BIOL 386: Microbiology and Immunology 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.

Class location and meeting time

Lectures will be held on Mondays and Wednesdays from **4:00 to 5:50 pm** in **SCI-137**. The laboratory sessions will meet on Tuesdays and Thursdays at from **4:00 to 5:15 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 Ms. Kim Andrus

Office: ASC 2011 ASC 2005

Telephone: (231) 591-2552 (231) 591-3678

Email: <u>franklc@ferris.edu</u> <u>KimberlyAndrus@ferris.edu</u>

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

BIOL 322 with a grade of C- or better and CHEM 321 or CHEM 214 with a grade of C- or better.

Course description

Fundamentals of the microbial world with emphasis on the medical aspects of microbiology, molecular basis of pathogenicity, chemotherapy, and the role of humoral and cellular immune responses in host protection and hypersensitivity. The laboratory provides practical experiences with fundamental concepts, techniques and instrumentation. Designed for students in science baccalaureate degree programs. A prior course in biochemistry is also required.

Required texts and materials

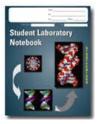
Optional Textbooks:

Brock: Biology of Microorganisms, Madigan and Martinko. Pearson Prentice Hall **Mechanisms of Microbial Disease**, Schaechter, et.al, Lippincott Williams Wilkins **Kuby Immunology**, Kindt, Goldsby and Osborne, W.H. Freeman and Co.



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 exam 1, the laboratory practical, and the comprehensive final exam.

BIOL 386: Microbiology and Immunology

- **B.** *Immunity* 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.
- laboratory and online quizzes or reports, questions from lecture exam 2, the laboratory practical, and the comprehensive final exam.
- **C.** *Pathogenesis* Compare and contrast virulence strategies employed by different microbes that cause human diseases. Identify and characterize important microbial pathogens of humans and the diseases that they cause. Evaluate possible measures to treat or prevent infections by various microbial pathogens.
- laboratory and online quizzes or reports, questions from the laboratory practical, and the comprehensive final exam.
- **D.** *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.

- **E.** *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.*
- **F.** *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.*
- **G.** *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.

Content Knowledge

A taxonomy of Microbiology skills

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.

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.

Lab Skills

Instructional methods

BIOL 386: 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 **1,000 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 |
|---------------------|-------|----------|
| 930 to 1,000 points | Α | 93-100% |
| 900 to 929 points | A- | 90-92.9% |
| 870 to 899 points | B+ | 87-89.9% |
| 830 to 869 points | В | 83-86.9% |
| 800 to 829 points | B- | 80-82.9% |
| 770 to 799 points | C+ | 77-79.9% |
| 730 to 769 points | С | 73-76.9% |
| 700 to 729 points | C- | 70-72.9% |
| 670 to 699 points | D+ | 67-69.9% |
| 630 to 669 points | D | 63-66.9% |
| 600 to 629 points | D- | 60-62.9% |
| 0 to 599 points | F | 0-59.9% |

Graded assignments

Lecture exams – There will be two 200-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.

• 400 points (40.0% of your final grade)

BIOL 386: Microbiology and Immunology

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

• 100 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 (15.0% 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 (15.0% of your final grade)

Final Exam – There will be a comprehensive lecture exam. Its content drawn from material on in our three 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 (20.0% 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.

• approximately 50 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 | 1.00% | 1.00% |
| Notebook 1 [1,2] | 01/18/18 | 10 | 1.00% | 2.00% |
| Lab quiz 2 | 01/23/18 | 10 | 1.00% | 3.00% |
| Notebook 2 [3,4,5] | 01/25/18 | 15 | 1.50% | 4.50% |
| Lab quiz 3 | 01/30/18 | 10 | 1.00% | 5.50% |
| Notebook 3 [6,7,8,9] | 02/01/18 | 20 | 2.00% | 7.50% |
| Lab quiz 4 | 02/06/18 | 10 | 1.00% | 8.50% |
| Notebook 4 [10,11,12] | 02/08/18 | 15 | 1.50% | 10.00% |

