

## CS 1027A: Computer Science Fundamentals II Fall 2022 Course Outline

### 1. Course Information

#### Lecture Schedule

Section 001 (LEC) <i>Bryan Sarlo</i>	Mondays 11:30am to 1:30pm Wednesdays 11:30am to 12:30pm	SEB-2100
Section 002 (LEC) <i>Jim Morey</i>	Mondays 3:30pm to 5:30pm Thursdays 3:30pm to 4:30pm	SEB-2202

#### Lab Schedule

This term there are 8 lab sections. Check Western's Academic Time Table 2022/2023 to see times and locations for these sections.

#### List of Prerequisites

CS 1025A/B or CS 1026A/B (ES 1036A/B engineering students), 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
Bryan Sarlo (Course Coordinator)	<a href="mailto:bsarlo@uwo.ca">bsarlo@uwo.ca</a>	MC 361	Mondays 2pm to 4pm
Jim Morey	<a href="mailto:jmorey2@uwo.ca">jmorey2@uwo.ca</a>	MC 362	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, lists, stacks, queues, trees, recursion, file 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 Principles, Inheritance, and Polymorphism
- Exceptions and Debugging
- Collections and Generics
- Linked Data Structures
- Stacks, Queues, and Lists
- Memory Management
- Recursion
- Trees
- Sorting

### Key Sessional Dates

Classes begin: September 8, 2022

Fall Reading Week: October 31 – November 6, 2022

Classes end: December 8, 2022

Exam period: December 10 – 22, 2022

### Lab Schedule

Lab #	Week
Lab 1	Sept. 19 – 23
Lab 2	Sept. 26 – 30
Lab 3	Oct. 3 – 7
Lab 4*	Oct. 10 – 14
Lab 5	Oct. 17 – 21
Lab 6	Oct. 24 – 28
Lab 7	Nov. 7 – 11
Lab 8	Nov. 14 – 18
Lab 9	Nov. 21 – 25
Lab 10	Nov. 28 – Dec. 2

\* October 10 is the Thanksgiving holiday so the university will be closed. Students in Monday labs will be contacted about doing this lab (Lab 4 only) from home. All non-Monday labs will run normally.

### **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, affected course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

## **4. Course Materials**

Students are responsible for checking the course OWL site (<http://owl.uwo.ca>) 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: <http://owl.uwo.ca>. The CS 1027A course site on OWL is labelled as "**COMPSCI 1027A 001 FW22**".

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**

Stable internet connection; computer that can run Java and an IDE for Java (i.e. Eclipse).

There is a required digital textbook, ZyBooks, for this course. A portion of your overall grade will come from the completion of the readings and activities in the ZyBook. If you have taken the course before and subscribed to the ZyBook then, you can contact [support@zybooks.com](mailto:support@zybooks.com) to ask them for the new book for free since you have previously paid for the book. You **cannot** use your progress from a previous term towards this term – you must get the new book but the cost is waived when re-taking it.

Anyone who has not taken subscribed to the ZyBook for this course previously will have to follow these steps to subscribe now:

1. Sign in or create an account at [learn.zybooks.com](http://learn.zybooks.com)
2. Enter zyBook code: **UWOCOMPSCI1027ABSarloFall2022**
3. Subscribe

You **must** use your Western email address and the same full name as in your Western profile. You may lose marks if you sign up to ZyBooks with a different email address or name.

## **5. Methods of Evaluation**

The overall course grade will be calculated as listed below:

Assignments (4)	32%	(8% each)
Labs (10)	8%	(1% each; lowest 2 are dropped)
ZyBooks	5%	
Midterm Test	20%	
Final Exam	35%	

## 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 via Gradescope 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%.

Each student is given 4 late coupons which give a grace period on the submission of an assignment. Each coupon waives the late penalty for one day, and multiple late coupons can be used on the same assignment. They are applied automatically (you don't have to tell anyone that you want to use the coupons). For example, if you submit Assignment 1 two days after the due date, there will be no late penalty and you will be left with 2 late coupons for the remaining assignments. If you submit an assignment late once you have used all your late coupons, there will be a late penalty of 10% per day.

Assignments can be submitted up to 3 days late – regardless of how many late coupons may have been used. Assignments will not be accepted more than 3 days after the due date and will be graded as 0.

