

CS 1027A: Computer Science Fundamentals II

Fall 2024

Course Outline

1. Course Information

Lecture Schedule

Section 001 (LEC) <i>Prof. Ahmed Ibrahim</i>	Mondays 11:30am to 1:30pm Wednesdays 11:30am to 12:30pm	BGSB-0165
Section 002 (LEC) <i>Prof. Roberto Solis-Oba</i>	Mondays 3:30pm to 5:30pm Wednesdays 3:30pm to 4:30pm	NSC-7

Lab Schedule

This term there are 8 lab sections. Check Western's Academic Time Table 2024/2025 to see times and locations for these sections.

List of Prerequisites

CS 1025A/B or CS 1026A/B (ES 1036A/B engineering students) or DS 1200A/B, with a mark of at least 65% in either. You cannot do either course concurrently with this course.

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.

2. Instructor Information

Instructors	Email	Office	Office Hours*
Roberto Solis-Oba (Course Coordinator)	rsolisob@uwo.ca	MC 417	Tuesday 4:00 pm – 5:00pm Friday 4:00 pm to 5:30 pm
Ahmed Ibrahim	aibrah64@uwo.ca	MC 28	TBD

Students must use their Western (@uwo.ca) email addresses when contacting their instructors or TAs. Include the course code (CS1027) in the subject line of emails you send regarding this course.

3. Course Syllabus, Schedule, Delivery Mode

Course Description

A continuation for both Computer Science 1025A/B and Computer Science 1026A/B. We will study data organization and manipulation, object-oriented principles, abstract data types and their implementations in Java, arrays, linked structures, stacks, queues, trees, lists, recursion, and memory organization.

Course Learning Outcomes

- Program in an object-oriented language, namely Java
- Create classes and use inheritance for creating sub-classes
- Identify and implement arrays and linked data structures
- Implement and use abstract data types, i.e. stacks, queues, lists, and trees
- Debug code and use exceptions to handle bugs gracefully
- Identify the different parts of memory during the execution of a Java program
- Program algorithms from pseudo-code

Lecture Topics

- Object-Oriented Programming
- Encapsulation, inheritance, abstraction, polymorphism
- Exceptions and Debugging
- I/O and Memory Allocation
- Collections and Generics
- Arrays
- Linked Data Structures
- Stacks
- Queues
- Lists
- Recursion
- Memory Management
- Trees
- Sorting

Key Sessional Dates

Classes begin: September 5, 2024

Reading Week: October 12–20, 2024

Classes end: December 6, 2024

Contingency Plan

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.

Lab Schedule

Lab #	Week
Lab 1	Sep. 16 – 20
Lab 2	Sep. 23 – 27
Lab 3	Sep. 30 – Oct. 4
Lab 4	Oct. 7 – 11
Lab 5	Oct. 21 – 25
Lab 6	Oct. 28 – Nov. 1
Lab 7	Nov. 4 – 8
Lab 8	Nov. 11 – 15
Lab 9	Nov. 18 – 22
Lab 10	Nov. 25 – 29

4. Course Materials

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 by which information will be disseminated to all students in the class. All course material will be posted to OWL: <https://westernu.brightspace.com/>.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace 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

You are required to have a modern laptop or desktop computer that can run an up-to-date version of Java and an IDE such as Eclipse. You must also have a reliable internet connection.

Some office hours are going to be held on Zoom, so it is recommended that you have a working microphone and webcam to join the office hours when you have a question.

Textbook

There is a recommended (not required) digital textbook, ZyBooks, for this course. If you have taken CS 1027A/B before and subscribed to the ZyBook then, you can contact support@zybooks.com to ask them for the new book for free since you have previously paid for the book (mention the new course code shown below).

Anyone who has not subscribed to the ZyBook for this course previously will have to subscribe to it as follows:

1. Sign in or create an account at learn.zybooks.com
2. Enter zyBook code: **UWOCOMPSCI1027A-BSolis-ObaFall2024**
3. Subscribe and pay with a credit card (about \$52 USD)

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Assignments (4 at 8% each)	32%
Labs (10 at 1% each)	8% (1% each, lowest 2 are dropped)
Midterm Test	20%
Final Exam	40%

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Midterm Exam

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Assignments

There are four assignments that require you to apply the topics you learned from the lectures and/or labs and to implement Java programs.

All assignments are due at 11:55pm on the due date unless stated otherwise. If an assignment has to be cancelled by the instructors for any reason, the remaining assignments will be re-weighted to add up to 32%. Appeals to assignment and lab marks must be made **within one week** of the assignment being marked and returned to the students.

Late Policy on Assignments

Late assignment submissions will be subject to a penalty of 10% per day late up to a maximum of 3 days. After 3 days, assignments will not be accepted anymore and will be marked as 0. If you have an illness or other valid reason for an extension, you must contact your home faculty's academic advising office to obtain an official academic consideration from them and then follow up with your instructor to determine a reasonable extension.

Re-submissions are allowed but note that re-submissions after the deadline will be penalized for being late, regardless of when the initial submission was made. Assignments will contain instructions for submitting them, **which you must follow**. We will not accept assignments submitted via email or any format other than what is stated in the assignments.

A large portion of each assignment's grade will come from auto-graded tests and the rest will come from programming style, formatting, logic, comments, etc. Some of the tests will be provided, but note that additional tests may be run that are hidden from you, so you should create your own additional tests to ensure your code works properly in all cases.

Assignments are to be done individually, not in groups. The submitted code will be run through a similarity-checking software to look for cheating. **Do not copy or share code in any way.**

Tentative Assignment Due Dates:

Assignment 1	Tuesday, October 8
Assignment 2	Thursday, October 31
Assignment 3	Monday, November 18
Assignment 4	Thursday, December 5

Labs

Lab instructions will be available on the course website in advance. It is expected that students will come prepared to the labs by reading the instructions and performing any preparatory work in advance.