| Exam 1 | 02/12/18 | 200 | 20.00% | 30.00% |
|---------------------------------|----------|-------|---------|---------|
| Lab quiz 5 | 02/13/18 | 10 | 1.00% | 31.00% |
| Notebook 5 [13,14] | 02/15/18 | 10 | 1.00% | 32.00% |
| Lab quiz 6 | 02/20/18 | 10 | 1.00% | 33.00% |
| Notebook 6 [15,16,17] | 02/22/18 | 15 | 1.50% | 34.50% |
| Lab quiz 7 | 02/27/18 | 10 | 1.00% | 35.50% |
| Notebook 7 [18,19] | 03/15/18 | 10 | 1.00% | 36.50% |
| Lab quiz 8 | 03/20/18 | 10 | 1.00% | 37.50% |
| Exam 2 | 03/21/18 | 200 | 20.00% | 57.50% |
| Notebook 8 [20,21,22] | 03/22/18 | 15 | 1.50% | 59.00% |
| Lab quiz 9 | 03/27/18 | 10 | 1.00% | 60.00% |
| Lab quiz 10 | 04/03/18 | 10 | 1.00% | 61.00% |
| Notebook 9 [23,24] | 04/05/18 | 10 | 1.00% | 62.00% |
| Lab quiz 11 | 04/11/18 | 10* | 1.00%* | 62.00%* |
| Notebook 10 [25,26,27,28,29,30] | 04/20/18 | 30 | 3.00% | 65.00% |
| Laboratory practical | 04/27/18 | 150 | 15.00% | 80.00% |
| Final exam | 04/30/18 | 200 | 20.00% | 100.00% |
| Total | | 1,000 | 100.00% | 100.00% |

^{*} The lowest lab quiz score will be dropped for the semester.

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.
- On-line access to your course grades.
- 7. Ancillary lecture materials including: 1) PDF copies of the lecture slides for your note-taking convenience, 2) a link to a Tegrity recording of the lecture (if Tegrity actually works that day), and 3) links to additional information on the internet (for review only).
- 8. Online practice quizzes
- 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.

