COMPSCI 2121B/9643B/DIGIHUM 2221B
Course Outline - Winter 2025

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Course Information

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COMPSCI 2121B – Modern Survival Skills II: Problem Solving Through Programming
DIGIHUM 2221B - Modern Survival Skills II: Problem Solving Through Programming
COMPSCI 9643B – Data Structures & Algorithms

Component	Day	Start Time	End Time	Location
Lecture 001	Tuesday	11:30 AM	1:20 PM	[redacted]
	Wednesday	11:30 AM	12:20 PM	[redacted]
Lab 002	Thursday	4:30 PM	5:30 PM	[redacted]
Lab 003	Thursday	5:30 PM	6:30 PM	[redacted]

List of Prerequisites

For COMPSCI 2121B – COMPSCI 2120A/B, DIGIHUM 2220A/B, COMPSCI 1026A/B with a mark of at least 60% and registration in Medical Sciences First Entry, or Integrated Science 1001X with at least 60%.

For DIGIHUM 2221B – DIGIHUM 2220A/B

List of Antirequisites

For COMPSCI 2121B - COMPSCI 1027A/B, COMPSCI 1037A/B, DIGIHUM 2221A/B

For DIGIHUM 2221B – COMPSCI 2210A/B, Software Engineering 2205A/B, COMPSCI 2121A/B

Instructor Information

How to Contact Instructors

Instructor	Email	Office	Office Hours
Soniya - Postdoctoral Associate	soniya<at>uwo.ca	[redacted]	To be determined
Marios-Stavros Grigoriou- TA	mgrigori<at>uwo.ca	-	To be determined

Topics Specific to You

Students must use their Western (*@uwo.ca*) email addresses when contacting the instructor and teaching assistants. **Please include the course code in the subject line of the email** to avoid the possibility of your email being overlooked (e.g., *DIGIHUM 2221 – Absence*).

An example of a topic specific to you would be informing your instructor of an absence. **You should not email the instructor, nor the TA, to ask questions about course content (or assignments) that would be of interest to other students**—that's what the Forums are for. For individual help with an assignment, please attend office hours.

Topics Impacting Everyone

Please use the OWL Forums. Any question you have about course content or assignments has almost certainly come up for your classmates. By using the Forums instead of email, everyone can benefit from the answer.

When you post a question, please provide an informative title. For example, if you are asking a question about popping items from a stack, then the post title should be something like, Stack Question. If you can be more specific, that's even better (e.g., Popping from a Stack). That way, anyone who has a question about popping items from a stack knows that their question may have already been answered. Try to keep threads to one topic; it makes finding a previous answer a lot easier.

If you know an answer to a classmate's question, please go ahead and answer it. If you see a mistake, offer a fix. Computer science and programming, like other areas of science, are collaborative, and the Forums allow for collaboration with your classmates. It should go without saying, but **the OWL Forums aren't Reddit**, so let's stick to the subject matter of the course and be courteous to each other.

Forums will be arranged into a variety of topics, so please try to post to the most relevant location.

Please do not post your assignment code to the Forums. This may be deemed an academic offence. Questions requiring the instructor or TA to see your code should be asked during office hours.

Office Hours

Office hours will be held in person in Middlesex College, Room ..... The TA will hold office hours during lab sessions.

Please see the "Labs" section on page 9 of this document for additional information on seeking help from the course TA.

Course Syllabus, Schedule, Delivery Mode

From the Academic Calendar: "An overview of core data structures and algorithms in computing, with a focus on applications to informatics and analytics in a variety of disciplines. Includes lists, stacks, queues, trees, graphs, and their associated algorithms; sorting, searching, and hashing techniques. Suitable for non-Computer Science students."

Learning Outcomes

Upon completion of the course, students will:

- be able to use Jupyter Notebooks for data analysis;
- understand how to use a variety of data structures (e.g., stacks, queues, trees, graphs);
- understand algorithms associated with the above (and other) data structures;
- know how to apply data structures and algorithms to solve practical problems;
- be familiar with some external Python libraries (e.g., numpy, matplotlib); and
- how to create basic data visualizations in Python.

Delivery Mode

All lectures and labs will be delivered in-person and according to the schedule listed under “Course Information” above.

Please refer to "COMPSCI 2121B/9643B/DIGIHUM 2221B: Suggested Study Schedule – Winter 2025" for a week-by-week breakdown of the topics to be covered and the required readings for each week. Please refer to this schedule to identify which weeks have labs due.

Contingency Plan for Online Learning

Although the intent is for this course to be delivered in person, should any university-declared emergency require some, or all, of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

Course Materials

Required Textbook

Problem Solving with Algorithms and Data Structures Using Python

By Brad Miller and David Ranum

This book is part of the *Open Book Project*, and its interactive version can be accessed for free online at:
https://www.openbookproject.net/books/pythonds/.

