


Meet Your Instructor

Biography & Introduction


Welcome students! I have a Ph.D. in Biotechnology from Lakehead University along with a wealth of lab experience in the environmental, industrial, and academic fields.

I have been teaching this course since 2015, albeit face-to-face. Although your experiences in this course will be VERY DIFFERENT from those encountered by past students, I hope to engage you in weekly interactive activities. Therefore, your full participation each and every week is required!

Contact Info

Office Hour Booking: Click here  (<https://calendar.google.com/calendar/u/0/selfsched?ssToken=UUFnSmFPTHl3ZDFZfGRlZmF1bHR8N2UyMTYwNzAxZWQ0ZjJmZTA0YTNIODZjMTQyOWZhYjQ>)

Email: swalford@lakeheadu.ca (<mailto:xxx.xxx@xxx.com>)

Landing Page: <http://www.lakeheadu.ca/users/W/swalford> 
(<http://www.lakeheadu.ca/users/W/swalford>)



Dr. Susanne Walford



Lakehead
UNIVERSITY

Department of
Biology



Course Description

Introduction to basic laboratory techniques: pipetting, preparation of media, aseptic technique, cell disruption, protein purification and analysis, electrophoresis, chromatography. Development of skills in such areas as laboratory note-keeping, reporting, graphical presentation of data, information searching.

Credit Weight

0.5 FCE

Offering

Winter 1, 5 (6 hours total each week)

Texts and Materials

Basic Bioscience Laboratory Techniques, Bonner & Hargreaves. Wiley Blackwell. 2011.

Making Sense In The Life Sciences, 3rd edition, Northey & Von Aderkas. Oxford. 2019.

[Excel from Microsoft 360](#) (or equivalent). Free from LU.

BeyondLabz account. Must register with LU email for free access (details TBD).

Course Objectives

At the completion of this course, students will be able to:

1. Articulate safe working practices for a Containment Level 2 Biological Laboratory.
2. Conduct research!
 - i. Follow the scientific method.
 - ii. Use scholarly resources available through an academic institution.
 - iii. Write a scientific essay and lab report, referencing according to the Council of Scientific Editors (CSE style).
 - iv. Summarize scientific data in publishable tables and figures using spreadsheets and word processors.
 - v. Orally present a bioscience topic.
 - vi. Conduct a peer review.
3. Understand the importance of laboratory record keeping.
4. Calculate concentrations and dilutions for the preparation of biological solutions and media, often buffered, for a variety of protocols.

5. Explain the technique, safety, and required use of pipettes, micropipettes, balances, centrifuges, microscopes, biosafety cabinets, titrators, autoclaves, sonicators, glassware, plasticware, and other equipment common to a bioscience laboratory.
6. Explain the importance of Good Laboratory Practices, Quality Control, and Quality Assurance.
7. Understand the theory and importance of pH and biological buffers.
8. Extract and identify proteins and analytes of interest from various tissues (bacteria, plant, animal) using various techniques
 - i. Centrifugation
 - ii. Electrophoresis
 - iii. Chromatography
 - iv. Spectroscopy
 - v. Blotting
9. Aseptic culturing of tissues from eukaryotic systems.

Course Expectations

The student's work must match the instructor's intended purpose for an assignment. While the instructor will establish the intent of an assignment, each student must clarify outstanding questions of that intent for a given assignment.

The student may not give or get any unauthorized or excessive assistance in the preparation of any work. Copying lab reports from prior years, in whole or in part, is a form of plagiarism. Your reports are subject to review with plagiarism detection software.

Online submission of, or placing one's name on an exam, assignment, or any course document that the student has not received or given inappropriate assistance in completing it and that the student has complied with the Academic Honesty Policy in that work.

Reports, Assignments, Marked Discussion Topics

- Students are expected to submit their own work. Offering and accepting reports and previous exam solutions from others is an act of plagiarism, which is a serious offence. **All involved parties will be penalized according to university regulations.** Discussion amongst students is encouraged, but when in doubt, direct your questions to the professor, technician, or TA. Working together and submitting strikingly similar reports will be dealt with as plagiarism.
- Some reports and assignments are a **group effort and ALL group members** are responsible for the content of the final group work submitted. Monitor each group member's work and verify it is their own.
- **Due dates** are reasonably set to correspond with the effort expected. Asking for extensions typically just moves due dates to conflict with other workloads and is of no benefit. Keep up with weekly tasks! **Avoid non-productive procrastination.** Adhere to the MyCourseLink Assignment box closing dates and times!
- **Late penalty for any report or assignment is 10 % per day** (including weekends).
- Some **discussion boards** will be set up for grading on a rubric. **Failure to submit on time will result in a grade of zero!** This is because meaningful discussion amongst discussion groups cannot take place if students fail to post in a timely manner and the activity as a whole, will not benefit anyone.
- Students wishing to **dispute their grades** are welcome to do so. However, your ENTIRE report will be remarked and your final mark may be lower! Students must include a written request which includes specific and verifiable arguments. A Google Remark Form may be requested prior to a remark.

