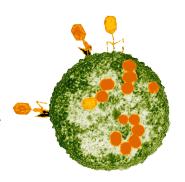
BIOL 286: General Microbiology Course Syllabus, Spring 2018

In order to optimize student learning, the standards and requirements set forth in this syllabus may be modified during the semester. Notice of any such changes will be announced in class and posted on our Blackboard course welcome page.



Ms. Kim Andrus

(231) 591-3678

KimberlyAndrus@ferris.edu

ASC 2015E

Class location and meeting time

Lectures will be held on Tuesdays and Thursdays from **4:00 to 4:50 pm** in **SCI-126**. The laboratory sessions will meet on Tuesdays and Thursdays at either **9:30 to 10:45 am**, **12:00 to 1:15 pm**, or **1:30 to 2:45 pm** in **SCI-211**. You are responsible for all announcements, assignments, handouts, etc., even if you are late or absent (see the attendance policy for more details).

Contact information

Instructor name: Dr. Clifton Franklund

Office:

ASC 2011

Telephone:

(231) 591-2552

Email:

franklc@ferris.edu

Twitter:

@Dr Franklund

Web site:

http://franklund-micro.com

Contacting Dr. Franklund

Office hours:

[M | T | W | R | F] from 10:00 to 11:00 am

I will maintain official office hours as indicated above. These are first come, first served – you are encouraged to make appointments but walk-ins are welcome and will be accommodated whenever possible. You can sign up times online at http://cliftonfranklund.youcanbook.me. In addition, I have posted my schedule outside of my office door. All of my "free" time is available to you as office hours. Simply find the day that works for you and sign up for a meeting (in 15-minute increments).

Email: You can expect me to reply to your email questions within 24 hours during the work week and within 48 hours on weekends and holidays.

I offer bonus points for office hours following each exam to briefly to discuss your recent performance. Bring your completed feedback email report, your exam, and your notes. We will work together to try to find strategies to improve your performance over time.

Prerequisites

CHEM 122: General Chemistry 2 or consent of the instructor

Course description

Introduction to the microbial world including microbial structure, function, metabolism, classification, genetics, control of microbial growth and immunity. The laboratory provides practical experience with fundamental concepts, techniques and instrumentation. This course is designed for students in the clinical laboratory science program and is open to other students by permission of the professor.

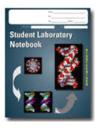
Required texts and materials

Optional Textbook: *Microbiology: An Evolving Science 2nd edition by Slonczewski and Foster. 2011* (ISBN 0-393-93447-0)

Lab notebook: We will be using the hardcover *Student Laboratory Notebook* published by the American Society for Microbiology Press, 2005. (ISBN 1-55581-358-5)



Other materials: We will be using an online clicker system in class this semester (Socrative). You can use any internet capable device to interface. Free apps are available for iOS, Google, and Android. A cloth lab coat, a Sharpie™ and access to a digital camera (e.g. iPhone, android phone will be required for lab. Other optional materials include a scientific calculator, a USB flash drive, and a wax pencil for the laboratory.



Learning outcomes

I have several specific learning objectives for you in this course and they are listed below. Some of these will be covered in lab, others in lecture, and many in both. By the conclusion of this course, you should be able to:

A. *Microbial Diversity* - Give examples of and compare and contrast different types of microbial cells (including viruses, bacteria, fungi, and protozoa). Identify cell structures and define their functions.

Assessed via laboratory and online quizzes or reports, questions from lecture exams 1, 2 and 3, the laboratory practical, and the comprehensive final exam.

B. *Microbial Metabolism* - Explain the various metabolic strategies employed by microbes. Provide specific examples of how metabolism is linked to environmental cycling of elements and pathogenesis.

Assessed via laboratory and online quizzes or reports, questions from lecture exams 2, and 3, the laboratory practical, and the comprehensive final exam.

C. *Microbial Genetics* - Describe basic concepts involving how genetic information flows in microbial cells. Detail the importance of mutation, recombination, and lateral genetic exchange in virulence.

Assessed laboratory and online quizzes or reports, questions from lecture exam 3, the laboratory practical, and the comprehensive final exam.

D. Host-Microbe Interactions - Differentiate between the innate, humoral, and cellular defenses and identify points of interaction. Explain how inappropriate immune responses can result in host damage. Compare the different interactions possible between host and microbial cells. Describe several different molecular strategies employed by microbial pathogens and give several specific examples of each.

Assessed via laboratory and online quizzes or reports, the laboratory practical, and the comprehensive final exam.

E. Laboratory Techniques - Correctly perform proper laboratory skills and display a habit of good laboratory practices that extend to your everyday life. Perform simple and differential stains on isolates and properly use compound light microscopes to visualize and describe microbial cell morphologies.

Assessed via laboratory quizzes and notebook entries, and the laboratory practical.

