FUNDAMENTALS OF MICROBIOLOGY

MMG 201 Spring Semester 2017
3 credits
Tuesday, Thursday 8:00-9:20 AM
C102 Wilson

Course Faculty
Instructor
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Course Description
Hardly a day passes without a news story about an outbreak of an infectious disease, the biological impact of global warming, or a new product based on microbial gene manipulation. Microbes are not only fascinating life forms, they determine our health status and have enormous economic impact. This introductory course in microbiology is intended to provide an overview of microbial genetics, prokaryotic metabolism, and the ways in which microbes become resistant to modern day arsenal of treatments and disinfection agents. We will explore how microbes cause disease, can be controlled and diagnosed, and how they are used in research and industry.

Course Goals
This course uses the concepts identified in the American Society for Microbiology Recommended Curriculum Guidelines for Undergraduate Microbiology Educations as the basis for course goals. At the completion of this course, the successful student will be able to:
Explain how microbial substructures and metabolic pathways support microbial growth. Identify the structures and processes of microbial genome replication and gene expression. Explain how mutation and gene transfer occurs and the impact of these genomic changes. Identify and apply the tools used by microbiologists to study microbes. Explain the role of microbes in forming and adapting to the Earth’s environment and microbial ecology of Earth. Explain the chemical basis for microbial structure and function. Explain the laboratory methods used for diagnosis of infectious diseases and analyze the effect of testing errors. Describe host mechanisms to defend against microbial infections. Describe microbial pathogenicity and virulence factors and genetics. Identify the most common pathogens effecting human systems and organs.

**Instructional Objectives/Teaching Philosophy**
I assume you are enrolled in this course because 1) you are interested in the subject 2) you are interested in a career in human OR environmental health (e.g., laboratory science, nursing, human or veterinary medicine or biology/microbiology research and/or teaching OR you are using this course to develop a foundation for understanding engineering and packaging challenges) and; finally, 3) you expect to do well and have done well in previous science courses. As a college-level course, I have high expectations that you will participate fully in the course by attending lectures and participating in discussions, complete assignments and devote out of class time to preparation, review and study. As a college student, I expect appropriate, articulate communications and commitment to this course. As such, I will afford you the same level of respect and professionalism.

My focus is on learning. If you work hard, master the materials and participate in class, you will get the grade you want. I will do my best to provide you with the tools that will help you learn and succeed. But, you are responsible for your grade. I do not give you a grade; you earn it. And, I need your feedback on materials and lectures that are not working. Teaching, like science, is evidence based and is continuously striving for improvement.

**Course Prerequisites**
Recommended: Biology 161 and 171, Chemistry 141 and 161

**Required Textbook and Materials**
For this course you will need the textbook and access to McGraw Hill CONNECT. There are several purchasing options.
Text and Homework
Foundations in Microbiology, 9th Edition
Kathleen Park Talaro and Barry Chess
McGraw Hill Publishers

1. Bookstore- includes the print loose leaf textbook with CONNECT access code priced at around $150.00 for this option at the bookstore. ISBN 9781260106855
2. TALARO CONNECT- includes electronic book and CONNECT access code priced around $100. ISBN 9781260106817

You will need the following information to register on CONNECT for this course.

YOU MUST USE YOUR MSU EMAIL TO REGISTER IN CONNECT

Use this URL register for Connect
You can watch this videos for help registering for CONNECT
STUDENT REGISTRATION
VIDEO: https://www.youtube.com/watch?v=LlCJETmhYZA&feature=youtu.be

iClicker

iClicker or the smart phone REEF subscription is required. You must register your iClicker during the first week of class. In the course D2L content go to Course Documents. You will find the link for registration (purple icon). Daily in-class polling will be administered using the iClicker. You are responsible for bringing a charged phone or iClicker with batteries to each lecture.

Course Resources

Lecture Recordings
Lecture recordings (typically audio only) will be available through D2L. This can allow you to catch up if you miss a lecture or want to re-listen at your own pace. I may cancel class on occasions and substitute with a recording; or an in-class activity will take the place of lecture. However, this is NOT an on-line course. If there are any problems with recordings of live lectures, there will be no effort made to replace them. Therefore, do not count on having a recording of every lecture. Sometimes technology lets us down. Active learning is a proven effective learning strategy and an essential component of my course design. When you miss a lecture or in-class activity, you miss this deeper learning opportunity. So, plan to attend class regularly. You may also record lectures on your own devices. But these cannot be shared.

Additional Resources
I have assembled many resources to help you master the course concepts and to help you prepare for the tests. See the Additional Resources module in D2L.

Social Media

As members of a learning community, students are expected to respect the intellectual property of course instructors. All course materials presented to students are the copyrighted property of the course instructor and are subject to the following conditions of use:

1. Students may record lectures or any other classroom activities and use the recordings only for their own course-related purposes.

2. Students may share the recordings with other students enrolled in the class. Sharing is limited to using the recordings only for their own course-related purposes.
3. Students **may not** post the recordings or other course materials online or distribute them to anyone not enrolled in the class without the advance written permission of the course instructor and, if applicable, any students whose voice or image is included in the recordings.

4. Any student violating the conditions described above may face academic disciplinary sanctions.

**Accommodations including special testing needs**

Contact me to request accommodations by 5pm on Friday of the first week of classes to ensure sufficient time to make arrangements. Requests received after this date will be met when possible and as soon as possible. Provide the VISA documents from the Resource Center for Persons with Disabilities (RCPD). VISA documents available during the semester should be provided as soon as possible to meet accommodations.

**Course Policies**

No opportunities to improve a grade will be offered after the end of the course, which is the final examination. No opportunities to improve a grade will be offered besides those specified in this syllabus, unless offered by the faculty to all students. Students should stay up to date on calculating their grades and adjust study habits during the semester to earn the grade they seek. The course is **not curved** so all students can earn a 4.0.

If you are aware that you will miss an assessment (test, final, in class activity) for a University-approved or medical reason, contact me as soon as you are aware of the conflict. Time conflicts with other legitimate obligations will usually be corrected by asking you to take the examination early. This will allow all students to receive feedback on time. If you will need to miss an examination and it is within 24 hours before the exam time (e.g., get ill the night before) then you must notify me by phone or e-mail before the assessment. So put my office number in your phone right now. If you do not make prior arrangements with me or do not notify me, you will not be permitted to take the examination and your score will be recorded as a zero. It is the student’s responsibility to contact me providing documentation for unexpected absence and scheduling a time to make up the assessment. The rescheduled assessment must be within five days of returning from the absence. If you oversleep or otherwise are late for an exam - you should come to the exam room immediately after you have phoned me and left a message.

Bereavement absence or missing class to attend a funeral services must be approved by the Dean of your college. MSU Grief Absence Policy requires students to request approval for absence and to submit the request prior to leaving campus. The Deans’ Offices will notify all the approved student’s instructors. See https://www.msu.edu/unit/ombud/classroom-policies/index.html#GriefAbsencePolicy
Students are expected to conform to usual standards of academic ethics as put forth in University documents. Specific course prohibitions are listed below.

All concerns regarding questions on examinations and tests must be discussed with me within 5 working days of when the results are available; during office hours is the preferred venue. After 5 days, the examination/test is considered closed.

In case of blizzard or other impediment, check the D2L site and e-mail for an announcement of examination cancellation and rescheduling.

All iClicker questions, test questions and in class activities are based on the course learning objectives. These may be modified during the course at the discretion of the faculty, but prior notice to students will be provided. Learning objective material may come from the text and/or lecture. If material in an objective is not covered in lecture, you are still responsible for it.

Examination questions will NOT be returned. A key will be posted outside my office (306 N Kedzie) for review for the 5 days after the result availability during which the questions may be appealed.

Examination administration policies:

- Caps with brims must be turned back or removed; hoodies must be down; stocking caps/scarves pushed up to your hairline; no dark glasses - in general, I need to be able to see your eyes.
- Phone off and put away.
- Ear buds out/headphones off and put away.
- Sit in every other seat. Left handed students must sit in left handed seats; right handed students in right handed seats and you use the desk that goes with your seat.
- Keep test papers on the desk top and cover your answer sheet. I will provide one warning. If the problem is not corrected, I will collect your exam materials and you will score a zero for the test. The incident will be reported to the appropriate academic office.
- Translating devices and dictionaries are not permitted. All students may ask for clarification on a question. If English is not your first language, you may ask for an aisle seat so I can answer questions more easily.

I do not provide PowerPoint slide print outs. I will make every effort to make sure each lecture is posted to D2L prior to class.

Collaboration may be permitted or required for some assignments. Working together on CONNECT homework is not permitted. Please refer to the individual assignments but when in doubt, assume collaboration is not permitted.
Communications

URGENT communications require use of the TELEPHONE and Email. You should leave a message if I don’t answer. What is considered “urgent”? Some examples:

• You have been ill all night before an exam and will miss it.
• You will be late for an exam - overslept, car trouble, etc. (See exam policies)
• You are working on a D2L or CONNECT assignment and have a computer problem. First, phone D2L Help (517) 432-6200. If the problem cannot be corrected during the time the assignment is active, email me. When the problem is fixed, I will allow you access to the assignment. Which means you will want to work on it during business hours AND not in the last two hours that it is open so that you maximize the chance that you can reach me. (Remember clearing cookies and cache is the first step to avoiding computer problems.)

Class announcements will be posted to D2L NEWS.
Check it regularly especially if you miss class.

I or the TA will make every effort to respond to e-mail within 24 hours during the week. If I am out of town or otherwise unavailable, a response may be delayed. We do not monitor email constantly. Do not expect an immediate reply. So, plan accordingly.

MSU Policy on Faculty/Student Communication:
Note the MSU policy on e-mail as official communication tool https://itservices.msu.edu/guidelines-policies/student-email-communications-notice.html. It states “Failure to read official University communications sent to the students official MSU e-mail addresses does not absolve students from knowing and complying with the content of those communications.” You should check e-mail once every 24 hours.

Final examination time conflicts:

Do you have 3 exams on the same day? First you must get verification. Lyman Briggs students at any level should contact Jonelle Golding. If you are a freshman or sophomore, go to the advising office of Undergraduate University Division (UUD) that serves your neighborhood/residence hall. For off campus students, that’s Bessey Hall.

If you are a junior or senior with a major in the College of Natural Science, see Ms. Deb Dotterer in 103 Natural Science (355-4470). If you are a junior or senior with a major in a different college, contact your College advisor. Once an official has verified that you have 3 exams on one day, I will work with you to possibly set up another exam time.

Do you have two exams scheduled at the same time? If one of the courses is something like organic chemistry or math that has a common final exam time for multiple sections, it is
University policy for THAT course/instructor to make adjustments for you. So, start by checking with that professor for an alternate time.

**Grading**

**Homework**
Reading and homework are required preparation for class. There are usually 2 assignments per week—see the schedule. You can earn up to 50 homework points toward your final grade. There are many more points offered, so even if you miss a few points here and there, you should not have a problem earning the full 50 points. You will be penalized 25% for each day that an assignment is late to promote pre-class preparation. The goal of the homework is to practice and review the materials so that you can ask questions and engage in class discussions. If you complete these late, that learning tool is ineffective. However, un-attempted homework is open for you to complete and use as a practice and review tool even after points for the assignment have expired.

CONNECT assignments are like a quiz. There are around 5-10 questions in each assignment. You can take Assignments 1-4 an unlimited number of times to help you get used to this program. Assignments 5-22 can only be attempted twice. If you don’t like your score on attempt 1, you can retake it. Note: Questions are assigned randomly. So you cannot get the answers from another student. They probably won’t have the same questions as you.

LearnSmart assignments are reviews. You will go through a deck of questions until you get them correct. I have selected this option for chapters where this type of review will help you master material. This type of assignment should take less than an hour, if you have read the associated chapter.

**Daily iClicker Questions**
There will usually be about 3-5 questions available daily. You are responsible for always having your iClicker and having sufficient battery power at each class lecture. Daily iClicker questions will cover material from previous and current lectures and the assigned reading for the day. The questions appear at the beginning and throughout the lecture period, starting at 8 AM. A total of at least 100 points will be offered, and up to 75 will go toward your final grade. Because more than 75 points will be offered, these cannot be made up unless you have a prolonged approved absence.

No iClicker points are awarded for participation.
Tests
All questions on tests are based on Learning Objectives and will contain 50-75 multiple choice, true/false, matching, and short essay or fill in the blank questions.

The Final Examination is comprehensive.

In Class Activities
You will be assigned to a learning group at random during the first week of class. There will be 5 activities throughout the semester in which you will work with this team. Each group will submit a response to the activities for grading. Only members of the team who are present can earn points. Only documented, approved absences can be made up.

Extra Credit
You can earn up to 10 points extra credit by exceeding the iClicker score of 75 and/or exceeding the homework score of 50. That means if you have 78 quiz points at the end of the semester and 80 homework points, you can earn 10 extra credit points. No other extra credit opportunities are available.

Homework 50
Daily iClicker Questions 75
In Class Activities 25
3 Tests @ 75 points each 225
Final Exam 100
TOTAL 475 POINTS

Course Grading Scale

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Academic Honesty
Michigan State University has established policies on the integrity of scholarship and grades that are contained in the All University Policy on Integrity of Scholarship and Grades, General Student Regulation 1.00 Protection of Scholarship and Grades, Ordinance on Examinations, and
Academic Freedom for Students. The Biomedical Laboratory Diagnostics faculty support these policies. It is the joint responsibility of students, faculty and administrators in maintaining the integrity of scholarship and grades.

Students’ Responsibilities: Students are responsible for their own behaviors and are expected to maintain stated standards of academic honesty. Students share the responsibility with the faculty for maintaining an environment that supports academic honesty and discourages plagiarism or cheating. Therefore, students are expected to:

- develop personal practices that prevent suspicion of academic dishonesty such as avoiding sitting near friends in exams or avoiding wandering eyes, and report instances of academic dishonesty to appropriate faculty and administrators
- name individuals involved in academic dishonesty
- participate as a witness at judicial hearings in alleged cases of academic dishonesty
- avoid generating accusations of academic dishonesty that cannot be substantiated

Faculty and Administrator Responsibilities
Faculty are responsible for creating a classroom and testing environment that discourages cheating, confronts suspected violators and insures fair treatment of all students. Administrators also share the responsibility for developing an environment that discourages academic dishonesty. Accordingly, administrators are expected to:

- respond in a timely fashion to follow-up accusations of academic dishonesty
- implement Departmental, College and University procedures to investigate accusations of student academic dishonesty
- hear appeals and render a judgment
- notify Provost and Ombudsman of decisions

Academic Dishonesty
The following activities are considered to be academically dishonest in MMG 201 unless otherwise specified in the assignments:

- failing to report observed instances of academic dishonesty
- plagiarism, defined as representing as one’s own, the ideas, writings, or other intellectual properties of others, including other students; any material taken verbatim from the work of others must be placed in quotation marks and a reference cited. Paraphrased content must have appropriate attribution.
- collaboration on assignments unless it is clearly permitted per the syllabus
- falsifying academic records
- bribing University staff/faculty to improve academic scores or grades in any way
- acquiring an examination during the preparation, typing, duplication, or storage or, in the case of on-line exams
- removing or acquiring secured examinations after administration
- copying answers from another student’s examination
• taking a crib sheet or other form of prepared answers/notes into an examination when not permitted by the faculty member
• leaving the examination room and returning without permission
• taking an examination for someone else, preparing and submitting an assignment for someone else, or sign-in for class for someone else
• having someone take an examination, prepare an assignment or sign-in for class in one’s stead
• systemically memorizing questions from secured exams and collating them for future study
• copying posted examination questions
• receiving, retaining, and/or using materials obtained in a manner that is defined as academically dishonest
• using signals or otherwise communicating (e.g. text messaging) during an examination to share answers with or from another student
• continuing to answer test items beyond the prescribed exam time limit
• falsifying reasons for excused absences from examinations
• taking examinations at times other than the one to which you have been assigned in order to obtain more preparation time
• defacing a test bubble sheet to falsify answers (e.g. bubbling all answers for a given question) electronic equivalents of any of the above
• posting course-related materials not entirely of your own creation to on-line sites such as Notehall or allMSU.com; use of prohibited materials posted to such sites. See the MSU Code of Teaching Responsibility 9 and General Student Regulation 1.02.
• when computerized activities are scored by completion date, rather than performance, logging in and out without doing the activity OR just randomly selecting answers
• providing to another person, including your parents, your password and other necessary information allowing them to enter Angel in your stead.

Course Evaluation
Michigan State University takes seriously the opinion of students in the evaluation of the effectiveness of instruction, and has implemented the SIRS (Student Instructional Rating System) process to gather student feedback. MMG 463 utilizes the “online SIRS” system. You will receive an e-mail sometime during the last two weeks of class asking you to fill out the SIRS online form at your convenience. Please note the final grade for this course will not be accessible on STUINFO during the week following the submission of grades for this course unless the SIRS online form has been filled out. You will have the option on the online SIRS form to decline to participate in the evaluation of the course — I hope, however, that you will be willing to give us your frank and constructive feedback so that we may instruct students even better in the future. It will be entirely anonymous and available to the BLD Program Director as well as me. You can read more about it at: https://sirsonline.msu.edu/FAQ.asp
Tips for success in MMG 201 with advice from the seasoned pros:

- Review the objectives and complete the reading and homework BEFORE lecture
- Attend every lecture and take your own notes. Writing notes with pen and paper is more effective than typing in lectures verbatim.
- Review your notes within 24 hours after lecture and once again on the weekend following the lecture. You lose 90% within 24 hours - so make class time as meaningful as possible by reviewing ASAP.
- Use the objectives like study questions and write out the answers to them. Work from memory as much as possible. Then go back and fill in/correct from your notes and text. Then you have them for exam study. The objectives answer to the question, “What will be on the test?” Do this soon after lecture.
- See me during office hours to get questions answered, such as clarifying any discrepancies between lecture and the book.
- Start your intense review for exams several days before the exam.
- Form a study group to quiz one another before exams. Also, practice explaining what you understand to the other members of your group - you will know you know it when you can explain it CORRECTLY to someone else.
- Build regular aerobic exercise and good sleep into your life. Sleep is necessary to solidify memories. All-nighters don’t contribute to real learning; 8 hours of sleep can contribute a full grade to your test score.
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<td>5/3</td>
<td>7:45-9:45 am C102 Wilson Hall</td>
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