MICROIMM 3610F – Microbiology Laboratory – Fall 2016

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1) Course Information

This course consists of a series of lectures and laboratory exercises designed to familiarize students with current techniques in microbiology and to teach students the basics of scientific inquiry and writing.

LECTURES: Tuesdays 1:30 – 2:20 PM, Medical Sciences Building (MSB) 384
Lectures consist of a mixture of traditional lectures and in-class individual and group exercises. Virtual clickers (https://virtualclickers.uwo.ca) will be used to grade exercises and measure lecture participation. Lectures will contain information on scientific writing, data analysis and upcoming labs.

LABS: Tuesday or Wednesday, 2:30 to 5:30PM, MSB 120
Students must complete the on-line biosafety test and received a grade of 100% before beginning lab #3 (week of September 29). Students must also sign a code of conduct at the beginning of the first lab. Students who fail to complete the biosafety test and code-of-conduct on-time will not be allowed in the lab, and make-up labs will not be provided.

PRE-, CO- AND ANTI-REQUISITES:
- Prerequisites: Biology 2581B; Microbiology and Immunology 2500A/B.
- Pre or Corequisites: Biochemistry 3381A; Microbiology and Immunology 3100A
- Antirequisites: The former Microbiology and Immunology 2100A and 3600G

Senate regulation regarding requisites; student responsibilities:

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Please contact the course instructor if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

2) Instructor Information

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Office</th>
<th>E-mail</th>
<th>Office Hours</th>
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<tbody>
<tr>
<td>Dr. Bryan Heit</td>
<td>Health Sciences Addition H320</td>
<td><a href="mailto:bheit@uwo.ca">bheit@uwo.ca</a></td>
<td>Through OWL or by appointment.</td>
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<tr>
<td>(Course co-coordinator)</td>
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<td>Teaching Assistants (TBA)</td>
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<tr>
<td>Mr. Fred Williams</td>
<td>Dental Sciences 3014</td>
<td><a href="mailto:Fred.Williams@schulich.uwo.ca">Fred.Williams@schulich.uwo.ca</a></td>
<td>N/A</td>
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<tr>
<td>(Teaching Coordinator)</td>
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Administrative issues (e.g. missed labs) should be directed to Dr. Bryan Heit using the email address shown above. Students with OWL issues should contact the Computer Support Centre at 519 661-3800 or fill out the WebCT webform: itshelp.uwo.ca
3) Lecture & Lab Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Lab</th>
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<tbody>
<tr>
<td>September 12</td>
<td>Course introduction, introduction to scientific writing &amp; biosafety.</td>
<td>No Lab</td>
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<tr>
<td>September 19</td>
<td>Writing introductions.</td>
<td>Basic Methods I</td>
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<td>September 26</td>
<td>Writing methods &amp; observations &amp; logic in science</td>
<td>Basic Methods II</td>
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<tr>
<td>October 3</td>
<td>Writing results &amp; results versus data</td>
<td>Environmental &amp; Clinical Sampling</td>
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<td>October 10</td>
<td>Preparing figures, figure legends &amp; data presentation.</td>
<td>Follow-up to Bacterial ID Lab</td>
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<td>October 17</td>
<td>Writing discussions</td>
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<td></td>
<td><strong>Note:</strong> Mid-term report due by 11:55 PM after this week’s lab period.</td>
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<tr>
<td>October 24</td>
<td>Writing abstracts &amp; introduction to cloning.</td>
<td>Bacterial Conjugation &amp; Plasmids</td>
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<td>October 27th and 28th</td>
<td>Fall Study Break</td>
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<tr>
<td>October 31</td>
<td>Final report overview &amp; TBA</td>
<td>Cloning Lab I</td>
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<td>November 7</td>
<td>TBA</td>
<td>Cloning Lab II</td>
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<td>November 14</td>
<td>References in scientific writing and probiotics as a scientific case study.</td>
<td>Cloning Lab III</td>
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<td>November 21</td>
<td>Bioinformatics</td>
<td>Lactic acid bacteria &amp; probiotics</td>
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<tr>
<td>November 28</td>
<td>Q&amp;A session for final report</td>
<td>Cloning Lab IV</td>
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<tr>
<td>December 7</td>
<td>Last day of classes, final report due by 11:59 PM.</td>
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4) Course Materials:

**Required Textbook (lab manual):** There is no textbook required for this course. Lab guideline documents can be downloaded from OWL.

