Western Science

Department of Computer Science

Computer Science 1037A: Computer Science Fundamentals II Course Outline

1. Course Information

Course Information

Course: Computer Science 1037A, Computer Science Fundamentals II
Section: 001
Academic Term: Fall 2026
Credit: 0.5 course

Course Description
A continuation of Engineering Science 1036A/B. Data organisation 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 and 2 laboratory/tutorial hours per week.

Lecture and Laboratory Schedule

Section	Component	Class No.	Day	Time	Location
001	Lecture	9500	Tuesday	9:30 am – 11:30 am	[redacted]
001	Lecture	9500	Thursday	8:30 am – 9:30 am	[redacted]
002	Laboratory	9675	Thursday	4:30 pm – 6:30 pm	[redacted]

List of Prerequisites
Engineering Science 1036A/B.

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

Unless students have either the prerequisites for this course or written special permission from the Department of Computer Science to enroll in it, they may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on their academic record. This decision may not be appealed.

2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Sabbir Muhammad Saleh	[redacted]	[redacted]	[redacted]

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

Email subject lines should include CS 1037A followed by a brief description of the message, for example:

CS 1037A: Question about Assignment 2

Course announcements, materials, assessment information and other important updates will normally be communicated through OWL Brightspace and/or Western email. Students are responsible for checking both regularly.

3. Course Syllabus, Schedule, Delivery Mode

Course Objectives
Computer Science 1037A develops students' understanding of structured programming and fundamental data structures using the C programming language. Building upon Engineering Science 1036A/B, the course emphasises data representation, pointers and memory, modular programme development, dynamic memory allocation, and the implementation and use of fundamental data structures.

Course-Level Learning Outcomes
By the end of the course, students should be able to:

1. **Design, implement, test and debug C programs** to solve computational problems.
2. **Explain and apply fundamental C programming concepts**, including control structures, functions, arrays, strings, pointers, scope and file input/output.
3. **Explain memory representation and management in C**, including pointers, dynamic allocation and deallocation.
4. **Implement and use fundamental data structures**, including linked lists, stacks, queues and binary search trees.
5. **Apply recursion and appropriate data structures** when designing solutions to computational problems.
6. **Analyse programme behaviour and data-structure operations** to select and implement suitable solutions for a given problem.

Tentative Course Schedule

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

Delivery Mode
Lectures and laboratory/tutorial sessions will be delivered **in person**. Lecture materials, exercises, announcements, assignments and other course resources will be made available through OWL Brightspace.

Key Sessional Dates

- **Classes begin:** Wednesday, 9 September 2026
- **National Day for Truth and Reconciliation:** Wednesday, 30 September, no classes
- **Fall Reading Week:** 10–18 October 2026
- **Last day of classes:** Wednesday, 9 December 2026
- **Study Day:** Thursday, 10 December 2026
- **Final examination period:** 11–22 December 2026

4. Course Materials

Textbook and Other Learning Materials

Required textbook: NONE

All required instructional materials, including lecture slides, notes, exercises, laboratory materials, assignment specifications, and other course resources, will be provided through OWL Brightspace at no additional cost to students: https://westernu.brightspace.com/

Students are responsible for checking the course OWL Brightspace site regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL Brightspace 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 [redacted] or [redacted].

Software Requirements
Students will require access to software capable of compiling and running programs written in the C programming language.
The primary development environment used in the course will be:

- **Visual Studio Code**, available free of charge.
- **MyVLab**, where required, provides access to a Windows-based environment containing the required development tools.
- **OneDrive or another appropriate backup service** should be used to maintain backups of programming work.

Technical Requirements
Students should have regular access to:

- a laptop or desktop computer capable of compiling and running C programs;
- a reliable Internet connection;
- a current web browser for accessing OWL Brightspace and other University systems;
- Visual Studio Code or another instructor-approved C development environment;
- appropriate local or cloud-based storage for regularly backing up programming work.

No additional paid software is required for this course.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Assessment	**Weight**
4 Programming Assignments	28%
2 Quizzes	16%
Class Attendance (best 20 of 24 scheduled lecture meetings)	10%
Laboratories (best 10 of 12)	10%
Final Examination	36%
Total	**100%**

Tentative Assessment Schedule

The following dates and topic boundaries are tentative and may be adjusted to reflect the class's progress. Any changes will be communicated through OWL Brightspace.