- **F.** *Critical Thinking* Accurately follow instructions and collect data based upon observations from laboratory exercises or clinical case studies. Plot data when appropriate and interpret any trends. Make inferences and predictions based upon the interpretations. *Assessed via laboratory and online quizzes, laboratory notebook entries, and the laboratory practical.*
- **G.** *Communication* Demonstrate an ability to work in group settings and exchange ideas concerning course-related topics. Read, write, and speak about Microbiology with classmates and members of the community. *Assessed via short microbiology papers.*
- **H.** *Metacognition* Articulate preferences and dislikes (strengths and weaknesses) for learning new and complex information. Adopt new learning strategies to improve retention of information and comprehension of the course materials.

Assessed via post-exam bonus assignments, feedback during office hours, and occasional class surveys.

Each of the graded course activities will correspond to one or more of our six course outcomes. In addition, these activities can be involved different levels of cognitive skill or ability. These skills and their relative contribution to course assignments are described below.

IDENTIFYING – You will be expected to remember and correctly use appropriate scientific terms and concepts. This skill is assessed by measuring the ability to recall information in the same context in which it was presented during instruction. Approximately 15% of the course points will correspond to this skill.

CATEGORIZING – You will be expected to classify or provide examples of specific scientific concepts or constructs. This skill is assessed by measuring the ability to conceptually organize information in contexts different from those presented during instruction. Approximately 30% of the course points will correspond to this skill.

CALCULATING – You will be expected to correctly solve a variety of problems using mathematical reasoning. This skill is assessed by measuring the ability to select and apply appropriate formulae to solve novel problems. Approximately 10% of the course points will correspond to this skill.

INTERPRETING – You will be expected to analyze data provided in tables, images, or case studies to answer specific questions. This skill is assessed by measuring the ability to identify relevant facts and interpret them to address specific scientific problems or case studies. Approximately 15% of the course points will correspond to this skill.

PREDICTING – You will be expected to make sound inferences based upon their understanding of the interactions that make up a natural system. This skill is assessed by measuring the ability to make reasonable forecasts of the behavior of a specified system following a specified perturbation. Approximately 10% of the course points will correspond to this skill.

JUDGING – You will be expected to evaluate the validity of scientific statements or potential courses of action. This skill is assessed by measuring the ability to detect errors or inconsistencies in such statements. Approximately 5% of the course points will correspond to this skill.

Critical Thinking

PERFORMING – You will be expected to use the scientific method to safely and correctly execute scientific exercises in the laboratory or field. This skill is assessed by measuring the ability to execute the exercises, record and interpret the observations, and report the results in an appropriate manner. Approximately 15% of the course points will correspond to this skill.

Instructional methods

BIOL 286: General Microbiology will be taught as a blended delivery class. The primary form of instruction for this course will be most likely be lecture. The material covered in lecture will be amplified and applied in a variety of required laboratory exercises. In addition, a number of important and required materials will be presented online via our Blackboard site. A complete online laboratory manual will be available during the semester. A moderate amount of out-of-class work will be required for this class. You will be expected to bring your clicker to every class session and participate in group discussions (both in class and online). We will regularly use the clickers to gather feedback, take concept check quizzes, and work collaboratively on case studies or problems. Your clicker responses *may* be included as part of your course score in the form of occasional bonus points.

Grading policies

I use an objective point-based system to grade all assigned work. The nature and relative point values of all assignments are explained in the following section. I have designed this course to be worth a total of 1,200 points. Mid-term grades will be posted by March 2, 2018 so that you may assess your class standing. Final grades for the course will be assigned based upon your total earned score as indicated

Breakpoints are not negotiable.

The bonus points should give you more than adequate buffer against any poor assignment performances.

Point Range	Grade	Percent
1,116 to 1,200 points	Α	93-100%
1,080 to 1,115 points	A-	90-92.9%
1,044 to 1,079 points	B+	87-89.9%
996 to 1,043 points	В	83-86.9%
960 to 995 points	B-	80-82.9%
924 to 959 points	C+	77-79.9%
876 to 923 points	С	73-76.9%
840 to 875 points	C-	70-72.9%
804 to 839 points	D+	67-69.9%
756 to 803 points	D	63-66.9%
720 to 755 points	D-	60-62.9%
0 to 719 points	F	0-59.9%

Graded assignments

Lecture exams – There will be three 160-point comprehensive lecture exams (see the lecture schedule for dates). They will consist of multiple choice (four options) questions. The exam items will assess your comprehension of course materials at several different cognitive levels. They may be based upon diagrams, problems, data sets, or material drawn from the textbook or assigned readings.

• 480 points (40.0% of your final grade)

Laboratory quizzes – There will also be twelve 10-point laboratory quizzes (see the lab syllabus for dates). These will cover the prior lab's material as well as the assigned readings for the current lab period. Questions may include matching, multiple-choice, and problem solving.

• 120 points (10.0% of your final grade)

Laboratory notebook – You will be required to record your observations from laboratory exercises and analyze these data in a bound lab notebook. Your notebook entries will be periodically evaluated using a set of simple scoring rules. Your notebook scores will be entered into the Blackboard grade book several during the semester. Keep up-to-date in your notebooks to ensure that you score all of these points!

