

# COMPSCI 2121B/9643B/DIGIHUM 2221B

## Course Outline - Winter 2022

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## Course Information

COMPSCI 2121B/9643B - Problem Solving: Programming  
DIGIHUM 2221B - Modern Survival Skills II

Component	Day	Start Time	End Time	Location
Lecture 001	Tuesday	11:30 AM	1:20 PM	UCC-37
	Wednesday	3:30 PM	4:20 PM	UCC-37
Lab 002	Wednesday	4:30 PM	5:20 PM	SSC-1032

### List of Prerequisites

Computer Science 2120A/B, Digital Humanities 2220A/B, or Integrated Science 1001X with at least 60%.

### List of Antirequisites

Computer Science 1027A/B, Computer Science 1037A/B, Digital Humanities 2221A/B.

## Contact Information

Instructors	Email	Office	Office Hours - via Zoom
Duff Jones - Lecturer	djone5<at>uwo.ca	MC 26	Thursday: 1:00pm - 2:00pm
Anurag Bhattacharjee	abhat23<at>uwo.ca	-	Friday: 10:00am - 11:00am

### Topics Specific to You

Students must use their Western ([@uwo.ca](mailto:uwo.ca)) email addresses when contacting their instructors.

**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 – Self-Reported Absence*).

An example of a topic specific to you would be a question regarding your use of a self-reported absence (SRA).

### Topics Impacting Everyone

Please use the [OWL Forums](#). Any question you have about course content has almost certainly come up for your classmates. By using the Forums instead of an email, everyone can benefit from the answer. If you know an answer to a classmate's question, please answer it. If you see a mistake, offer a fix. Computer science and programming, like other areas of science, are collaborative, and the Forums should allow for a level of collaboration with your classmates. It should go without saying, but you may be surprised: **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 right place. If it could go in two places, flip a coin to make the choice. Or, better yet, write a small program to flip a coin for you.

## 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."

### 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; and
- how to create basic data visualizations in Python.

Please refer to "**COMPSCI 2121B/9643B/DIGIHUM 2221B: Suggested Study Schedule – Winter 2022**" for a week-by-week breakdown of the topics to be covered and the required readings for each week. It is available on OWL under the Resources tab.

### Delivery Mode

**All lectures and labs will be delivered synchronously online via Zoom until at least January 31<sup>st</sup>**, per university policy. After that, if possible, all lectures and labs will be delivered in-person. The instructor and TA will hold office hours via Zoom for the entire semester. (See "Contingency Plan..." on page 11 for more information.)

### Making Appointments

Students may make Zoom appointments with the instructor if they are unable to attend office hours due to a course conflict.

# Course Materials

## Required Textbook

### *Problem Solving with Algorithms and Data Structures Using Python*

By Brad Miller and David Ranum

This book can be purchased as a paper textbook if you so choose, but it is part of the *Open Book Project*, so it can be accessed for free online at:

<https://www.openbookproject.net/books/pythonds/>. It can also be accessed via a link through the Textbook tool tab on OWL.

## 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.

## Required Software

### *Anaconda Individual Edition*

This software manages a lot of the more complicated aspects of Python, allowing you to focus on programming rather than on how to get your programming environment working. This is also where you will access Jupyter Notebooks, which is what you'll be using for your assignments. You can download it here: <https://www.anaconda.com/products/individual>.

### *PyCharm (Community or Professional)*

We will be using this as the integrated development environment (IDE) for project programming. An IDE makes life a little easier for us when programming, as it will give us useful features like syntax highlighting, debugging, language support and more. You can download it here: <https://www.jetbrains.com/pycharm/>. Your student information will give you access to the professional edition if you want that edition.

Of course, you're free to use a different IDE if you wish, but IDEs have a learning curve associated with them; if you use something other than PyCharm, it may be difficult for your instructors to help you if you run into a problem in the IDE.

## Using OWL

Students are responsible for checking the course OWL site (<https://owl.uwo.ca/>) 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:** <https://owl.uwo.ca/>.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they 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, given that the first month of the course (and all office hours) are being held via Zoom. It is also important to have a working microphone and/or webcam to participate during lectures and labs.

## Methods of Evaluation

### Course Grade

The overall course grade will be calculated as follows:

2 Assignments (10% each)	20%
2 Projects (17.5% each)	35%
2 Quizzes (7.5% each)	15%
1 Final Exam	30%

### Assignments

The table below shows the suggested timeline for assignments. If, for any reason, the assignment schedule cannot be adhered to, the assignment marks will be prorated (i.e., if an assignment must be removed for some reason, the remaining assignments will still be worth 20% of the course grade).

Assignment	Date Assigned	Due Date	Weight
Assignment #1	January 28	February 7	10%
Assignment #2	March 1	March 11	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.*

## Projects

The table below shows the suggested timeline for the two projects. If, for any reason, the project schedule cannot be adhered to, the project mark will be prorated (i.e., if a project must be removed for some reason, the remaining project will still be worth 35% of the course grade).

