

BIOLOGY 2EE3 Introduction to Microbiology & Biotechnology w2017

Instructor:	Dr. T. M. Finan	LSB537	Email: finan@mcmaster.ca
Instructional Assistant:	Alison Cowie	BSB201A	Email: cowieal@mcmaster.ca
Technician:	Arlene Sutherland	LSB106	
Schedule:	Lectures: Monday, Thursday 12:30 – 1:20 pm, Tuesday 1:30 – 2:20 pm in CNH104 Laboratory (LSB102): Tue/Wed/Thu/Fri 2:30-5:20 pm or Tue/Wed/Thu 8:30-11:20 am		

TOPICS: This course provides students a broad overview of microbiology and an understanding of the key concepts, fundamental principles, and common research tools in microbiology. The topics include the history and scope of microbiology, the fundamentals of microbial cell biology, cell structure, reproduction, genetics, metabolism, ecology, evolution, diversity, systematics, genomics, and overviews of the applied fields in agricultural, medical, environmental and industrial microbiology. This course also prepares students for more advanced courses offered at the third and fourth-year levels, e.g. Microbial Genetics (MolBiol 3O03), Techniques in Molecular Genetics (MolBiol 3V03), Microbial Diversity & Environmental Biotechnology (Bio 4PP3), and Medical Microbiology (MolBiol 4P03). These courses systematically build knowledge in all areas of modern microbiology.

Prerequisite(s): ISCI 1A24; or BIOLOGY 1A03, 1M03, CHEM 1A03, CHEM 1AA3 or registration in Level III Chemical Engineering and Bioengineering. If not already completed, BIOSAFE 1BS0 must be done prior to the first lab.

TEXT: Wessner, Dupont and Charles (2013). Microbiology. John Wiley & Sons. ISBN 978-0-471-69434-2

LABORATORIES: The laboratory periods are intended to familiarize students with the important basic methods used by microbiologists and essentially all molecular biologists and are mandatory. The main methods include aseptic techniques, isolation of specific microorganisms from mixed populations, microscopic examination of microorganisms, microbial physiology, the polymerase chain reaction, gel electrophoresis, DNA sequence analyses, and yeast fermentation. The laboratory manuals will be posted as PDF files on the course Avenue website for downloading and printing. Completion of the labs and lab assignments is a requirement for passing the course.

In order to participate in the labs, students need to first complete BIOSAFE 1BS0.

GRADING SCHEME:

Midterm exam:	30%
Final exam:	45% (arranged by the Registrar's Office)
Labs: 3 informal lab reports	12%
Labs: formal lab report	10%
Labs: notebook, participation	3%

OFFICE HOURS:

Dr. Finan: Thursday between 9:00-11:00am in LSB-537.

Alison Cowie: Monday to Friday between 9:00-11:00am in BSB201A. If you have any questions with regard to the laboratory or grading, you can contact her through email at cowieal@mcmaster.ca.

DISCLAIMER: The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

LAB SCHEDULE: Odd numbered labs start the first week, even numbered labs are the second week.

DATES	LAB	TOPIC	ASSESSMENT
Weeks of Jan 16/Jan 23	Lab 1	Identifying bacteria by traditional means	Informal report
Weeks of Jan 30/Feb 6	Lab 2	Working with viruses	Informal report
Week of Feb 13	Lab 3 odd	Conjugation and antibiotic resistance	Formal lab report
Week of Feb 20		MIDTERM RECESS	
Week of Feb 27	Lab 3 even	Conjugation and antibiotic resistance	Formal lab report
Weeks of Mar 6/Mar 13	Lab 4	Fermentation, Identification by molecular means	
Weeks of Mar 20/Mar 27	Lab 5	DNA gel electrophoresis	Informal report

ACADEMIC MISSED WORK PROCEDURE: If you are absent from your scheduled lab period or miss the midterm exam you must file an MSAF. This is a self reporting tool for **Undergraduate Students** to report absences that last up to 3 days and provides the ability to request relief for any missed academic work. Please note, this tool cannot be used during any final examination period. You may submit a maximum of **ONE Academic Work Missed request per term**. It is YOUR responsibility to follow up with the Instructional Assistant immediately regarding the nature of the relief. If you are absent more than **3 days** or **exceed 1 request per term** you **MUST** visit the Associate Dean's Office (BSB 129). You may be required to provide supporting documentation. If you miss the midterm exam you must visit the Associate Dean's office to request accommodation (the online MSAF cannot be used for course work worth 25% or more), students should contact Alison Cowie immediately after by email. Completing the labs is an expectation of the course so if you miss a lab you are expected to attend an alternate time to make up the missed work (with an MSAF). You are required to complete at least 75% of the labs to pass the course.

The MSAF form should be filled out immediately when you are **about to return** to class after your absence, not ahead of time. **IMPORTANT:** As contact please put Alison Cowie (cowieal@mcmaster.ca) and follow up with her as to what accommodations will be made. If you miss a lab, whenever possible, you will be expected to attend a makeup lab.

ACADEMIC INTEGRITY: According to McMaster's Academic Integrity Policy: academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Wherever in this Policy an offence is described as depending on "knowingly", the offence is deemed to have been committed if the person ought reasonably to have known.

The following is a list of examples of academic dishonesty.

It shall be an offence knowingly to:

- a. plagiarize, i.e. submit academic work that has been, entirely or in part, copied from or written by another person without proper acknowledgement, or, for which previous credit has been obtained
- b. submit the same academic work to more than one course,
- c. submit academic work for assessment that was purchased or acquired from another source,
- d. collaborate improperly on academic work,
- e. aid or abet another student's academic dishonesty,
- f. copy or use unauthorized aids in tests, examinations or laboratory reports,
- g. remove, without authorization, academic work (e.g. previous assignments or laboratories) submitted by other students to the instructor,
- h. alter a grade on academic work after it has been marked and using the altered materials to have the recorded grade changed,
- i. fail to take reasonable precautions to protect academic work such as assignments, projects, laboratory reports or examinations from being used by other students,
- j. submit false information or false medical documentation to gain a postponement or advantage for any academic work, e.g., a test or an examination,

It is your responsibility to know the University policy regarding academic integrity. More information can be found at: <http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf>

In this course we will be using a web-based service that is linked to Avenue2Learn (Turnitin.com) to reveal plagiarism. Students will be expected to submit some of their work electronically to the Avenue Assignments dropbox so that it can be checked for originality and hand in a paper copy to the TA for grading. Students who do not wish to submit their work to Turnitin.com must contact Alison Cowie for alternative arrangements. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to www.mcmaster.ca/academicintegrity

GRADE SCHEME

Grades obtained in Biology 2EE3 will be converted according to the following scheme, which is the one in general use at McMaster University.

90 – 100%	A+	12	63 – 66%	C	5
85 – 89%	A	11	60 – 62%	C-	4
80 – 84%	A-	10	57 – 59%	D+	3
77 – 79%	B+	9	53 – 56%	D	2
73 – 76%	B	8	50 – 52%	D-	1
70 – 72%	B-	7	0 – 49%	F	0
67 – 69%	C+	6			

When the final marks are obtained, ALL borderline cases will be reviewed and, where warranted, adjustments will be made in the final mark.