• 150 points (12.5% of your final grade)

Lecture quizzes – A total of eight short lecture quizzes will be given in class during the semester. They will cover the main points covered in lecture and will be worth ten points each. The questions will be in a variety of formats.

• 80 points (6.7% of your final grade)

Microbiology Project – You will analyze, graph, and interpret a data set pertaining a specific microbiological issue. The purpose of this assignment is to evaluate your creative and critical thinking concerning microbiological concepts. More precise instructions about this assignment, a grading rubric, and paper deadlines can be found on our Blackboard site.

• 20 points (2.7% of your final grade)

Laboratory Practical – At the end of the semester, there will be one 150-point laboratory practical. This will consist of twenty-five timed stations covering the materials seen and worked with over the course of the semester. Each station will have three multiple-choice questions. The penultimate lab session will be devoted to reviewing the materials for this exam.

• 150 points (12.5% of your final grade)

Final Exam – There will be a comprehensive lecture exam. Its content drawn from material on in our four lecture modules (approximately half new material and half review questions). Like the lecture exams, it will consist of multiple-choice (four options) questions.

• 200 points (13.3% of your final grade)

Bonus – At various points during the semester, bonus assignments may be given. The nature of the assignments, their due dates, and point values will be announced during the semester.

• 60 points (up to an extra 5% added back onto your final grade)

Due dates for graded work

Your grade will be based upon many different assignments this semester. The following is a chronological compilation of the due dates (last acceptable date) for each assignment. These due dates can also be found in our Blackboard course calendar online.

Assignment	Due Date	Points	Percent	Cumulative
Lab quiz 1	01/16/18	10	0.83%	0.83%
Notebook 1 [1,2]	01/18/18	10	0.83%	1.66%
Lab quiz 2	01/23/18	10	0.83%	2.50%
Notebook 2 [3,4,5]	01/25/18	15	1.25%	3.75%
Lab quiz 3	01/30/18	10	0.83%	4.58%
Notebook 3 [6,7,8,9]	02/01/18	20	1.67%	6.25%
Exam 1	02/01/18	160	13.33%	19.58%
Lab quiz 4	02/06/18	10	0.83%	20.42%
Notebook 4 [10,11,12]	02/08/18	15	1.25%	21.67%
Lab quiz 5	02/13/18	10	0.83%	22.50%
Notebook 5 [13,14]	02/15/18	10	0.83%	23.33%
Lab quiz 6	02/20/18	10	0.83%	24.17%
Notebook 6 [15,16,17]	02/22/18	15	1.25%	25.42%
Lab quiz 7	02/27/18	10	0.83%	26.25%
Exam 2	02/27/18	160	13.33%	39.58%
Notebook 7 [18,19]	03/15/18	10	0.83%	40.42%
Lab quiz 8	03/20/18	10	0.83%	41.25%
Notebook 8 [20,21,22]	03/22/18	15	1.25%	42.50%
Lab quiz 9	03/27/18	10	0.83%	43.33%
Lab quiz 10	04/03/18	10	0.83%	44.17%
Exam 3	04/03/18	160	13.33%	57.50%
Notebook 9 [23,24]	04/05/18	10	0.83%	58.33%
Microbiology project	04/10/18	20	1.67%	60.00%
Lab quiz 11	04/11/18	10	0.83%	60.83%
Lab quiz 12	04/18/18	10	0.83%	61.67%
Notebook 10 [25,26,27,28,29,30]	04/20/18	30	2.50%	64.17%
Laboratory practical	04/27/18	150	12.50%	76.67%
Unannounced quizzes	???	80	6.67%	83.34%
Final exam	05/01/18	200	16.67%	100.00%
Total		1,200	100.00%	100.00%

Class attendance, late assignments, and make-up policies

You are expected to attend class regularly. I have noted a direct correlation in my prior classes between student attendance and class performance. However, it is ultimately up to you to show up for class. You will be responsible for all reading, discussions, and lecture materials. The

lab is an essential component of this course. Therefore, anyone with more than two (2) unexcused absences from lab will receive an 'F' for the course.

All graded materials must be completed on time. Make up exams will be provided only in the case of an excused absence. You must contact me within one week of the missed exam and provide written evidence to explain your absence. If you know in advance that you will be absent for an exam, please contact me immediately. I will attempt to arrange to accommodate you (within reason) with no penalty. You may always turn in assignments before their due dates. If you miss a lab, you may attend a different section in order to participate in graded work.