Recommended Textbook

Data Structures & Algorithms in Python

By Michael T. Goodrich, Roberto Tamassia, and Michael H. Goldwasser

We will occasionally use examples from this book, which can be purchased as a paper copy. The book goes into greater depth on many topics than the required text, so if you would like to explore algorithms and data structures more deeply, I strongly recommend this textbook to help with understanding.

Another Good Book

Once Upon an Algorithm: How Stories Explain Computing

By Martin Erwig

We will occasionally use examples from this book, which can be purchased as a paper copy. It has some excellent examples of how we can think of algorithms as stories.

Required Software

Visual Studio Code

You can download this software at https://code.visualstudio.com/. One of the reasons we are going to use Visual Studio is that it will make all the other software tools we are going to be using a lot easier. There is a brief tutorial on how to set up your environment on OWL.

Python – Version 3.11 or later

Using OWL

Students are responsible for checking the course OWL site (https://westernu.brightspace.com/) on a **regular basis** for news and updates. This is the primary method (outside of lectures) by which information will be disseminated to all students in the class. **All course material will be posted to OWL.**

If students need assistance with the course OWL site, they can seek support on the OWL Help page: https://brightspacehelp.uwo.ca/. Alternatively, students can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

Technical Requirements

Students must have access to a computer onto which they can install the course software. A stable internet connection will also be important, particularly if we must shift to online learning at some point in the course.

Methods of Evaluation

Course Grade

The overall course grade will be calculated as follows:

Assignments	*30%*
Project	*20%*
Labs	*10%*
Quizzes	*10%*
Final Exam	*30%*

Assignments

Assignments will focus on both coding and analysis of algorithms. **They will be completed in Jupyter Notebook files that are provided to you.** The table below shows the suggested timeline for assignments. If, for any reason, the assignment schedule cannot be adhered to, assignment marks will be prorated (i.e., if an assignment must be removed for some reason, the remaining assignments will still be worth 30% of the course grade).

Assignment	Date Assigned	Due Date	Course Weight
Assignment #1	January 24	February 7	10%
Assignment #2	February 14	February 28	10%
Assignment #3	March 7	March 21	10%

Note: The due dates listed above are tentative. Final due dates will be officially assigned with each assignment, but you can assume that they will be very close to the tentative due dates listed above.

Project

The table below shows the suggested timeline for the project.

Project	Date Assigned	Due Date	Weight
Coding Project	March 1	April 4	20%

Submitting the Project and Assignments

The project and assignments will be submitted via Gradescope and will be checked to ensure that the code is of your own creation (see *Academic Policies* below). Assignments may be tested by automated software prior to the TA evaluating them. It is important, therefore, that you follow assignment instructions carefully in terms of naming conventions. Failure to do so may result in a **significant mark deduction**.

Assignments are to be done individually, not in groups or with the aid of others (including tutors or using code from online and other sources). The submitted code will be run through similarity-checking software. Any students with significantly high similarity will be referred to the department's integrity committee and receive a zero grade (the integrity committee may apply additional penalties). **Do not copy or share** code in any way.

You may not use generative AI or tools capable of generating code for assignments. Use of these tools on assignments will result in a zero grade and referral to the department's integrity committee.

You may not use code you have previously written from past courses or terms without the course instructor's written permission.

You may not share or otherwise publish your code online (e.g. to GitHub) publicly until one month after the course has completed.

Late Project or Assignments

The project and assignments are **due at 11:55 pm Eastern time** on the assigned due date. They will be accepted up to four days (96 hours) after the assigned due date. **The project and assignments will not be accepted after the four-day late period.** For each day late, there will be a 5% deduction from the overall value of the project/assignment. For example, the highest grade a project or assignment that is two days late can receive is 90%.

Request for Mark Adjustment

Any request for a mark adjustment **must be made within one week** of the mark being posted on OWL. After that, regrading will not be considered.
Such a request must be submitted to the course instructor in writing or via email, and it must include specific reasons why you believe the material was incorrectly graded. The request must be accompanied by all materials that were originally submitted (as well as the TA's grade summary sheet in the case of a project or assignment). **Before requesting a mark adjustment, the student should speak to the TA** to ensure that they have correctly understood the TA's comments. The instructor will inform you by email when the re-evaluation process is complete.

Project and Assignment Backups

It is each student's responsibility to keep up-to-date backups of project and assignment files in case of system crashes or inadvertently erased files. Students must keep copies of all material submitted, as well as the actual graded assignment, to guard against the possibility of errors in

recording marks. It is not safe to discard these materials until you are satisfied that your final mark for the course has been computed properly.

