

Computer Science 1037A

General Course Information

Course Information:

Computer Science 1037a
Computer Science Fundamentals II
Course Outline – **Fall Term 2025**

Calendar Description:

A continuation for Engineering Science 1036A/B. Data organization and manipulation; abstract data types and their implementations in a higher-level computer language (C); lists, stacks, queues, trees; pointers; recursion; memory allocation and memory management. Intended for students in the Faculty of Engineering

Extra Information: 3 lecture hours, 2 laboratory/tutorial hour.

Prerequisites

Engineering Science 1036A/B.

Antirequisites

Computer Science 1027A/B, Computer Science 2121A/B, Digital Humanities 2221A/B.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Counselling) 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.

Instructor:

Iqra Batool

Office Hours: Monday: 9:30 am – 10:30 am (Virtual Via Zoom)

-or- by appointment (arranged at least one day prior)

Office hour appointments will be 20 minutes in length, and you are expected to send any relevant files in advance of the meeting. Arriving on time for your appointment is important so as to not interrupt other student's appointments. Late arrivals may be asked to rebook their appointment for another date/time.

E-Mail: ibatool2@uwo.ca

Students must use their Western (@uwo.ca) email addresses

Email Subject line MUST contain **CS1037A** otherwise the email will not be received.

Course Schedule:

CS1037a Section 001

Lecture Times:

Tuesday 8:30 am – 10:30 am
Thursday 8:30 am – 9:30 am

NOTE: All times stated in this course outline are based on London, Ontario time

ET ~ East Coast Time Eastern Standard Time (EST) = GMT-5 Eastern Daylight Time (EDT) = GMT-4

Lab Schedule:

Section	Time	Location
002	Thursday : 4:30 PM – 6:30 PM	
003	Wednesday : 7:30 PM – 9:30 PM	

Required Course Material:

Required Textbook: NONE

Recommended Textbooks:

- *C Primer Plus*
Sixth Edition
by Stephen Prata
ISBN-13: 978-0-534-39080-8
ISBN-10: 0-534-39080-3

Software Requirements:

The following software will be used in this course. [Microsoft Office is provided for free to most students enrolled at Western](#), all other software listed is available for free. It is the student's responsibility to ensure the following software is compatible with, installed and working on their home computer.

C Language Integrated Development Environment (IDE):

- Code::Blocks
[Code::Blocks - Code::Blocks \(codeblocks.org\)](http://codeblocks.org)

MyVLab:

- [Windows Emulator Environment](#) (*recommended for Apple Mac O/S users!!*)
contains a copy of the Code::Blocks IDE

iClicker:

- To participate fully in this course you are required to have a device (laptop, cellphone, tablet, etc.) capable of using [iClicker](#) that you are able to bring to class each week. A laptop is recommended, but any device compatible with [iClicker](#) is sufficient.

- Attendance will be traced using the iClicker app through OWL. Information on setting up iClicker can be found at: [Getting Started with iClicker as a Student - OWL Site - YouTube](#). Students must use their UWO Western student email and ID (based on their UWO email prefix) when registering for iClicker.

Remote Backup Service:

- [OneDrive](#)
- OR [Dropbox](#), other version control, etc.

By taking this course, you are declaring that you meet all technology and software requirements, including access to a reliable internet connection, a webcam, and microphone.

Classroom Conduct:

Students are expected to arrive promptly and remain in class until the end of the lecture, so as to not disturb others in the class. The use of laptops, tablet computers, or smart phones *only* to access the course OWL site during lectures and tutorials. No other electronic devices may be used at any time during lectures or tutorials. Any behaviour or activity that may impede the ability of you or other students to learn will not be tolerated and if the behaviour persists the individual(s) involved will be invited to leave the classroom.

Due to the proprietary nature of some of the materials used in the lectures, **no audio recording** will be allowed during any of the class sessions.

Email Contact:

Occasionally email messages may be sent to the entire class or to students individually. Email will be sent to your UWO email address as assigned to you by Information Technology Services (ITS). It is your responsibility to read this email on a frequent and regular basis.

Email contact with the course instructor is encouraged, by sending brief and appropriate message regarding lecture material or assignments. However, please first check the Forums section in OWL to see if the information has already been posted. If you contact the instructor via email, you can expect a response in a timely fashion, but not necessarily an instantaneous response. Please use proper, appropriate and respectful English when sending an email message or posting on the course web site.