The following are instances of excused absences:

- 1. Hospitalization, with documentation from your physician
- 2. Severe illness, with documentation from your physician
- 3. Jury duty, with a copy of your court summons
- 4. Bereavement, with a letter from a family member
- 5. Ferris-sponsored sporting event, with a letter from your coach

The following are **NOT** instances of excused absences:

- 1. Oversleeping get a better alarm clock
- 2. Work You agreed to the class schedule when you signed up for the course
- 3. Appointments see number two
- 4. Traveling see number two
- 5. Other classes conflict see number two
- 6. Jail or prison time you have bigger problems than a missed deadline
- 7. Illness without documentation you must have a physician's note
- 8. Forgot deadlines they are your responsibility
- 9. Bad weather if Ferris is open, our classes will meet as scheduled
- 10. Confusion ask questions earlier rather than later!
- 11. Computer problems there are over 100 computers available in the library alone

Blackboard

This semester, we will be extensively using Blackboard Learn in our course. Our site will contain a variety of materials to supplement, but not replace, class attendance and reading. I am always interested in comments, corrections, or suggestions with regard to the electronically delivered course content! This semester, the site will contain the following:

- 1. A PDF copy of this syllabus.
- 2. Links to many different resources to help you to succeed in this class.
- 3. All course announcements pertaining to this class.
- 4. A calendar of all course assignments and deadlines.

- 5. Online communication tools for you to contact me or your classmates.
- 6. On-line access to your course grades.
- 7. Ancillary lecture materials including: 1) assigned readings with links to the e-textbook, 2) PDF copies of the lecture slides for your note-taking convenience, 3) a link to a Tegrity recording of the lecture (if Tegrity actually works that day), and 3) links to additional information on the internet offered by our textbook publisher (for review only).
- 8. Online practice guizzes
- 9. Bonus materials these **do count** toward your final grade in the course.
- 10. A completely online laboratory manual. This will consist of about 30 modules one for each laboratory activity this semester.
- 11. Additional information about me, my background, and my interests.

Statement of disability services at FSU

Ferris State University is committed to following the requirements of the Americans with Disabilities Act Amendments Act and Section 504 of the Rehabilitation Act. If you are a student with a disability or think you may have a disability, contact the Disabilities Services office at 231.591.3057 (voice), or email mailto:ecds@ferris.edu to discuss your request further. More information can be found on the web at

http://www.ferris.edu/htmls/colleges/university/disability/.

Any student registered with Disabilities Services should contact the instructor as soon as possible for assistance with classroom accommodations.

Academic misconduct policies at FSU

The university may discipline a student for academic misconduct, which is defined as any activity that tends to undermine the academic integrity of the institution. Academic misconduct includes, but is not limited to, the following:

Cheating - A student may not use unauthorized assistance, materials, information, or study aids in any academic exercise, nor should a student give assistance, materials, information, or study aids to another student in any academic exercise.

Fabrication - A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations of the sources of information.

Facilitating Academic Dishonesty - A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct. A student is responsible for taking reasonable precautions to ensure his or her work is not accessed by or transferred to another individual wherein it may then be used to commit an act of academic misconduct.

Interference - A student must not steal, change, destroy, or impede another student's work. Impeding another student's work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Plagiarism - A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge indebtedness whenever he or she quotes or paraphrases another person's words, either oral or written and whenever he or she borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

Violation of Course Rules - A student must not violate course rules as contained in a course syllabus which are rationally related to the content of the course or to the enhancement of the learning process in the course.

Violation of Professional Standards and Ethics - A student must not violate the professional standards or ethical code related to one's intended profession as defined by the academic program or department.

Communication courtesy policy

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and other online communication. If I deem any of them to be inappropriate or offensive, I will first contact the persons involved. For chronic problems, I will forward the messages to the chair of the department and appropriate action will be taken, not excluding expulsion from the course. The same rules apply online as they do in person. Be respectful of other students. Foul or inappropriate discourse will not be tolerated. Please take a moment and read the following link concerning the four hallmarks of "FerrisConnetiquette". http://www.ferris.edu/HTMLS/administration/academicaffairs/online/FerrisConnetiquette.pdf

Preparing for this course

This course will cover a diverse range of topics and will require you to possess some fundamental skills and knowledge. These will include a basic background in biology, chemistry, and math. In addition, you will need to have a working understanding of the metric system, common laboratory practices, and good study skills. Because of these demands, many students claim that this is a challenging class. I want you to succeed this semester! Take a little time right now to find out if your background in these fundamental topics is sufficient. Simply go to this site: http://www.mhhe.com/micro_prep/ and complete the online quizzes there. This site will help you to identify any weaknesses early on and will also give you some study suggestions as you begin the class. In addition, go to our Bonus Work folder and complete the pre-course test. I want to see what your preexisting knowledge of microbiology is like. Thanks.