Labs

Labs are formative, and they will cover material relevant to becoming a better programmer. **Labs will be posted on Monday and due no later than 11:55pm on the Friday of the week in which they are posted.** The Thursday lab session is an opportunity to get help with the lab. The course TA will help you during weekly lab sessions. **There will be no lab assignments in weeks where course assignments are due, but the TA will still be present during those lab sessions to help with your assignments. There will also be *no lab session at all* in the following weeks:**

- the first week of the course (January 6), and
- the week before Reading Week (February 10).

Please see the table below for lab due dates. These dates are also included in the *Suggested Study Schedule* on OWL. You are **strongly encouraged** to attend and to work in pairs on labs. This will help you get to know someone in the course, and sometimes it's easier to learn material with someone than it is on your own. Again, computer science is collaborative, so, collaborate! **You are still expected to submit your own material to Gradescope for grading. Late labs are not accepted. Your lowest lab mark will be dropped.**

Lab	Date Assigned	Due Date	Course Weight
Lab #1	January 13	January 17	2%
Lab #2	January 20	January 24	2%
Lab #3	January 27	January 31	2%
Lab #4	March 3	March 7	2%
Lab #5	March 10	March 14	2%
Lab #6	March 24	March 28	2%

Quizzes

There will be regular weekly quizzes in the course **beginning in the first week of the course.** Each quiz is worth 1% of your final mark, and **the two lowest quiz marks will be dropped.** These quizzes will be completed through OWL. Each quiz will open after Wednesday's lecture, and it must be completed by the end of the following Sunday. For example, after the lecture on Wednesday, January 10, the quiz will become available, and it must be completed prior to 11:55pm on Sunday, January 14. **Late quizzes are not accepted.**

The purpose of quizzes is formative. They are meant to be used to ensure that you are reviewing the course material regularly. The quizzes are open book, so feel free to use any of your course notes to help. **You are expected to work alone on quizzes. Treat quizzes as your practice exam for the course.** Because they are formative, working with others will only harm you when it comes time to write the exam.

Final Examination

The final exam includes all material from the course (including labs). It will be scheduled by the Registrar during the final examination period. The final exam is a **three-hour exam**.

For the final examination, **you will be permitted one double-sided sheet of notes. These notes must be handwritten on an 8.5 x 11 piece of paper. The notes must be unique to you (i.e., you can't photocopy someone else's sheet).** Any notes that don't meet the above requirements will be removed by the proctors during the exam. You will be required to submit your notes at the end of the exam.

There is **no required grade on the final exam** to pass the course.

Student Absences

Accommodated Evaluations

Excused absences will be handled as follows:

Missed Project or Assignment

Assignments are the one assessment type requiring DOCUMENTED absences to give accommodations. For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Counselling Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration.pdf

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf

Assignments will not be re-weighted, nor will the grade be shifted to another course component. If a project or assignment is missed for a valid reason, as determined by your Faculty of Registration's Academic Counselling Office, then an alternate due date will be arranged with the course instructor. **Late penalties may still apply, depending on what dates are covered by the permission granted to you. Check with your instructor if you are unsure if a late penalty applies.**

Missed Quiz(zes)

If you miss a quiz for any reason, then that will be considered one of your dropped quizzes. You do not have to do anything to have a quiz dropped. **This is intended to allow you to miss a quiz in a week when you are ill or when other unforeseen circumstances occur.** Any quiz missed beyond the first two will result in a grade of 0 on that quiz. The grade will not be dropped. **Late quizzes are not accepted.**

Missed Lab Submission

If you miss submitting a lab for any reason, then that will be considered your dropped lab. You do not have to do anything to have a lab dropped. **This is intended to allow you to miss a lab in a week when you are ill or when other unforeseen circumstances occur.** Any lab missed beyond the first one will result in a grade of 0 on that lab. The grade will not be dropped. **Late labs are not accepted.**

Missed Final Exam

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Accommodation and Accessibility

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult the University's list of recognised religious holidays (updated annually) at

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and

cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

Academic Policies

The website for the Registrar is https://www.registrar.uwo.ca/.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Both the **final exam and the midterm allow one page of notes, as described on page 9 of this document**. Electronic devices will **not be permitted** during either examination.

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Code Checking Software will be used (via Gradescope) to ensure that all code submitted for evaluation is the original work of the student submitting that code.

In the event of a return to online learning due to unforeseen circumstances, the final exam in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data), and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: https://remoteproctoring.uwo.ca/.

Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling site for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/psych/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Additional student-run support services are offered by the USC: https://westernusc.ca/your-services/.