Assessment	**Weight**	**Tentative Coverage**	**Tentative Date**
Assignment 1	6%	C fundamentals and basic control statements	25 September 2026
Assignment 2	7%	Arrays and strings	23 October 2026
Assignment 3	7%	Structures, pointers and dynamic memory	13 November 2026
Assignment 4	8%	Linked lists and related data structures	4 December 2026
Quiz 1	8%	Material covered in the first portion of the course	8 October 2026, during lecture
Quiz 2	8%	Material covered since Quiz 1	19 November 2026, during lecture
Final Examination	36%	Cumulative: all course material	Scheduled by the Office of the Registrar

Programming Assignments

The course includes four individual programming assignments. All four assignments count toward the assignment component because they assess different and progressively developing learning outcomes.

Assignments must be submitted using the submission system specified by the instructor. Assignments submitted by email will not normally be accepted. Students are responsible for verifying that the correct files have been submitted successfully.

Assignments will normally be marked within approximately two weeks of the final submission cutoff, where practicable. Questions concerning assignment grading should first be directed to the teaching assistant who graded the submission. Requests for reconsideration of an assignment grade must normally be made within one week after the grade is released.

Laboratories

The course includes 12 laboratory activities. The laboratory component is worth 10% of the final course grade and will be calculated using the best 10 of 12 laboratory grades. Laboratory activities provide hands-on practice and access to instructional support during the scheduled laboratory period.
Because course enrolment exceeds the physical capacity of [redacted], laboratory **in-person** participation will be flexible.

- Students may complete laboratory work using their own laptop in the scheduled laboratory room ([redacted]) or remotely (i.e. home).
- Students attending **in-person** are encouraged to bring their own device and may leave once they have completed the required laboratory work.

Students may miss up to two laboratory activities without requesting Academic Consideration. If fewer than 10 laboratory activities are completed, the missing positions required to calculate the best 10 will be recorded as zero.

Quizzes

- The course includes **two scheduled quizzes**, each worth **8%** of the final course grade.
- **NO MAKEUP QUIZ** WILL NORMALLY BE OFFERED.
- If a student **misses a quiz**, their final-examination percentage will be used as the grade for that quiz.
- If a student **writes a quiz but earns a lower percentage on the quiz than on the final examination**, their final-examination percentage will replace the quiz percentage.
- If the quiz percentage is equal to or higher than the final-examination percentage, the original quiz grade will be retained.
- This rule applies **separately to each quiz**.
- Students do not need to request Academic Consideration for a missed quiz under this flexible-completion arrangement.

For example:
- **Quiz 1** = 60%
- **Quiz 2** = missed
- **Final exam** = 75%

Then:
- **Quiz 1:** 75% replaces 60%, because the final-exam percentage is higher.
- **Quiz 2:** 75% is used because the quiz was missed.
- **Final exam:** remains 75%.

The calculation is therefore:
- **Quiz 1:** 75% × 8%
- **Quiz 2:** 75% × 8%
- **Final exam:** 75% × 36%

Class Attendance

Class attendance is worth 10% of the final course grade. Attendance will be recorded manually by the instructor during scheduled in-person lectures.

Students will receive 0.5% for each attended lecture, up to a maximum of 10%. The best 20 attendance records out of the 24 scheduled lecture meetings will therefore determine the attendance grade. Students may miss up to four scheduled lectures without penalty and do not need to request Academic Consideration for those absences.

Students must be physically present to receive attendance credit. Signing in, responding, or otherwise attempting to obtain attendance credit on behalf of another student, or asking another student to do so, may constitute a scholastic offence.

If extenuating circumstances affect attendance beyond this built-in flexibility, students should consult Science Academic Advising regarding the appropriate accommodation process.

Final Examination

The final examination is worth 36% of the final course grade and will be scheduled by the Office of the Registrar during the official December examination period.

The final examination is cumulative and may assess material from throughout the course, including C programming fundamentals, memory representation, pointers, recursion, dynamic memory allocation, structures, linked data structures, stacks, queues, trees, and file input/output.

No calculator, reference notes, dictionary, mobile phone, smartwatch, wireless earbuds, or other unauthorised electronic device may be used during the final examination unless explicitly authorised by the instructor.

Essential Learning Requirements

The following are essential learning requirements for this course:

- A grade of at least 49% on the final examination.
- A weighted average of at least 49% across the four programming assignments.

If either requirement is not satisfied, the maximum final course grade that may be earned is 45%.

When a student has not demonstrated proficiency in an essential learning requirement listed above, and when the shortfall results from a granted Academic Consideration, they will be withdrawn (WDN) from the course. The student may appeal to the Associate Dean (Academic) for reinstatement with an Incomplete (INC) standing. Where an appeal for INC is granted, their maximum course load may be reduced during the term in which they complete the outstanding course requirements.

Use of Generative AI Tools

Unless explicitly stated otherwise for a particular assessment, the use of generative AI tools is not permitted in completing graded course assessments. Students must follow the requirements set out in Section 6.4, Use of Generative AI Tools.