NOTE: Email messages **must** be sent from your university account and **MUST** include: “CS 1037A” in the subject line.

Email messages without “CS 1037A” in the subject line will automatically be trapped and deleted by the instructor’s SPAM filter and will **NOT** be available, read or responded to.

Do not use ‘respond to’ for any email originating from OWL Brightspace (announcements, etc.) – ensure the professor’s email is the in the destination and NOT to: postmaster@owl.uwo.ca

[**this is very important** – please make sure you understand and follow the standards above.]

NOTE: Please also include a title or topic description of the contents of the email in the subject line.

Scheduled Lectures:

The scheduled lectures for the course use presentation software and appropriate applications software to present the course content. The required course materials supply the course content. Readings and practice exercises will be assigned through OWL Brightspace. Students are expected to come to class prepared by completing the readings before class.

Lecture materials will be available on the course website. These materials are intended to aid in notetaking and provide review of course content. They are not complete course notes and are not a substitute for attending lectures. Students are expected to attend all lectures and are responsible for any material covered in the classroom that may not be represented in the supplied notes on OWL.

Curriculum Schedule:

The following represents the order the course topics will be presented.

UNIT	Lecture Topic
1	Introduction to the C Programming Language
2	C Fundamentals and Basic Control Statements
3	Binary Representation and Memory Maps
4	Character Strings - Simple Input / Output
5	Pointers and Function Calls
6	Variable Scope – Header Files – Pointers to Functions
7	Recursion and Dynamic Memory Allocation
8	Structures – Unions – Enumeration
9	Linked Lists and Stacks
10	Queues
11	Binary Search Trees
12	Command Line Parameters – File Reads and Writes
13	Review

By the end of this course, the student will be able comprehend the mechanics of the data structures and the student will be able to utilize these concepts in the C computer language.

Student Evaluation (tentative dates):

To be eligible to obtain a passing mark in the course, the final exam grade **must** be 49% or higher **AND** the weighted assignment average **must** be 49% or higher. If you do not meet any of these requirements, the maximum final grade you can obtain in this course will be 45%. There will be **no exceptions** or waiving of this requirement for any reason or circumstance.

Element	Weight
4 Assignments	28%
2 Online Quizzes	16%
Class Participation	10%
10 Labs (out of 12)	10%
Final Exam	36%

Assignments:

Students are expected to view the lecture materials and complete the online exercises to prepare for the assignments. Once the assignment is completed, all parts of the assignment must be submitted on the grade scope site. It is the **student's responsibility** to ensure that all parts of each assignment are correctly uploaded and submitted in grade scope, to ensure that the assignment can be marked accordingly.

Note: Assignments emailed to the instructor or teaching assistant **will not be** accepted, unless there are extenuating circumstances and prior approval from the instructor.

The following is the tentative assignment schedule (subject to change):

Assignment	Weight	Topic	Due Date (by 11:55 PM)
1	6%	Simple Control Statements	September 27 th , 2025
2	7%	Arrays	October 18 th , 2025
3	7%	Structures and Pointers	November 13 th , 2025
4	8%	Lists	December 04 th , 2025

The due dates of the assignments are shown in the table above. Please note that all these dates are tentative. The due dates will be confirmed when the assignments are posted on OWL.

The dates will coincide with the class progression on subsequent topics.

Where possible, the instructions for each assignment will be posted on the course website at least 2 weeks in advance of the due date.

If for any reason the assignment schedule given above cannot be adhered to, the assignment marks will be pro-rated. The Four assignment (4) assignments are worth 28% of the overall mark for the course. If an assignment must be canceled by the instructor for any reason, the remaining assignment weights will be prorated to add up to 28%.

Assignment Marking:

- Assignments will be marked by a TA within 2 weeks of the assignment due date where possible.
- Individual marks and a detailed marking scheme will be posted on the OWL site once marks are returned.
- Questions regarding the marking of assignments should first be directed to the teaching assistant that graded your assignment and then the course instructor assigned to your section if your discussion with the teaching assistant was not satisfactory.
- Requests for mark adjustments will only be considered if they are made within **1 week** of receiving the assignment mark and have been first discussed with the teaching assistant who marked the assignment. **Assignment marks will be final after that date.**
- Requests for mark adjustments will only be considered when they are for adjustments of **5 marks or greater**.

There will be **no exceptions** or waiving of this requirement for any reason or circumstance.