Lecture Schedule

T				- ·		
R			Date	Topic	Chapters	Pages
T Jan 16 Observing Microbes 2 39-72 R Jan 18 Microbial Cells 3 73-114 T Jan 23 Prokaryotic Diversity 18,19 675-754 R Jan 25 Eukaryotic Diversity 20 755-792 T Jan 30 Virus Structure and Function 6 181-217 R Feb 01 LECTURE EXAM ONE T Feb 06 Bacterial Growth 4 115-148 R Feb 08 Environmental Influences on Growth 5 149-180 T Feb 13 Catabolism 13 458-504 R Feb 15 Respiration, Lithotrophy, and Photolysis 14 505-546 T Feb 20 Food and Industrial Microbiology 16 583-619 R Feb 22 Microbial Ecology 21,22 793-859 T Feb 27 LECTURE EXAM TWO 15% OLD MATERIAL R Mar 01 Microbial Genomes 7 218-256 T Mar 06 Spring Break - No classes! T Mar 13 Gene Expression 8 257-302 R Mar 15 Molecular Regulation 1 10 341-384 T Mar 20 Molecular Regulation 1 10 341-384 T Mar 20 Molecular Regulation 2 10 341-384 R Mar 29 Easter Break - No Classes! T Apr 03 LECTURE EXAM THRE 30% OLD MATERIAL R Apr 05 Chemotherapy 27 1029-1062 T Apr 10 Innate Immune Defenses 23 860-894 R Apr 12 Adaptive Immune Defenses 24 893-934 R Apr 19 Microbial Diseases 1 26 979-1028	_	Т	Jan 09	Course introduction and orientation	see	syllabus
R Feb 01 LECTURE EXAM ONE		R	Jan 11	Scope and History of Microbiology	1	2-38
R Feb 01 LECTURE EXAM ONE	sity	Т	Jan 16	Observing Microbes	2	39-72
T Feb 01 Bacterial Growth 4 115-148	iver	R	Jan 18	Microbial Cells	3	73-114
T Feb 01 Bacterial Growth 4 115-148	al D	Т	Jan 23	Prokaryotic Diversity	18,19	675-754
T Feb 01 Bacterial Growth 4 115-148	robi	R	Jan 25	Eukaryotic Diversity	20	755-792
T Feb 06	Σ	Т	Jan 30	Virus Structure and Function	6	181-217
R Feb 08 Environmental Influences on Growth 5 149-180		R	Feb 01	LECTURE EXAM ONE		
T Feb 27		Т	Feb 06	Bacterial Growth	4	115-148
T Feb 27	lisn	R	Feb 08	Environmental Influences on Growth	5	149-180
T Feb 27	tabo	Т	Feb 13	Catabolism	13	458-504
T Feb 27	Me.	R	Feb 15	Respiration, Lithotrophy, and Photolysis	14	505-546
T Feb 27	bia	Т	Feb 20	Food and Industrial Microbiology	16	583-619
T Feb 27	Aicro	R	Feb 22	Microbial Ecology	21,22	793-859
T Mar 06 Spring Break - No classes! R Mar 08 Spring Break - No classes! T Mar 13 Gene Expression 8 257-302 R Mar 15 Molecular Regulation 1 10 341-384 T Mar 20 Molecular Regulation 2 10 341-384 R Mar 22 Gene Transfer and Mutagenesis 9 301-340 T Mar 27 Viruses and the Mobilome 11 385-426 R Mar 29 Easter Break - No Classes! T Apr 03 LECTURE EXAM THREE 30% OLD MATERIAL R Apr 05 Chemotherapy 27 1029-1062 T Apr 10 Innate Immune Defenses 23 860-894 R Apr 12 Adaptive Immune Defenses 24 895-936 T Apr 17 Hypersensitivities and Vaccines 24 893-934 R Apr 19 Microbial Pathogenesis 25 937-978 T Apr 24 Microbial Diseases 1 26 979-1028	2	т	Feb 27	LECTURE EXAM TWO	15% OL	D MATERIAL
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R Apr 26 Microbial Diseases 2 26 979-1028	Ноѕ	Т	Apr 24	Microbial Diseases 1	26	979-1028
		R	Apr 26	Microbial Diseases 2	26	979-1028
T May 01 COMPREHENSIVE FINAL EXAM 45% PRIOR MATERIAL		т	May 01	COMPREHENSIVE FINAL EXAM	45% PRI	OR MATERIAL