BIOL 386: Microbiology and Immunology

Dr. Clifton Franklund

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

Lecture Schedule

| | | Date | Topic | Chapters | Textbook | |
|---------------------|-----------------------------------|--------|--|-------------|-------------|--|
| | М | Jan 08 | Orientation, History of Microbiology | 1 | Brock | |
| | w | Jan 10 | Microscopy, Cell Structure | 2 | Brock | |
| | М | Jan 15 | Martin Luther King Holiday - No classes! | | | |
| sity | W | Jan 17 | Prokaryotes | 13,14,15 | Brock | |
| Microbial Diversity | М | Jan 22 | Prokaryotes | 13,14,15 | Brock | |
| al D | w | Jan 24 | Eukaryotes | 17 | Brock | |
| robi | М | Jan 29 | Acellular Microbes | 8,9 | Brock | |
| Σ | w | Jan 31 | Microbial Growth, Controling Growth | 5 | Brock | |
| | М | Feb 05 | Microbial Metabolism | 3,7 | Brock | |
| | W | Feb 07 | Microbial Genetics | 4,6,10 | Brock | |
| | М | Feb 12 | LECTURE EXAM 1 | | | |
| | W | Feb 14 | Antimicrobials, Drug Resistance | 27 | Brock | |
| | М | Feb 19 | Immune Cells and Organs | 2 | Kuby | |
| | W | Feb 21 | Innate Immunity, Complement | 5,6 | Kuby | |
| | М | Feb 26 | Phagocytosis, Inflammation | 2,15 | Kuby | |
| ity | 8 | Feb 28 | Humoral Immunity | 10,12 | Kuby | |
| Immunity | М | Mar 05 | Spring Break - No classes! | | | |
| Im | W | Mar 07 | Spring Break - No classes! | | | |
| | М | Mar 12 | Cellular Immunity | 9,11 | Kuby | |
| | W | Mar 14 | Autoimmunity | 16,18 | Kuby | |
| | М | Mar 19 | Vaccination, Transplantation | 14,16 | Kuby | |
| | w | Mar 21 | LECTURE EXAM 2 | 25% PRI | OR MATERIAL | |
| | М | Mar 26 | Normal Microbiota, Epidemiology | 2,59 | Schaechter | |
| | W Mar 28 Disease Mechanisms | | Disease Mechanisms | 8 | Schaechter | |
| | М | Apr 02 | Skin Infections | 64 | Schaechter | |
| v | w | Apr 04 | Repiratory Infections | 62 | Schaechter | |
| nesi | М | Apr 09 | Gastrointestinal Infections | 60 | Schaechter | |
| oge | w | Apr 11 | Urogenital Infections | 69 | Schaechter | |
| Pathogenesis | М | Apr 16 | Circulatory and Lymphatic Infections | 66,70 | Schaechter | |
| 4 | W | Apr 18 | Zoonotic Infections | 73 | Schaechter | |
| | М | Apr 23 | Nosocomial Infections | 75 | Schaechter | |
| | W | Apr 25 | Emerging Infections | 57,70 | Schaechter | |
| | M Apr 30 COMPREHENSIVE FINAL EXAM | | 50% 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 <i><continuing< i=""> ></continuing<></i> | |
| 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 <i><continuing< i=""> > & (16) Anaerobes <i><continuing< i=""> ></continuing<></i></continuing<></i> | |
| 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 < continuing > | |
| 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! | |
| T R | Mar 06 Mar 08 | | Spring Recess - No Class! Spring Recess - No Class! | |
| | | | | |
| R | Mar 08 | Notebook 7 | Spring Recess - No Class! | |
| R T | Mar 08 Mar 13 | Notebook 7 Quiz 8 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (22) Lactose regulation <continuing> & Continue transformation</continuing></continuing></continuing> | |
| R T R | Mar 08 Mar 13 Mar 15 | | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (22) Lactose regulation <continuing> & Continue transformation & Complete water quality testing</continuing></continuing></continuing> | |
| R T R | Mar 08 Mar 13 Mar 15 Mar 20 | Quiz 8 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (22) Lactose regulation <continuing> & Continue transformation</continuing></continuing></continuing> | |
| R T R T | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 | Quiz 8 Notebook 8 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (22) Lactose regulation <continuing> & Continue transformation</continuing></continuing></continuing> | |
| R T R T R | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 | Quiz 8 Notebook 8 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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></continuing></continuing> | |
| R T R T R T R R R R | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 | Quiz 8 Notebook 8 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown</continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |
| R T R T R T R T | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 | Quiz 8 Notebook 8 Quiz 9 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown <continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |
| R | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 | Quiz 8 Notebook 8 Quiz 9 Notebook 9 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown <continuing> Complete exoenzymes & Bacterial unknown characterization <continuing> (26) Symbioses & Bacterial unknown characterization <continuing> (27) Exoenzymes & Bacterial unknown characterization <continuing> (28) Symbioses & Bacterial unknown characterization <continuing> (29) Exoenzymes & Bacterial unknown characterization <continuing> (29) Symbioses & Symbi</continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |
| R | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 Apr 10 | Quiz 8 Notebook 8 Quiz 9 Notebook 9 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown <continuing> Complete exoenzymes & Bacterial unknown characterization <continuing> (28) Immunology: Agglutination, SRID, Ouchterlony <continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |
| R | Mar 08 Mar 13 Mar 15 Mar 20 Mar 22 Mar 27 Mar 29 Apr 03 Apr 05 Apr 10 Apr 12 | Quiz 8 Notebook 8 Quiz 9 Notebook 9 Quiz 10 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown <continuing> (28) Immunology: Agglutination, SRID, Ouchterlony <continuing> (28) Immunology & Bacterial unknown identification <continuing> (29) Immunology & (29) Immunology & (20) Immunology</continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |
| R T R T R T R T R T R T T R | Mar 08 Mar 13 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 Notebook 9 Quiz 10 Quiz 11 | Spring Recess - No Class! (20) Water quality testing <continuing> & (21) Transformation <continuing> (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> Mid-Semester Recess - No Class! (27) Exoenzymes <continuing> & Complete symbioses & Bacterial unknown <continuing> (28) Immunology: Agglutination, SRID, Ouchterlony <continuing> (28) Immunology & Bacterial unknown identification <continuing> (29) Lysozyme <continuing> & Complete bacterial unknowns</continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing></continuing> | |

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 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-_____.