**Course OWL Site:** Western OWL system will be used to communicate information about the course. Students are responsible for checking the course OWL site at regular intervals. Lecture notes in PDF format will be posted on OWL prior to each lecture, as will guidelines for each lab. Students are required to print out and bring the lab guidelines to each lab. Hard copies are required as electronic devices are not allowed in the lab.

**Internet Access:** Virtual clickers ([https://virtualclickers.uwo.ca](https://virtualclickers.uwo.ca)) will be used to grade exercises and measure lecture participation. As such students will require a laptop, tablet or smart phone with internet access during the lectures. If this is an issue contact Dr. Heit by email to make alternative arrangements.

5) Evaluation:

**Laboratory Component:** (50%)
- Lab write-ups (30%)
- Lab Preparation Mark (Objectives + Flow Chart, 10%)
- Biosafety quiz, TA evaluation of lab skills and general student competency (10%)

**Scientific Writing & Analysis Component:** (50%)
- Mid-Term report (15%)
- Final report (30%)
- In-class assignments and problems (5%)
6) Course Policies and Expectations

**Code of Conduct Document:** You must read, sign, and hand in the “CODE OF CONDUCT” document at the first lab.

**Attendance:** You are required to attend all lectures and labs. There is NO MAKE-UP lab for any reason. An absence without penalty will only be given to students with reasons approved by the Dean’s Office (see below). Approval is generally restricted to medical or compassionate reasons. The penalty for an unexcused absence is 5% deducted from the student’s final grade (e.g. 5 points subtracted from a total course mark out of 100) for each lecture missed; missed labs will be assigned a grade of 0.

**Lab Coats and Lockers:** You are required to provide your own lab coat and this must be brought to every lab. Only the lab manual, notebooks, printouts and calculators are allowed in the lab. Lockers are available outside of the lab for storage of personal belongings, but you must provide your own lock. Locks must be removed after the lab.

**Lab Notebook:** You must provide your own lab notebook, in the form of a bound notebook (e.g. spiral or tape bound). A binder with loose-leaf paper is not acceptable. Your notebook should be an up-to-date, accurate account of everything you do in each lab. **Your TA will check your lab notebook** at each lab to help you develop record-keeping habits expected of all lab personnel. Your notebook entries should follow this format:

- **Lab Preparation Report** - details below, must be completed before the lab
- **Methods** - note any changes in the protocol, clarifications, etc.
- **Results** - show Raw Data, Calculations, etc.
- **Conclusion** - what do your results mean in 1-2 sentences

**Lab Preparation Report:** For best performance and understanding of the lab objectives and methods learned, it is important to prepare for each lab in advance. This includes reading the lab manual and preparing a “Lab Preparation Report” **before** you enter the lab. **Your TA will check it at the start of the lab** as evidence of your advanced preparation. Failure to do so will result in a “Lab Preparation” mark of zero for that lab.

The Laboratory Preparation Report is an account of what you are going to do during the lab. Do not copy or re-write the lab manual. It must be **HANDWRITTEN** into your lab notebook. Include:

1. **Lab Objective(s):** 1-2 sentences (what you will learn), and
2. **Flowchart diagram** of the experimental approach to be used in the lab (show what procedures you will be doing and when)

**Lab Reports:** Reports must be prepared in MS Word and handed in via the OWL site. The object of these reports is for you to integrate the information and present it in a clear and thoughtful manner **in your own words**. Discussions of data and interpretations are encouraged with your lab mates, teaching assistant and instructor prior to writing your report. However, each student must write her/his lab report independently. **Individual work is mandatory.** Material cited must be referenced. Academic dishonesty will not be tolerated.