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 be submitted through Gradescope (not OWL) unless otherwise stated. You have free access to Gradescope as a Western student. Steps to submit on Gradescope will be explained in more detail closer to the deadline of the first assignment. We will not accept assignments submitted via email or any other format.

A 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. It is your responsibility to ensure the tests run and pass on Gradescope in order to get full marks (if the tests pass on Eclipse but not on Gradescope, you will not get those marks).

**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	Friday, September 30
Assignment 2	Thursday, October 27
Assignment 3	Monday, November 14
Assignment 4	Tuesday, December 6

## 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 19-23
- **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 complete the lab work during the scheduled slot and submit the specified files on OWL by the end of the day in which you had your scheduled lab.
- 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.
- 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 academic counsellor to request accommodations for the missed labs. If they approve your absence for the additional labs (after the first 2), then the weight of those additional missed labs will be shifted to your final exam.
- Labs that are missed without accommodations will be given a grade of 0 and will not be re-weighted. Only two 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 by the end of the day in which you had your lab.

## ZyBooks

There are weekly ZyBooks readings with activities that must be completed. Your ZyBooks progress will only be checked at the end of the term so you aren't obligated to do the readings during the week in which they are assigned – however, it is recommended that you do to stay on top of the material and leave yourself time at the end of the term to avoid having to do it all at once!

There are participation activities and challenge activities. You are **required to complete BOTH types of activities** in all the assigned sections of the book. Completing all the participation and challenge activities in all the required sections is worth 5% of your course grade. If you complete a portion of them, your grade will be based on the amount of these activities you completed.

ZyBooks allows you to try repeatedly so you will get the marks if you complete them, even if it takes you multiple tries to complete any activities.

## Midterm

The midterm is tentatively scheduled for Sunday, October 23 from 3pm to 5pm.

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

You will be allowed to bring a cheat sheet – a single 8 ½" by 11" piece of paper with any notes you wish to write on it. You must bring your student card, pens, and pencils to the midterm.

Topics to expect on the Midterm include:

- OOP
- Memory Allocation
- Inheritance
- Collections and Generics
- Arrays
- Linked Data Structures
- Exceptions
- Stacks

There will **not** be a make-up midterm. If you cannot write the midterm for a valid reason (i.e. conflict with another university assessment, medical reasons, or religious reasons), you will have to contact your academic counsellor to request accommodations to miss the midterm. If you obtain such accommodations, the weight of the midterm will be shifted to the final exam, making it worth 55%. **Without such accommodations, 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 exam period is from December 10 to 22 and the exact date, time, and location for our exam will likely be announced in November.

The final exam is 3 hours in length and is a combination of Multiple Choice, Written Answers/Diagrams, and Algorithm Design. All portions of the exam are written on paper, not with computers. No electronic devices are allowed.

You will be allowed to bring a cheat sheet – a single 8 ½" by 11" piece of paper with any notes you wish to write on it. You must bring your student card, pens, and pencils to the final exam.

Topics to expect on the Final Exam include:

- topics from Midterm, plus:
- Queues
- Lists
- Iterators
- Memory Management
- Recursion
- Trees
- Sorting

The post-midterm topics will be more prevalent on the final exam but pre-midterm topics will be testable on the final exam too.

## ***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. Student Absences

If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

### **Assessments worth less than 10% of the overall course grade:**

You can miss up to 2 labs without any penalty since we drop the lowest 2 labs. If you miss several labs due to an ongoing illness or other valid reason, you should contact your academic counsellor to seek accommodations for the other labs you miss and then contact your course instructor about it.

For assignments, you have 4 late coupons that will automatically give leniency with due dates. If you require additional time with assignments (after your late coupons run out) with a valid reason, you should contact your academic counsellor to seek accommodations for the assignments that are late and then contact your course instructor about it.

### **Assessments worth 10% or more of the overall course grade:**

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/accommodation\\_medical.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf).

The Student Medical Certificate is available at

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

### **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).

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.

## 6. 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 Counselling 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 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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

## 7. 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](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 their official university address is attended to in a timely manner.



**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](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.

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>.

## 8. 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](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](mailto: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 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/>.

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