1 | 22-Aug | M | Syllabus | |
| 2 | 24-Aug | W | Replication | |
| 3 | 26-Aug | F | Replication | |
| 4 | 29-Aug | M | Replication | |
| 5 | 31-Aug | W | Transcription | |
| 6 | 2-Sep | F | Transcription | |
|  | 5-Sep | M | No Class | |
| 7 | 7-Sep | W | Transcription | |
| 8 | 9-Sep | F | Translation | |
| 9 | 12-Sep | M | **Exam 1** | |
| 10 | 14-Sep | W | Translation | |
| 11 | 16-Sep | F | Translation | |
| 12 | 19-Sep | M | Gene Expression | |
| 13 | 21-Sep | W | Gene Expression | |
| 14 | 23-Sep | F | Gene Expression | |
| 15 | 26-Sep | M | Mutagenesis | |
| 16 | 28-Sep | W | Mutagenesis | |
| 17 | 30-Sep | F | **Exam 2** | |
| 18 | 3-Oct | M | Repair | |
| 19 | 5-Oct | W | Repair | |
| 20 | 7-Oct | F | Microbiome | |
| 21 | 10-Oct | M | ?? | |
| 22 | 12-Oct | W | ?? | |
| 23 | 14-Oct | F | **Cumulative Mid-Term** | |
| 24 | 17-Oct | M |  | |
| 25 | 19-Oct | W | Presentation 1 | |
| 26 | 21-Oct | F | Presentation 2 | |
| 27 | 24-Oct | M | Presentation 3 | |
| 28 | 26-Oct | W | Presentation 4 | |
| 29 | 28-Oct | F | Presentation 5 - Last Day to Drop | |
| 30 | 31-Oct | M | Presentation 6 | |
| 31 | 2-Nov | W | Presentation 7 | |
| 32 | 4-Nov | F | Presentation 8 | |
| 33 | 7-Nov | M | Presentation 9 | |
| 34 | 9-Nov | W | Presentation 10 | |
| 35 | 11-Nov | F | Presentation 11 | |
| 36 | 14-Nov | M | Presentation 12 | |
| 37 | 16-Nov | W | Presentation 13 | |
| 38 | 18-Nov | F | Presentation 14 | |
|  | 21-Nov | M | No Class | |
|  | 23-Nov | W | No Class | |
|  | 25-Nov | F | No Class | |
| 39 | 28-Nov | M |  | |
| 40 | 30-Nov | W | Presentation 15 | |
| 41 | 2-Dec | F | Presentation 16 | |
| 42 | 5-Dec | M | Presentation 17 | |
| 43 | 7-Dec | W | **Presentation Quiz** | |
| 44 | 9-Dec | F |  | |
|  |  |  |  | |

**\*\*Official University Policies –** By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy by going to [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs) and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to [www.marshall.edu/academic-affairs/policies/](http://www.marshall.edu/academic-affairs/policies/). Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment