

Course ID:	Course Title:	Fall 2018
BIO 241	General Microbiology	Prerequisite: BIOL 131 and BIOL 133
		Credits: 3

Class Information		Instructor Information		Important Dates	
Days:	Wednesday and Friday	Instructor:	Dr. Chris Wang	First day of classes:	Wed., Sept 5
Time:	2:30 – 3:45 PM	Email:	Chris.Wang@ambrose.edu	Last day to add/drop, or change to audit:	Sun, Sept 16
Room:	A 2210	Phone:	(403) 410-2000 ext. 6910	Last day to request revised exam:	Mon, Oct 22
Lab/ Tutorial:	3 hours/week	Office:	L 2113	Last day to withdraw from course:	Mon, Nov 12
	Wednesday 4:00 – 7 PM in A 2145	Office Hours:	Monday: 1 PM – 2 PM, Thursday: 9 AM – 10 AM, or by appointment	Last day to apply for coursework extension:	Mon, Nov 19
Final Exam:	9 AM - 12 PM on Monday, Dec. 17 th in Airhart			Last day of classes:	Tue, Dec 11

Course Description

Microbiology explores the biology of microorganisms, namely viruses, bacteria, unicellular and microscopic multicellular eukaryotes. The course will review fundamental information about the biology of these organisms and will expand this knowledge base with microbial genetics, diversity and ecology. The field of applied microbiology will also be explored in topics regarding health, industry and the environment. The accompanying laboratory component will introduce a variety of laboratory techniques to identify microorganisms.

Expected Learning Outcomes

At the end of the course, students should have acquired the following skills:

1. Understand the basic features of microbes.
2. Understand and appreciate the diversity of microbes.
3. Comprehend the intimate interaction between humans and microbes in health, industry and the environment.
4. Competently handle and experiment on bacteria.

Textbooks

Madigan, Bender, Buckley, Sattley, and Stahl. Brock Biology of Microorganisms. 15th Edition. Pearson. ISBN 13: 978-0-13-426192-8.

Older editions of this textbook are acceptable. However, please take note of any updates and all references to the textbook in lectures and tutorials, such as figures and concepts, are based on the 8th edition.

Tentative Course Schedule

The following schedule provides a general guideline and timetable for topics and tests. It may change depending on progress through the semester.

Date	Lecture Topic	Readings (Madigan <i>et. al.</i>)
	Laboratory	
Sept. 05	Introduction to BIO 241	
	No Lab	
Sept. 07	Topic 1: The World of Microorganisms	Ch. 1
Sept. 12	Topic 1: The World of Microorganisms	Ch. 1
	Lab 1: Laboratory Exercise 1 - Microorganisms are Ubiquitous	
Sept. 14	Topic 2 - Microbial Cell Structure and Function	Ch. 2
Sept. 19	Topic 2 - Microbial Cell Structure and Function	
	Lab 2: Case Study 1 -	
Sept. 21	Topic 2 - Microbial Cell Structure and Function	
Sept. 26	Topic 3 - Microbial Growth	Ch. 5 and 7
	Lab 3: Laboratory Exercise 2 – Bacterial Culturing Techniques	
Sept. 28	Topic 3 - Microbial Growth	
Oct. 03	<i>NO Lecture due to Spiritual Emphasis Day</i>	
	<i>NO Lab due to Spiritual Emphasis Day</i>	
Oct. 05	Topic 3 - Microbial Growth	
Oct. 10	Topic 4 - Microbial Metabolism	Ch. 3
	Lab 4: Case Study 2	
Oct. 12	Topic 4 - Microbial Metabolism	

Oct. 17	Lecture Overflow and Midterm 1 Q/A Review Session	
	Lab 5: Lab Overflow	
Oct. 19	<i>Midterm 1 (Topic 1 – 4)</i>	
Oct. 24	Topic 5 - Molecular Information Flow	Ch. 4
	Lab 6: Laboratory Exercise 3 – Staining Techniques	
Oct. 26	Topic 5 - Molecular Information Flow	
Oct. 31	Topic 5 - Molecular Information Flow	
	Lab 7: Case Study 3	
Nov. 02	Topic 6 - Bacterial and Archaeal Genomes	Ch. 11
Nov. 07	<i>No Lecture due to Reading Week</i>	
	<i>No Lab due to Reading Week</i>	
Nov. 09	<i>No Lecture due to Reading Week</i>	
Nov. 14	Topic 6 - Bacterial and Archaeal Genomes	
	Lab 8: Laboratory Exercise 4 – Bacterial Conjugation	
Nov. 16	Topic 7 - Virus and Bacteriophage	Ch. 8
Nov. 21	Topic 7 - Virus and Bacteriophage	
	Lab 9: Laboratory Exercise 5 – Bacterial Evolution	
Nov. 23	Topic 8 - Biotechnology	Ch. 12
Nov. 28	Topic 8 - Biotechnology	
	Lab 10: Lab Review and <i>Lab 5 due</i>	
Nov. 30	Topic 8 - Biotechnology	
Dec. 05	Topic 9 - Microbiology and Pathogenesis	Ch. 25
	Lab 11: Lab Exam	
Dec. 07	Final Exam Q/A Review Session	

Requirements:

- students are required to sign up for Top Hat subscription at <https://tophat.com/>
 - BIO 241 – General Microbiology join code: **589432**
 - make sure the Ambrose University WiFi is used, and the Bluetooth function is turned on
 - if each question is 1 point: 0.5 is assigned for participation and 0.5 for correctness
- students are encouraged to read the corresponding chapter prior to attending lectures
- students are encouraged to generate their own notes according to their learning styles
- all lecture PowerPoints and tutorial assignments will be posted on Moodle
- laboratories are designed: (1) to understand the landmark experiments in cellular and molecular biology; and (2) to review the lecture topics and key concepts in preparation for tests. Tutorial assignment submission deadlines are on the day of the tutorial