**In-Lecture Exercises:** Many lectures will incorporate a series of in-class exercises focused on the materials covered in the concurrent lecture. These exercises are intended to give you practice with scientific writing and analysis skills **before having to use these skills for the preparation of the mid-term and final reports.** Assessment of these exercises will be performed using virtual clickers, which operate via a WiFi-connected laptop, tablet, or cell phone. If you do not have access to one of these tools contact Dr. Heit as soon as possible to arrange for alternative assessment tools. Note that submitting answers for another student is considered academic misconduct.
Mid-Term and Final Reports: A large portion of your mark is derived from the mid-term and final reports. These will be formatted similar to scientific papers. **Extensive guidelines will be provided for these reports.** To receive full marks it is **absolutely essential** that you follow these guidelines.

7) Late Assignments & Reports
If a student lacks a valid medical or compassionate reason for late assignments, approved by the Deans Office, the following penalties will be incurred for late assignments & reports:

- On-line assignments not completed in their allotted time will be automatically assigned a grade of **0%**.
- Late lab reports will be penalized **25% the first day they are overdue and 50% the second day per day they are overdue.** Lab reports more than **2 days late** will receive a grade of **0%**.
- Late mid-term and final reports will be penalized **25% the first day they are overdue and 50% the second day per day they are overdue.** Reports more than **2 days late** will receive a grade of **0%**.

8) Additional Information/Statements

Students must familiarize themselves with the Policy on Accommodation for Medical Illness:
[https://studentservices.uwo.ca/secure/index.cfm](https://studentservices.uwo.ca/secure/index.cfm)

**Statement from the Dean’s Office, Faculty of Science:** If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean’s office as soon as possible and contact your instructor immediately. It is the student’s responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. Details of how missed labs and assignments will be dealt with can be found in sub-section 3, below. For further information please see:

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record’s Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found at:
[https://studentservices.uwo.ca/secure/medical_document.pdf](https://studentservices.uwo.ca/secure/medical_document.pdf)

2) Absence for non-medical reasons: Petitions for permission to waive a laboratory assignment will be entertained only if they are submitted on compassionate grounds with supporting documentation. Ask the academic counsellor to contact Dr. Heit directly and notify him of the receipt and approval of your document by the Office of the Dean. This has to be done immediately upon your return to Western. Details of how missed labs and assignments will be dealt with can be found in sub-section 3, below.

3) Missed labs and assignments due to an approved absence:

- **Labs:** There will be no makeup for missed labs. If required for future labs or assignments, TAs will provide the student with replacement data for data acquired during the student’s absence. Lab write-up and competency marks will be re-weighted to account for the missing labs.

- **On-line Assignments:** Students will be given additional time to complete any missed on-line assignments, equal to the duration of their approved absence, starting on the date the student receives his/her Dean’s office approval of their absence. In the event multiple assignments are missed, the extension time for those assignments will run concurrently.
• **Mid-Term and Final Reports**: In the event a student misses the mid-term or final report deadline they will be given an extension of the same duration as their approved absence, starting on the date of the deadline.

4) **No electronic devices of any kind may be used in the laboratory.** Such devices must be turned off and stored in the lockers located outside of the lab. *This is for your safety.*

5) **Scholastic offences are taken seriously.** Students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: [http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf](http://www.uwo.ca/univsec/handbook/appeals/scholastic_discipline_undergrad.pdf)

6) **All written assignments are subject to submission for similarity review.** Specialized software will be used to check for unusual coincidences in writing patterns that may indicate cheating.

**Support Services:**
- Registrarial Services: [http://registrar.uwo.ca](http://registrar.uwo.ca)
- Academic Counselling (Science and Basic Medical Sciences): [http://www.uwo.ca/sci/undergrad/academic_counselling/](http://www.uwo.ca/sci/undergrad/academic_counselling/)
- Student Development Services: [http://sds.uwo.ca](http://sds.uwo.ca)
- Student Health Services: [http://www.health.uwo.ca/](http://www.health.uwo.ca/)