Laboratory Schedule

	Date	Graded Work	Topic
Т	Jan 09		(1) Laboratory safety
R	Jan 11		(2) Microscopy
Т	Jan 16	Quiz 1	(3) Cell morphology & (4) Aseptic technique < continuing >
R	Jan 18	Notebook 1	(5) Gram stain & Complete aseptic technique
Т	Jan 23	Quiz 2	(6) Capsule stain & (7) Endospore stain
R	Jan 25	Notebook 2	(8) Acid-fast stain & (9) Bacterial motility
Т	Jan 30	Quiz 3	(10) Protozoa & (11) Fungal slide culture <continuing></continuing>
R	Feb 01	Notebook 3	(12) Viable bacteria counts < continuing >
Т	Feb 06	Quiz 4	(13) Bacteriophage & Complete viable bacteria counts & Fungal slide culture
R	Feb 08	Notebook 4	(14) Bacterial growth curve & Complete bacteriophage
Т	Feb 13	Quiz 5	(15) Environmental conditions $<$ continuing $>$ & (16) Anaerobes $<$ continuing $>$
R	Feb 15	Notebook 5	(17) Antimicrobial compounds < continuing > & Complete anaerobes
Т	Feb 20	Quiz 6	Complete antimicrobial compounds & Environmental conditions
R	Feb 22	Notebook 6	(18) Thermal death curves <i><continuing< i=""> ></continuing<></i>
Т	Feb 27	Quiz 7	(19) Ultraviolet light & Complete thermal death curves
R	Mar 01		Complete ultraviolet light
τ	Mar 06		Spring Recess - No Class!
R	Mar 08		Spring Recess - No Class!
lτ			
Ľ	Mar 13		(20) Water quality testing <continuing> & (21) Transformation <continuing></continuing></continuing>
R	Mar 13 Mar 15	Notebook 7	(20) Water quality testing <i><continuing< i=""> > & (21) Transformation <i><continuing< i=""> > (22) Lactose regulation <i><continuing< i=""> > & Continue transformation & Complete water quality testing</continuing<></i></continuing<></i></continuing<></i>
		Notebook 7 Quiz 8	(22) Lactose regulation <continuing> & Continue transformation</continuing>
R	Mar 15		(22) Lactose regulation <i><continuing< i=""> > & Continue transformation & Complete water quality testing</continuing<></i>
R T	Mar 15 Mar 20	Quiz 8	(22) Lactose regulation <i><continuing< i=""> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation</continuing<></i>
R T R	Mar 15 Mar 20 Mar 22	Quiz 8 Notebook 8	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> >
R T R	Mar 15 Mar 20 Mar 22 Mar 27	Quiz 8 Notebook 8	(22) Lactose regulation <continuing> & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking <continuing> (26) Symbioses <continuing> & Bacterial unknown staining <continuing></continuing></continuing></continuing></continuing>
R T R T	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29	Quiz 8 Notebook 8 Quiz 9	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown
R T R T	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03	Quiz 8 Notebook 8 Quiz 9 Quiz 10	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown < <i>continuing</i> >
R T R T R	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05	Quiz 8 Notebook 8 Quiz 9 Quiz 10 Notebook 9	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown < <i>continuing</i> > Complete exoenzymes & Bacterial unknown characterization < <i>continuing</i> >
R T R T R T R T	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 Apr 10	Quiz 8 Notebook 8 Quiz 9 Quiz 10 Notebook 9	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown < <i>continuing</i> > Complete exoenzymes & Bacterial unknown characterization < <i>continuing</i> > (28) Wastewater treatment plant tour < field trip >
R T R T R T R T R	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 Apr 10 Apr 12	Quiz 8 Notebook 8 Quiz 9 Quiz 10 Notebook 9 Quiz 11	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown < <i>continuing</i> > Complete exoenzymes & Bacterial unknown characterization < <i>continuing</i> > (28) Wastewater treatment plant tour < field trip > Bacterial unknown identification < <i>continuing</i> >
R T R T R T R T R	Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 Apr 10 Apr 12 Apr 17	Quiz 8 Notebook 8 Quiz 9 Quiz 10 Notebook 9 Quiz 11 Quiz 12	(22) Lactose regulation < <i>continuing</i> > & Continue transformation & Complete water quality testing (23) Enterobacteriaceae & Complete transformation (24) Gram positive cocci & (25) Bacterial unknown streaking < <i>continuing</i> > (26) Symbioses < <i>continuing</i> > & Bacterial unknown staining < <i>continuing</i> > <i>Mid-Semester Recess - No Class!</i> (27) Exoenzymes < <i>continuing</i> > & Complete symbioses & Bacterial unknown < <i>continuing</i> > Complete exoenzymes & Bacterial unknown characterization < <i>continuing</i> > (28) Wastewater treatment plant tour < field trip > Bacterial unknown identification < <i>continuing</i> > (29) Lysozyme < <i>continuing</i> > & Complete bacterial unknowns

SYLLABUS ATTACHMENT FERRIS STATE UNIVERSITY – COLLEGE OF ARTS AND SCIENCES Spring 2018

Are you considering adding a minor or major to your current program?

Use My Degree to see what classes may already apply.

For more information, stop by the Arts and Sciences Dean's Office!

Important Dates for Spring 2018				
Late registration	Thursday-Friday	January 4, 5		
First day of classes	Monday	January 8		
Drop/Add (closes at 5:00 PM Thursday)	Monday-Thursday	January 8-11		
Martin Luther King Day (no classes)	Monday	January 15		
Last Day for Online Grad Application	Friday	February 23		
Mid-term grades due	Monday	March 5		
Spring recess begins (no classes)	Saturday	March 3		
Spring recess ends (classes resume)	Monday	March 12		
Last day for "W" grades (full semester)	Thursday	March 22		
Mid-semester recess begins (no classes)	Thursday	March 29		
Mid-semester recess ends (classes resume)	Monday	April 2		
Last day of classes	Friday	April 27		
Examination week begins	Monday	April 30		
Examination week ends	Friday	May 4		
Commencement	Friday, Saturday	May 4, 5		
Final grades due by 1:00 p.m.	Monday	May 7		