The due dates of the assignments are shown in the table above. Please note that all these dates are tentative. The due dates will be confirmed when the assignments are posted on OWL. The dates will coincide with the class progression on subsequent topics.

It is the student's responsibility to ensure that the correct version is submitted to OWL Brightspace. No excuses will be accepted if an incorrect version is submitted instead. Students can resubmit their assignments until the due date. In this case, only the last version will be marked.

Assignments will not be accepted if submitted to the professor's email instead of OWL Brightspace and **will be deleted immediately** and deemed un-submitted.

Every effort will be made to have assignments marked and handed back within 2 weeks of the hand in date.

Late Policy for Assignments:

It is expected that students budget enough time to properly submit their assignments via OWL Brightspace and allow for any unforeseen technological issues. Students are expected to regularly backup their assignments and submit well before any deadline.

- Each student will be given four "late coupons" in total for the semester that may be used to submit an assignment one day late per coupon (up to a maximum of **3 days late per assignment**).
- Late coupons will be applied **automatically** when an assignment is submitted late and tracked in the OWL gradebook.
- If a student has no late coupons remaining or submits an assignment more than 3 days late, **a zero grade will be given** for the assignment (no partial late marks will be given).

- Late coupons must be used **before** special circumstances are considered.
- After all late coupons are used, **no extensions will be given** for assignments except for in the event of serious medical or compassionate grounds. A student must follow the procedure for Academic Accommodation for Medical Illness as given in this document. If an academic accommodation is approved, a deferred due date will only be provided by the instructor for maximum of 3 days past the original due date. After this point the weight of the assignment will be placed on the final exam.
- Late coupons will not be replenished. For example, if you use 3 late coupons on Assignment 1, you will only have 1 left for the remainder of the course.
- Each late coupon is valid for a 24-hour period only. For example, if an assignment is due on September 1st at 11:55 pm and the student submits on September 1st at 11:56 pm this would require one late coupon, as would any submission between September 1st at 11:56pm and September 2nd at 11:55 pm. After September 2nd at 11:55pm and up to September 3rd at 11:55 pm, 2 late coupons would be required. After September 3rd at 11:55pm and up until September 4th at 11:55pm 3 late coupons would be required. After September 4th at 11:55pm, no more submissions will be accepted, and a zero grade will be given on the assignment.
- Late coupons will be applied automatically when an assignment is submitted late and tracked in the OWL gradebook.
- It is the student's responsibility to keep track of how many late coupons they have available throughout the semester. Occasionally the teaching assistants may be tardy on updating each student's late coupon total. In case of a discrepancy, the actual number of coupons used (and not what is listed in OWL Brightspace) will be applied.
- If a student has no late coupons remaining or submits an assignment more than 3 days late, a zero grade will be given for the assignment (no partial late marks will be given).
- Late coupons must be used before special circumstances are considered.
- **After all late coupons are used, no extensions will be given for assignments** except for in the event of serious medical or compassionate grounds. A student must follow the procedure for Academic Accommodation for Medical Illness as given in this document.
- Late coupons cannot be used on any course component except assignments.

Class Participation:

Based on class attendance and participation. Your participation grade will be determined by your attendance (recorded via iClicker) in-class and participating in the in-class activities and iClicker quizzes/polls. This will be graded as a pass or fail for each lecture. Participation is 10% of a student's final grade based on 0.5% awarded for each class attended up to 20 classes. Students can miss up to five (05) classes and still achieve the full 10% for class participation. Academic accommodation will only be applied after the allotted five classes are missed. Students with late enrollment are still required to fulfill the 20 classes for the full participation credits.

Up to five (5) lectures can be missed without penalty. After missing five lectures, you will be required to contact your academic counsellor to request accommodations, or you will receive a grade of zero for participation for the missed lecture.

To obtain these participation marks you must be physically present in-class and have your own device capable of using iClicker. Any attempt to circumvent the participation system or earn a passing participation grade without attending class is an academic offence and will result in an overall participation grade of zero and the offence being reported to the Dean's

Online Quizzes:

Up to two (2) quizzes will be given online via the OWL platform.

Quizzes are open book but must be done individually and without the assistance of others. Sharing quiz questions/solutions, completing a quiz for or with another person or otherwise cheating on a quiz will result in a 0% quiz grade for ALL quizzes.