Attendance and Absences

- Attendance and participation in lecture and lab activities are expected and will be monitored each week.
- The chat board, polls, and Zoom recordings are but one method of monitoring attendance AND participation.
- Students are encouraged to use MyCourseLink Discussion boards to post questions and seek additional help. Students are encouraged to respond to student posts. This tool also helps us gauge your participation and engagement in the course.
- The instructor, TAs, and lab technician also monitor students during breakout rooms. Peer and self-evaluations may also be employed.
- Students are allowed to miss 1 day (3 h slot) during the semester due to mild illness, family issues, conference attendance, varsity/competitive athletics, etc. without penalty. Vacations, work, or other personal reasons are not valid excuses to miss academic instruction. The instructor AND your group members MUST be notified ASAP of your pending absence. The instructor/technician reserves the right to request additional documentation.
- Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes, materials, and/or data and have work completed before the due dates. Extensions are rarely granted and you can expect missed work to be a major component of your final exam.
- Failure to participate and/or missing major topic events and timelines will result in a mandatory final exam for those students.

Due Dates

Official due dates for reports, assignments, and on-line quizzes are presented on MyCourseLink. Students are encouraged to set-up the notifications features under their MyCourseLink settings. Simply click on your name in the top right corner of the page. You can have notifications sent to your email address and your cell phone. Check off the boxes for what notifications you wish to receive. Reminders of due dates may be presented orally during lectures or labs.

Student Code of Conduct

The instructor WILL launch formal investigations into any suspected violation of the student code of conduct found here: [CLICK HERE \(http://www.lakeheadu.ca/students/student-life/student-conduct/\)](http://www.lakeheadu.ca/students/student-life/student-conduct/)!

Introduction

The following are excerpts from Lakehead University's Student Code of Conduct, last reviewed November 23, 2020.

It is the responsibility of each student registered at Lakehead University to be familiar with the specific requirements of the degree, diploma, or certificate, which he/she plans to pursue, as well as the rules, regulations and policies of the University and of the Faculties and Departments/Schools concerned.

Lakehead University takes the most serious view of offences against academic honesty such as plagiarism, cheating, and impersonation. Penalties for dealing with such offences will be strictly enforced. A copy of the Code of Student Behaviour and Disciplinary Procedures can be found [HERE \(http://www.lakeheadu.ca/sites/default/files/uploads/293/docs/Student-Conduct/Student%20Code%20of%20Conduct%20-%20Academic%20Integrity.pdf\)](http://www.lakeheadu.ca/sites/default/files/uploads/293/docs/Student-Conduct/Student%20Code%20of%20Conduct%20-%20Academic%20Integrity.pdf). The Code's intent is to ensure consistency and fairness for every student in the University through the consistent application of the procedures for the adjudication of cases of student academic and non-academic misconduct. Students shall not engage in or encourage any activity or action that is contrary to the principles expressed herein. All individuals and/or groups of the Lakehead University community are expected to speak and act with scrupulous respect for the human dignity of others, both within the classroom and outside it, in social and recreational as well as academic activities.

By accepting admission to Lakehead University, every student accepts its policies and regulations and acknowledges the right of the University to take disciplinary action, including suspension or expulsion, for conduct judged unsatisfactory or disruptive and not in accordance with the principles of this preamble. Freedom to learn can be preserved only through respect for the rights of others, for the free expression of ideas, and for the law. University discipline is limited to behaviour incompatible with those standards and which adversely affects the University's attainment of its purposes and objectives.

Student Responsibilities

Students are required to act ethically and with integrity. Such behaviour includes:

- Completing one's own original work;
- Knowing and following the appropriate citation and punctuation methods for referencing sources of information when quoting, summarizing, and paraphrasing;
- Asking for clarification of expectations as necessary;
- Collaborating appropriately on assigned group and teamwork;
- Acknowledging the contribution of others (giving credit);
- Preventing their work from being used by others (e.g. protecting access to digital files);
- Adhering to the principles of Academic Integrity when conducting and reporting research, and;
- Following published examination regulations and protocols.

Example of academic integrity violations include:

- Plagiarism
- Possession or use of unauthorized materials
- Facilitation of a breach of integrity
- Forgery
- Falsification
- Interference
- Unauthorized collaboration or communication
- Unprofessional or inappropriate behaviour

Frequently asked questions about Academic Integrity can be found at <http://www.lakeheadu.ca/students/student-life/student-conduct/academic-integrity/faq> (<https://www.lakeheadu.ca/students/student-life/student-conduct/academic-integrity/faq>)



Grade Category Distribution

GRADE DISTRIBUTION:

Major Assignments (40%) will entail

- an essay,
- a lab report, and
- an oral presentation.

Mini-Assignments (45%) will entail

- in-class work,
- take-home work,
- virtual lab work,
- on-line discussion posts,
- peer reviews.

Quizzes (15%) will entail

- on-line either announced or "surprises"
- video responses

Overall course participation will entail items such as

- Zoom attendance,
- breakout room participation,
- unmarked discussion board posts,
- group collaboration, and
- peer evaluations.

Note that the formal participation mark is often reflected on a rubric; however, participation is constantly evaluated to determine one's status for the final exam (exempt or required).