	PARTIAL SEMESTER CLASSES - SPRING				
Schedule Type	Begin Date	Last Day to Drop	Last Day to "W"	End Date	
1:	Mon., Jan. 8	Thurs., Jan. 11	Thurs., Mar. 22	Fri., Apr. 27	
A:	Mon., Jan. 8	Thurs., Jan. 11	Thurs., Feb. 8	Tues., Feb. 27	
B:	Wed., Feb. 28	Mon., Mar. 12	Tues., Apr. 10	Fri., Apr. 27	
D:	Mon., Jan. 8	Thurs., Jan. 11	Mon., Jan. 29	Fri., Feb. 9	
E:	Mon., Feb. 12	Tues., Feb. 13	Fri., Mar. 2	Thurs., Mar. 22	
F:	Fri., Mar. 23	Mon., Mar. 26	Mon., Apr. 16	Fri., Apr. 27	

DEPARTMENT OFFICES				
Biology	ASC 2004	231-591-2550		
Humanities	JOH 119	231-591-3675		
Engl, Litr & World Lang	ASC 3080	231-591-3988		
Mathematics	ASC 2021	231-591-2565		
Physical Sciences	ASC 3021	231-591-2580		
Social/Behavioral Sciences	ASC 2108	231-591-2735		
Social Work	ASC 2108	231-591-2737		
Dean's Office	ASC 3052	231-591-3660		

WHAT YOU NEED TO KNOW

EMAIL

All registered FSU students have a Ferris Gmail account. This is the only email to which all official University information about registration, financial aid, student activities, and class cancellations will be sent. Please check your account at least once a week. Email is our primary communication resource for students.

CLASS ATTENDANCE IS IMPORTANT!

Attendance usually has a high correlation with how well you do in a course. Many instructors have mandatory attendance policies by which your grade will be affected by absences. Some instructors also have policies about class tardiness to encourage students to be present for the full class period. Check your course syllabus or talk to your instructor about his/her policies.

HOW TO CONTACT A FACULTY MEMBER OR ADVISOR

If you have questions or need help, talk to your instructor. Faculty office locations, phone numbers, and office hours may be obtained from the class syllabus or department office, through the College of Arts and Sciences web page at http://www.ferris.edu/arts-sciences/index.htm or through the Directories & Maps link on the FSU home page.

DROPPING CLASSES OR WITHDRAWING

Dropping and adding only occurs during the first four days of the term. You can adjust your schedule **online during the first four days** or in person at the Timme Center (from 8:00 am-5:00 pm except for the last day when it is 12:00 pm-5:00 pm). *If you add a class you must pay for your additional charges by the fourth day or your schedule will be dropped.*

If you need to withdraw from a class after the official drop/add period, you must do so **OFFICIALLY**, through your dean's office, in order to avoid receiving an "F" grade in the course. **You may not withdraw online after the first four days of the term.** You will receive a "W" for the course. **You will not receive a refund.** If you need to totally withdraw from the University, you must do so **officially** at Admissions and Records in CSS 101. The last day to withdraw or drop a class may vary for different classes. **CHECK THE SESSIONS DATES ABOVE OR THE REGISTRATION AND**

CHECK THE SESSIONS DATES ABOVE OR THE REGISTRATION AND ACADEMIC GUIDE FOR THE WITHDRAWAL DEADLINES FOR THE SEMESTER. In cases of extenuating circumstances (e.g., a serious illness requiring you to withdraw from school), contact the Birkam Health Center at 231-591-2614.

GRADE APPEAL POLICY

If an error is made in the grade that is assigned for a course, then a formal Grade Appeal may occur. The policy that describes the process can be found at

http://www.ferris.edu/HTMLS/administration/academicaffairs/Forms_Policies/Documents/Policy_Letters/AA-Grade-Change-Appeal.pdf

INCOMPLETES

The "I" is only considered for extenuating circumstances that have led to a student missing a portion of the course. The intent and appropriate use of the "I" grade is NOT to avoid student probation, dismissal, or unacceptable grades, nor should it be considered as an extended alternative to withdraw from a class (W). Extenuating circumstances are generally defined as those situations over which a student has little or no control—e.g., illness, birth,

jury duty, death of a parent, serious injury. Instructors may require suitable documentation.

Students must have completed at least 75% of the coursework at passing levels before an "I" will be considered, and they may be required to sign an agreement regarding course completion. An "I" grade automatically changes to an "F" after one semester (not counting summer) unless the faculty member files another grade or extends the incomplete.

GRADUATION

ONLINE APPLICATION DEADLINE for participation in Spring Commencement Ceremony: February 23, 2018. Students should apply for their degree the semester prior to the degree completion term. To obtain a degree audit for either associate in arts degree, contact Dr. Roxanne Cullen (roxannecullen@ferris.edu) or Dave Schrock (daveschrock@ferris.edu), or associate in science degree, contact Jenice Winowiecki (JeniceWinowiecki@ferris.edu) or Kim Ducat (kimberlyducat@ferris.edu). For a degree audit and clearance for bachelor degrees, contact your program coordinator. Online graduation application is REQUIRED and deadlines will be ENFORCED per the Provost's Office and Records Office. Apply for your degree by logging into your MyFSU, (click on Student tab, My Records link, Degree Progress and Graduation, Apply to Graduate link). For more information, contact the Dean's Office.