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://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.

Course-Specific Flexible Completion

The following course components include built-in flexibility and do not require Academic Consideration within the stated allowance:

- **Laboratories**: the best 10 of 12 laboratory grades are used, allowing up to two missed laboratories without penalty.
- **Quizzes:** the final-examination percentage will replace the grade of a missed quiz. It will also replace the grade of a completed quiz when the final-examination percentage is higher. This provision applies separately to each quiz.
- **Class attendance**: the best 20 attendance records out of 24 scheduled lecture meetings are used, allowing up to four missed lectures without penalty.

Programming assignments are not treated as interchangeable flexible-completion assessments because they assess different learning outcomes. All four assignments count toward the assignment component, subject to the 48-hour no-late-penalty period below and any Academic Consideration granted under University policy.

Deadlines: The 48-Hour No-Late-Penalty Period

- All take-home programming assignments and any take-home laboratory submissions with a stated due date include an automatic **48-hour no-late-penalty period** after the deadline.
    - For example, if an assignment is due on **November 5**, it may be submitted until **November 7** without penalty.
- After the 48-hour period, no further submissions will be accepted unless otherwise permitted under University policy.
- Students do not need to request Academic Consideration simply to use this 48-hour period.
- This provision does **not** apply to scheduled, time-limited quizzes.
- Missed quizzes are handled through the flexible-completion arrangement described above.

Special Examination

Per university policy, Academic Consideration requests with supporting documentation are required for the final examinations scheduled during official examination periods by the Registrar's Office.

If the student has been approved by the Academic Advising Office to write a Special Examination (SPC) and the final exam is their only outstanding course component, an SPC will be assigned to them and scheduled by the instructor per university policy.

If the student misses their SPC exam and is approved for Academic Consideration, they will be withdrawn from the course without academic penalty. If they experienced extenuating circumstances such as prolonged illness, they may appeal to the Associate Dean (Academic), on a case-by-case basis, for the opportunity to write the final exam the next time the course is offered. An outstanding SPC will reduce their course load for the term in which the exam is deferred, as outlined in the Definitions of Types of Examinations policy.

If the student misses their SPC exam and Academic Consideration is not approved, or was not requested, they will receive a grade of zero on the exam.

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday either requires a student to be absent from the University, or requires or prohibits an activity that makes it impossible for them to complete an academic requirement scheduled that day, they are entitled to accommodation. No student will be penalized for an absence for religious reasons, and an alternative means of satisfying the requirement will be arranged. This accommodation is provided in accordance with the University's policy on Accommodation for Religious Holidays: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The student should submit their requests through the Student Absence Portal (SAP), identifying the conflict and the specific course component(s) affected (e.g., quiz, test, final examination).

> **Quizzes and Tests:** If a religious observance conflicts with a scheduled quiz or test, the student must submit their request no later than **one week** before the assessment. The instructor will arrange an appropriate alternative sitting in accordance with University policy.
>
> **Final Examinations**: If a religious observance conflicts with the final exam, the student must submit their request no later than **two weeks** before the exam. The instructor will arrange a Special Examination to take place no later than one month after the end of the examination period.

Students are responsible for finding out what was covered in any class they miss due to a religious observance, and for taking the appropriate steps to keep up with the course.

If a suitable arrangement cannot be reached between a student and their instructor, they should consult the Undergraduate Chair of the department offering the course, and if necessary, the Associate Dean (Academic) of the Faculty of Science.

For a list of recognized religious observances, please visit the calendars posted on the Equity, Diversity & Inclusion website - https://www.edi.uwo.ca (About Us – Resources – Additional Resources – Calendars).

6.2 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.

6.3 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

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

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, hidden cameras and wireless earbuds.

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

Effective September 2026, the typical penalty for this offence is a failing grade in the course AND a 12-month prohibition on retaking the course.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is their 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 the student's responsibility to seek clarification before using any AI tools in academic work.

Use of Software for Assessments

Programming assignments and other source-code submissions may be subject to similarity review using source-code similarity detection software, including MOSS, to identify unusual similarities that may indicate inappropriate collaboration or copying.

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

6.5 Support Services

Academic Advising. 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/advising/.

Mental Health Support. 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.

Gender-Based and Sexual Violence. Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If a student has experienced GBSV (either recently or in the past), they can 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 [redacted].

Accessibility for Coursework. A student may contact the course instructor if they require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to them. If they have any questions regarding accommodations, they may also contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

Learning Development and Success. Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help students improve their learning skills. The facility offers 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.

Student Councils.
Student-run support services are offered by the University Students' Council (https://westernusc.ca) and the Science Students' Council (https://www.westernssc.ca).