- There are 10 weekly labs which should each take 1 hour or less to complete.
- The labs begin the week of September 16-20
- **You must attend the lab section in which you are registered.** You **cannot** attend a different lab section even if you have a valid reason to miss your scheduled lab. You will receive a mark of 0 if you try to attend a different lab section.
- Each completed lab is worth 1% of your final grade, and we will drop the lowest 2 labs at the end of the term.
- To receive credit for a lab, you must attend and work on the lab during your scheduled session **AND submit the completed specified files on OWL within 24 hours of your lab session.**
- Coming to your scheduled lab section with the work already complete **is not permitted.** You will receive a mark of 0 if you try to do this.
- The labs are generally pass/fail, however you could get a partial mark if you missed a significant portion of the required work, or if you forget to upload the files on OWL after attending your lab. It is up to the discretion of the TAs to determine the grade for each lab.

- Since we are dropping the lowest 2 labs, you can miss up to 2 labs without affecting your mark. If you must miss more than 2 labs, you should contact your home faculty's academic advising office to request an academic consideration for the missed labs. If they approve your absence for any additional labs (after the first 2), those missed labs will be re-weighted to your final exam.
- Labs that are missed without academic considerations will be given a grade of 0 and will not be re-weighted. Only 2 are dropped so absences after that will be considered a 0 toward your grade.
- **It is your responsibility to sign the TA's attendance sheet** and to show your completed lab work to them before leaving the lab room. It is also your responsibility to submit the specified files from the lab on OWL within 24 hours of the time of your lab session. Forgetting to do either of these is not a valid excuse to get the lab mark.

Midterm Exam

The midterm is tentatively scheduled for **Saturday, October 26**. Time and location will be announced on OWL closer to that date.

The midterm is 2 hours in length and is a combination of Multiple Choice, Written/Drawn Answers, and Algorithm Design. All portions of the exam are written on paper, not with computers. No electronic devices are allowed.

There will not be a make-up midterm. If you cannot write the midterm for a valid reason (i.e. exam conflict, medical, or religious reasons), you will have to contact your home faculty's academic advising office to request an academic consideration for your absence. If you receive their approval, the weight of the midterm will be shifted to the final exam, making it worth 60%.

Without such an academic consideration, missing the midterm will result in a mark of zero on the midterm and it cannot be made up.

Final Exam

The final exam will be scheduled by the University. The final exam is cumulative, meaning it covers topics from the entire semester. The final exam is 3 hours in length and is a combination of Multiple Choice, Written/Drawn Answers, and Algorithm Design. All portions of the exam are written on paper, not with computers. No electronic devices are allowed.

Grade Requirements

To be eligible to receive a grade of 50% or higher (i.e. to pass the course), you must achieve:

- at least 45% average between the midterm and final exams, and
- at least 45% average between the four assignments

If you fail to meet **either** of these conditions, your final mark will be either 45% or your calculated grade, whichever is lower.

To be eligible to receive a grade of 65% or higher (i.e. to be eligible to go on in a Computer Science module), you must achieve:

- at least 50% average between the midterm and final exams, and
- at least 50% average between the four assignments

If you fail to meet **either** of these conditions, your final mark will be either 60% or your calculated grade, whichever is lower.

6. Evaluation Scheme for Missed Assessments

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedure below. Whenever you need an academic consideration for an absence (as explained below), you **must** contact the Academic Advising 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_Sep24.pdf

The Student Medical Certificate is available at

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

Labs

You can miss up to 2 labs without any penalty since we drop the lowest 2 labs. If you miss more than 2 labs due to an ongoing illness or other valid reason, you should contact your home faculty's academic advising office to request academic considerations for the other labs you miss and then contact your course instructor about it to get those labs reweighted to the final exam.

Assignments

If you are unable to submit an assignment by the given due date, you must contact your home faculty's academic advising office to request an academic consideration. If they approve, you will be given an extension typically for 48 hours, but the duration of the extension may depend on the timeline supported by the advisor. Without approval from an advisor, extensions will not be given and assignments will be subject to late penalties.

Assignments will not be accepted after one week of the original deadline. If an academic accommodation has been granted beyond this date, the weight of the assignment will be transferred to the final exam.

Midterm

If you are unable to write the midterm, you must contact your home faculty's academic advising office to request an academic consideration. If they approve, the weight of your midterm will be shifted to the final exam. Without approval from an advisor, missing the midterm will result in a mark of 0 on the midterm.

Final Exam

If you miss the Final Exam, please contact the Academic Advising 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).

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).

Note: Missed work can *only* be excused through one of the mechanisms above. Being asked not to attend an in-person course requirement due to potential COVID-19 symptoms is **not** sufficient on its own.

7. 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 accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Advising office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

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

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_Accommodation_disabilities.pdf,

8. Academic Policies

The website for Registrarial Services is <http://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.

No electronic devices (including phones, calculators, etc.) are permitted on the midterm or final exam.

In the event of health lock-down, tests and exams in this course may 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>.

Scholastic Offences

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 Web site:

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

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Code submitted for labs, assignments, and/or exams may be run through comparison-checking software such as MOSS to look for cases of cheating.

All assignments in this course are **individual assignments**. You cannot work on an assignment in a group, you cannot copy or share any part of your assignment, you cannot use code from the internet, books, or other sources unless the instructors have allowed this, you cannot use a chatbot to generate any part of your code, you cannot pay someone else to write your assignment. You must not post your assignment in github or any other publicly accessible online site. All work you submit must be 100% your own.

9. 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/>.

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.

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. Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus. We encourage you to check out the Digital Student Experience website to manage your academics and well-being:

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

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