The tentative quiz schedule is as follows (subject to change):

Quiz	Weight	Date & Time
1	8%	Friday - October 17 th , 2025 @ 7:00 PM EDT
2	8%	Friday - November 21 th , 2025 @ 7:00 PM EST

Quizzes must be started at the given date and time. Failing to complete the quiz during the given times will result in a 0 grade being entered for the quiz. For each quiz you will be given time will start from 7:00PM and will end at 11:59 pm but once you start solving you quiz you have 30 minutes to submit. After, 30 minutes its automatically close.

Quizzes are open book but must be done individually and without the assistance of others. Sharing quiz questions/solutions, completing a quiz for or with another person or otherwise cheating on a quiz will result in a 0% quiz grade for ALL quizzes.

If less than two (2) quizzes are given or a quiz must be cancelled by the instructor for any reason, the weight of the cancelled quiz will be placed on the final exam. **No makeup quizzes will be given. The weight of a quiz missed due to documented and approved medical or compassionate grounds will be placed on the final exam.**

Final Exam:

No electronic devices are allowed during exams (no iPods, laptops, etc)

Cell Phones are **NOT** permitted to be visible or accessible during any part of the examination period.

The use of a calculator is not allowed.

Reference notes or Dictionaries of any kind are not allowed.

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

- The date, time and location of final exam will be announced by the Registrar's Office. The final exam will be held during the university final examination period.

- Students requesting a deferred final exam prior to the final exam must supply their Dean's Office with written documentation at **least 2 weeks prior** to the Final Exam.
- In the event of serious medical or compassionate grounds, a student must follow the procedure for Academic Accommodation for Medical Illness as given above.
- A "Recommendation of Special Examination" form must be obtained from the Dean's office, to be eligible to write the deferred final exam.

Course Web Page:

The course website is located within OWL Brightspace. To access the website, navigate to <http://owl.uwo.ca> and login with your Western University personal computer account (user id and password). Lecture & tutorial videos, assigned readings, notes, assignments and class information will be posted at this site. You are responsible for checking the course site regularly.

New material will be posted each week including video lectures, tutorials and slides. These can be found in the Course Content tab in the OWL Brightspace course site. Students are expected to complete all weekly tasks including assigned readings and exercises in the week they are assigned and well in advance of any other stated deadlines.

Students are responsible for checking the course OWL Brightspace 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 Brightspace: <https://westernu.brightspace.com/>.

If students need assistance with the course OWL Brightspace 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.

Key Sessional Dates:

Sept. 4	Classes begin (Thursday)
Sept. 12	Last day to add a Fall/Winter 24-week course or a Fall 12-week course.
Sept. 30	National Day for Truth and Reconciliation (observed at Western). No classes.
Oct. 13	Thanksgiving (No classes)
Nov. 3-9	Fall Reading Week (Monday to the following Sunday)
Dec. 1	Last day to withdraw from a Fall 12-week course without academic penalty (<i>extended from Sunday, Nov. 30</i>)
Dec. 9	Last day of classes in the Fall term
Dec. 10	Study Day
Dec. 11–22	December examination period

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) 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.
- (ii) 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.

Few points to consider

- **Assignments:** No medical accommodations provided - use your 4 late coupons for any delays; accommodations denied due to built-in flexibility
- **Participation:** No medical accommodations provided - 5 missed classes allowed without penalty; accommodations denied due to built-in allowance
- **Labs:** No medical accommodations provided - "best 10 of 12" scoring accommodates missed sessions; accommodations denied due to built-in flexibility
- **Quiz:** Medical accommodations available with documented medical grounds - missed quiz weight transfers to final exam per standard university procedures
- **Final Exam:** Standard university deferred exam procedures apply through Academic Counselling office

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 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/academic_consideration.pdf.

The Student Medical Certificate is available at

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

Additional Statements

Religious Accommodation

When conflicts arise 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 to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be

made as early as possible, but not later than two weeks prior to the writing of the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays - <https://www.edi.uwo.ca>

Academic 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.

General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as "appeals")

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

[If cross-listed as a grad course] Procedures on Request for Relief from Academic Decision (Graduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

[If cross-listed as a grad course] Procedures on Scholastic Offences (Graduate):

https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This

includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is your responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, 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.

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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

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

Learning-skills counsellors at Learning Development and Success (<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/>.

This course is supported by the Science Student Donation Fund. If you are a student registered in the Faculty of Science or the Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Advising site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.

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](#)).