Proposed Course Outline* and **

Textbook chapter readings for each week will be included under the description for content.

Dates 2021	Content
January 14, 15	Introduction to the course and potential online activities. Working in groups.
January 21, 22	Lab Notebooks. Researching and writing. Essay begins.
January 28, 29	Summarizing data. Excel. Figures and Tables. Lab reports.
February 4, 5	Biosafety labs and resources. Preparation of solutions. Lab tours.
February 11, 12	Microscopy, basic and advanced. BeyondLabz exploration. Essay due at midnight February 12th, 2021.
February 15-19 extended to Feb 25	READING WEEK; no labs or lectures Lost 2 days of the academic year (Mon-Tues)
February 25-26 March 4, 5	Titration of buffers. Lab report required.
March 4, 5 March 11, 12	Spectroscopy techniques. Chromatography - outline of oral presentation. Titration lab report due March 13th.
March 11, 12 March 18, 19	Proteins and techniques for their extraction and separation. Bradford assay Drop date Friday

Dates 2021	Content
March 18, 19 March 25, 26	Group work oral presentations Cell and tissue culturing - TAs share their methods!
April 1, 2	Group work oral presentations LU is closed Friday, April 2; no lectures or labs.
April 8, 9	Sequencing methods continued (if required). Peer-review process.
Tues April 13 Fri April 16	RUNS ON A FRIDAY SCHEDULE FOR GOOD FRIDAY! ORAL PRESENTATION DUE AT MIDNIGHT - HIT SUBMIT ON BONGO! Honours Thesis presentations both days! Attend for Bonus marks!
Tuesday, April 13 Thursday, April 15	Runs on the Friday schedule. Peer review due at 5:30.

* We are in a pandemic; schedule subject to fluidity!

** Who knew it would have to change due to Cyber Attack?? Updated Feb 22, 2021 but subject to confirmation and approval of academic calendar changes **

Final Exam - Friday, April 23, 2021

[REVISED 2020-2021 ACADEMIC SCHEDULE OF DATES](#)

(scheduled as per Lakehead University)

Exempted

Your attendance AND participation during the Zoom sessions were exemplary.

You demonstrated proficiency in all topics covered this semester.

You worked cohesively on group projects and contributed to the benefit of your group.

Throughout the semester, you submitted assignments, reports, and quizzes ON TIME.

Mandatory

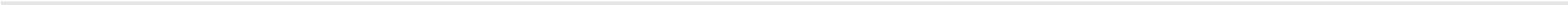
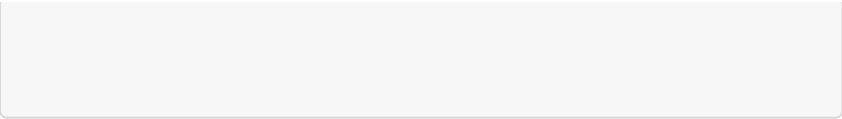
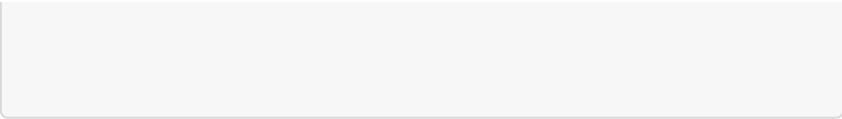
You missed numerous weeks and material throughout the semester.

You may be lacking the proficiencies required for upper-level courses.

You will have a customized final exam on the missed materials.

Expect to respond to questions with essay-type responses and explanations to demonstrate your knowledge.

Exam weighted according to the materials you missed.





Violators of the academic integrity policies WILL result in formal sanctions, including the addition of your name to the Student Conduct Database. Copies of formal incidents are forwarded to relevant chairs and deans. Academic sanctions may include but are not limited to mark reduction, zero on the discussion/assignment/report/test/exam, zero in the course, additional training modules.

Accommodations

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities.

If you think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (<https://www.lakeheadu.ca/current-students/student-services/accessibility>) and register as early as possible. are in accordance with the terms of the Ontario Human Rights Code (<http://www.ohrc.on.ca/en/ontario-human-rights-code>)). This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the course.



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Copyright for BIOL2910WDE Course Materials

As a student in this course, you are understanding and agreeing that the infringement of the copyright of the course materials, in any way, maybe prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviours that support the University’s academic values.

Details

<div>▼</div> <div>Copyright Compliance:</div>
I understand and agree that all instructional, reference, and administrative materials to which I am given access in this course (the "course materials"), whether they consist of text, still or kinetic images, or sound, whether they are in digital or hard copy formats, and in whatever media they are offered, are protected in their entirety by copyright, and that to comply with this copyright and the law.
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I may access and download the course materials only for my own personal and non-commercial use for this course.
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I am not permitted to download, copy, or store (in any medium) any text, image, or sound component of the course materials for any other purpose whatsoever, or to forward or share, transmit, broadcast, show, post or play in public, adapt, or change in any way any text, image, or sound component of the course materials, except as expressly authorized, and only to the extent authorized, in writing, by the course instructor.

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