Attendance:

- lecture attendance will be taken through students' participation in Top Hat questions. Students, who absent from lecture(s), are responsible for the course materials covered.
- doctor's notes are required for deferred midterm and final exams
- attendance will be taken in lab

Evaluation Methods:

Evaluation Methods	Due Date	Weighting
Top Hat Participation	multiple	5%
Pre-Topic Assignments	multiple	5%
In-Class or In-Lab Post-Topic Assignments	multiple	10%
Midterm Exam	Oct. 19 th	20%
Laboratory Component	multiple	30%
Final Exam (cumulative)	9 - 12 AM on Monday, Dec. 17 th in Airhart	30%
Total		100%

Pre-Topic Learning: (5%)

- work in a group of 2 – 3 students
- due dates will be assigned in class

Group Members:

Name	E-mail	Cell

In-Class or In-Lab Post-Topic Assignments: (10%)

- work in a group of 2 - 3 students
e.g. critical thinking questions, problem solving questions, simple experimental design
- assignment is due on the day in class or in lab, and your attendance is required to receive the marks
- NO deferred assignment due to absence (unless pre-arrangement was made)

Laboratory Component: (30%)

- a passing grade in WHMIS training is required prior to the attendance of all laboratory sessions
- lab exercises and case studies are worked among a group of 2 – 3 students, whereas the lab exam is an individual work
- read and do the required questions before coming to the lab session
- lab exercise 1 – 4: 8%
- lab exercise 5: 4%
- case study 1-3: 10%
- type out answers of lab exercises and case studies, and submit a hard copy to Dr. Wang
- lab exam: 8%
- a 1% of the final mark will be deducted if the bench was not cleaned properly before leaving the lab

Midterm Exam: (20%)

- focus on understanding the biological concepts rather than detail memorization
- NO make-up or deferred exam unless evidence of legitimate excuse, such as doctor's notes, is presented

Final Exam: (30%)

- final exam is *comprehensive (i.e. cumulative)*

Grade Summary:

Percent (%) to Letter Grade Conversion	Grade	Grade Point	Description
90.00% - 100%	A+	4.0	Excellent
85.00% - 89.99%	A	4.0	
80.00% - 84.99%	A-	3.7	
77.00% - 79.99%	B+	3.3	Good
73.00% - 76.99%	B	3.0	
70.00% - 72.99%	B-	2.7	
67.00% - 69.99%	C+	2.3	Satisfactory
63.00% - 66.99%	C	2.0	
60.00% - 62.99%	C-	1.7	
55.00% - 59.99%	D+	1.3	Minimal Pass
50.00% - 54.99%	D	1.0	
00.00% - 49.99%	F	0	Fail

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor's assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

Other:

Classroom Etiquette:

Electronic Devices

Although computers and tablets can be used in the class for taking lecture notes, cell phone usage is not permitted. Please turn cellular phones off - it is very distracting to hear someone's phone go off in class. Texting and movie watching are prohibited in class.

Attend every class

You will find that students who attend every class, listen to the instructor and take good notes will be more likely to pass (with a higher grade). If you have an emergency or illness, please contact me ahead of time to let me know that you will be absent.

Important note: if you miss a class it is your responsibility to meet with the instructor, outside of regular class time, to determine a plan to make up the missed work.

Get to Class On Time

Students, who walk into the classroom late or leave early, distract other students and disrupt the learning environment.

Do Not Have Private Conversations

The noise is distracting to other students. Also, talking to classmates during lecture and presentations disrupts the normal learning environment.

Do Not Get Up and Walk Out Halfway Through the Class

It disturbs people and gives the unmistakable impression that you don't respect the class, the other students or the instructor. The instructor has the right to finish his or her thought at the end of the class period and conclude the class in an orderly fashion without people standing up and walking out

Your Classmates Deserve Your Respect and Support

Others may have different ideas and opinions from yours, they may ask questions you perceive to be "stupid," but they deserve the same level of respect from you as you wish from them.

Plagiarism:

Plagiarism is a very serious academic offence that involves presenting work in a course as if it were the result of one's own study and investigation when, in fact, it is the work of someone else. Plagiarism takes place when:

- an essay or other work is copied from another source, including your peer's work, and submitted as one's own
- parts of a work, including words, ideas, images or data, are taken from a source without acknowledgement of the originator
- work presented for one course is also submitted for another course without prior agreement of the instructors involved
- another person prepares the work that is submitted as one's own
- substantial editorial or compositional assistance from another person is received on work that is submitted as one's own

Cheating:

Cheating is also a very serious academic offence. Cheating on examinations, assignments and/or labs may take a number of forms, including:

- tampering or attempting to tamper with examination scripts, class work, grades or class records
- obtaining unauthorized assistance from anyone during the course of an examination
- impersonating another student during examinations
- falsifying or fabricating lab reports
- communicating with other students during an examination
- bringing unauthorized written material or electronic devices to an examination
- possessing, distributing, or attempting to possess or distribute unauthorized material in respect to examinations
- attempting to read the examination papers of other students
- deliberately exposing one's own examination papers to another student

Ambrose University Academic Policies:

Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student to use a

laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at privacy@ambrose.edu.

Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

Note: Students are strongly advised to retain this syllabus for their records.