Project	Date Assigned	Due Date	Weight
Project #1	February 4	March 2	17.5%
Project #2	March 11	April 1	17.5%

### Submitting Assignments/Projects

**Assignments and projects will be submitted via OWL** 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**.

### Late Assignments/Projects

All assignments/projects are **due at 11:55pm Eastern time** on the assigned due date. Assignments/projects will be accepted up to four days (96 hours) after the assigned due date. **Assignments/projects 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 assignment/project. For example, the highest grade an assignment/project that is two days late can receive is 90%.

### Request for Mark Adjustment

Any request for an assignment mark adjustment **must be made within one week** of the assignment/project being returned 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 you deserve more marks. The request must be accompanied by all materials that were originally submitted, as well as the original marker's grade summary sheet. **Prior to requesting a mark adjustment, the student should speak to the TA** regarding the assignment 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.

### Assignment/Project Backups

It is each student's responsibility to keep up-to-date backups of assignment/project 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.

## Quizzes

There will be two quizzes in the course. The specific topics covered will be announced in class before each quiz. You can assume that these quizzes will cover everything that comes before them. These quizzes will be delivered during lab time on the dates listed in the table below:

Quiz	Date	Length	Weight
Quiz #1	February 9	45 minutes	7.5%
Quiz #2	March 16	45 minutes	7.5%

Each quiz will be worth 7.5% of your final grade and will run for 45 minutes. They will consist of multiple choice, true/false and short answer/coding questions. They will be delivered via OWL.

Quizzes are open book. You may use your notes or the textbook to help you, and you are welcome to use an IDE if you wish. You may not, however, help anyone with the quiz or receive help from anyone else.

It is possible that a remote proctoring solution will be used for the quiz. Please see "Remote Proctoring" for more information.

## Final Examination

The final exam will be scheduled by the Registrar during the final examination period. The final exam is a three-hour, cumulative exam. **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.

It is possible that a remote proctoring solution will be used for the final exam. Please see "Remote Proctoring" for more information.

## Accommodated Evaluations

Excused absences will be handled as follows:

### Missed Quiz

There are two quizzes during the semester. If a quiz is missed because of an **excused absence** (e.g., SRA), then that quiz's weight will be added to the weight of the final



examination (i.e., your final exam would be worth 37.5% instead of 30%). There are no makeup quizzes.

### Missed Assignment/Project

Each assignment/project can be submitted up to four days late (**see Late Assignments/Projects above**). In the event of an excused absence (e.g., SRA), **the due date does not change**. It is still due within the four-day period. Late penalties that would have been incurred will be ignored for each day that is covered by an excused absence. **An excused absence cannot, however, be used to extend the late period beyond the usual four days.**

For example, if an assignment is due on Friday, **and an SRA is used** to cover Friday and Saturday, then the assignment can be submitted without penalty before 11:55pm on Sunday. The assignment can be submitted with a 5% penalty up to 11:55pm on Monday. It can be submitted with a 10% penalty up to 11:55pm on Tuesday. An assignment due on Friday will not be accepted after Tuesday at 11:55pm, even if an SRA is used.

## Student Absences

### Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
  - an absence must be no more than 48 hours;
  - the assessments must be worth no more than 30% of the student's final grade;
  - no more than two SRAs may be submitted during the Fall/Winter term.
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration

on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_illness.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf)

and for the Student Medical Certificate (SMC), see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

## 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 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 recognized religious holidays (updated annually) at

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

## Absences from Final Examinations

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).

# Accommodation and Accessibility

## Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD), 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%20Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_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](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.

### Testing/Exam Policies

All quizzes are open-book, but **the final exam is closed-book**, save for one sheet of notes -- an 8.5 x 11, handwritten, double-sided, unique (i.e., you can't photocopy a sheet or create one for someone else) sheet that will be submitted after the exam. Electronic devices will **not be permitted** during the final examination.

### Code Checking Software

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

**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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

### Remote Proctoring

**In the event of a return to online learning due to the ongoing pandemic**, 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 webpage 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/>.

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 (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being:

<https://www.uwo.ca/se/digital/>.

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

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

## Policies Related to COVID-19

### Masks

Students will be expected to wear three-layer, non-medical masks at all times in the classroom, per Western policy and public health directives. **Students who are unable to wear a mask for medical or religious reasons** must seek formal accommodation through Accessible Education and present medical documentation.

Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the Student Code of Conduct.

### Food and Drinks

Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks.

## **Course Absences Due to Daily COVID Screening Questionnaire**

Missed assessments (e.g., presentations, essays, quizzes, tests, midterms, etc.) require formal **academic considerations** (typically self-reported absences and/or academic counselling). Methods for dealing with missed work and course content are at the discretion of the instructor(s) (see “Missed Quiz” and “Missed Assignment/Project” above). Students should be aware that some learning outcomes cannot be easily made up and may need to be completed in a subsequent year. Your instructor will provide you with further information as to how this applies within this course.

Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.

## **Contingency Plan for an In-Person Class Pivoting to 100% Online Learning**

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, synchronously. The grading scheme will not change. Any remaining assessments will also be conducted online as determined by the course instructor. In the event that online learning is required, a stable internet connection with working microphone and webcam will be required. As has been the case in the past, the decision to pivot to online learning will be made by Western, and not individual instructors or departments (excepting temporary online instruction in the event of instructor illness).