INCLEMENT WEATHER CONDITIONS

Only during the most severe weather conditions – which could potentially endanger the safety of students or staff – will the Big Rapids campus consider cancelling classes. The decision to cancel classes due to weather conditions at the Big Rapids site will be made as early as possible. In the event it is necessary to cancel classes, periodic announcements will be made on area radio and television stations. It is the student's responsibility to listen for these announcements. A student may also call the Ferris Information Line at 231-591-5602 or check the Ferris website.

ACADEMIC MISCONDUCT

Academic misconduct refers to dishonesty or misrepresentation with respect to assignments, tests, quizzes, written work, oral presentations, class projects, internship experience, or computer usage; violation of computer licenses, programs, or data bases; or unauthorized acquisition or distribution of tests or other academic material belonging to someone else. It is the expectation of the College of Arts and Sciences that all work you turn in is your own and is original for the course in which it is being submitted. If you are uncertain about whether a particular behavior might represent academic misconduct, be sure to ask your professor for clarification. Penalties for academic misconduct can include **FAILURE** of the assignment or the course, and/or disciplinary action up to and including probation or dismissal from the University.

DISRUPTIVE BEHAVIOR

The College of Arts and Sciences strives to maintain a positive learning environment and educational opportunity for all students. Consequently, patterns of behaviors which obstruct or disrupt the teaching/learning environment will be addressed. The instructor is in charge of his or her course (e.g., assignments, due dates, attendance policy) and classroom (e.g., behaviors allowed, tardiness). Harassment, in any form, will not be tolerated. Penalties for disruptive behavior can include involuntary withdrawal from the course and/or disciplinary action up to and including probation or dismissal from the University. The full Disruptive Behavior Policy is available on the College of Arts and Sciences website at http://www.ferris.edu/arts-sciences/academic-resources/CAS-Disruptive-Behavior-Policy-Final.pdf For additional policies and helpful information, check out the College of Arts & Sciences Student Resources page at http://www.ferris.edu/arts-sciences/academic-resources/academic-policies-and-procedures.htm

WHERE TO GO FOR HELP

The following services are available to any Ferris student, free of charge. They are designed to help you succeed in your courses, in your career planning, and in meeting the challenges of university life. Don't hesitate to explore and use these services at Ferris State University.

ACADEMIC ADVISING

All students have an assigned advisor and should confer with that advisor regularly. Students who have declared a major should see an advisor in that major. To find out who your advisor is, login to MyFSU, (click on the Student tab, My Registration, Advisor Information, Select Term, Submit).

ACADEMIC SUPPORT CENTER ASC 1017 | 231-591-3543 THE WRITING CENTER ASC 1017 | 231-591-2534

The Academic Support Center, Tutoring Services, and Writing Center join together to offer FSU students an array of academic support services. Tutors are available to answer questions for many courses. The Writing Center helps writers individually and in workshops with skills and assignments. There is also study skills assistance to help with note-taking, test-taking, memory and reading strategies, and time management.

DISABILITIES SERVICES STR 313 | 231-591-3057

According to the Americans with Disabilities Act, each student with a disability is responsible for notifying the University of his/her disability and requesting accommodations. Students requiring a classroom accommodation due to a physical, learning, mental or emotional disability should contact the Disabilities Services Office.

SCHOLAR PROGRAM ASC 1021 | 231-591-5976

SCHOLAR is an academic support program that aids in the student's successful progression by offering a Peer Mentor Program, a Student Retention Program, and an Academic Student Advisory Committee.

PERSONAL COUNSELING, SEXUAL ASSAULT, SUBSTANCE ABUSE BIRKAM HEALTH CENTER 2nd Floor | 231-591-5968

Personal counseling is available confidentially and free of charge. Counselors are available to assist with personal and stress-related problems, family and relationship issues, substance abuse, sexual assault, depression, or other similar problems. Call or stop by to obtain an appointment.

If you or a friend is in immediate crisis, call 911.

EDUCATIONAL & CAREER COUNSELING STR 313 | 231-591-3057

Students wanting to examine their choice of major or career choice, learning styles or strategies can make one-on-one appointments with licensed counselors.

SAFETY

Please observe the posted shelter and evacuation routes in the hallway nearest your classroom.

OTHER RESOURCES

BIRKAM HEALTH CENTER 1st Floor | 231-591-2614

The Birkam Health Center provides fee-for-service medical care including evaluation and treatment for illness and injury anytime during the year. Patients are seen on a walk-in and by appointment basis.

FLITE LIBRARY 231-591-2669 Please refer to the FLITE website for current FLITE Library hours. http://www.ferris.edu/library/homepage.htm:

FSU BOOKSTORE/UNIVERSITY CENTER 231-591-2607

Please refer to the FSU Bookstore website for the on-campus hours and textbook information: http://ferris.bncollege.com/

HELPFUL NUMBERS

Admissions	2100	Inst. Testing	3628
Business Office	2125	Public Safety	5000
Financial Aid	2110	Records	2792
Housing	3745	TAC	4822
	**		

When calling from off campus, extensions can be called by using the prefix 231-591- $\,$