

Western University
Faculty of Science
Department of Computer Science

General Course Information

Course Information:

Computer Science 1037a
Computer Science Fundamentals II
Course Outline – **Fall Term 2022**

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: Lecture are asynchronous and delivered online. Labs will be delivered online.

Prerequisites

Engineering Science 1036A/B.

Antirequisites

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

Instructor:

M. Magguilli

Office Hours: Tuesdays: 10:30 am – 11:30 am
-or- by appointment (arranged at least one day prior)

E-Mail: lmagguil@uwo.ca

Course Schedule:

CS1037a Section 001

Lecture Times:

Tuesday	8:30 am – 10:30 am	(Scheduled class time	- student attendance required)
Thursday	8:30 am – 9:30 am	(Personal Development	- no in person class)

Location: Middlesex College (MC) - Room 105B

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	AC Eng. Bldg. Room 1400
003	Wednesday : 7:30 PM – 9:30 PM	AC Eng. Bldg. Room 1400
004	Thursday : 4:30 PM – 6:30 PM	AC Eng. Bldg. Room 2400
005	Wednesday : 1:30 PM – 3:30 PM	AC Eng. Bldg. Room 1400

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

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.

Scheduled Lectures:

The class is structured to allow maximum flexibility and options for the student. All notes and class lectures are available in OWL. The in-person classes are designed to provide a deeper background and to augment the materials and content of the course. As such students are required to be prepared for each class in advance of attendance. Students are expected to use the Personal Development time to fulfil their requirement to review the notes and videos prior to class time.

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. Students are expected to come to class prepared by completing the readings before class.

Curriculum Schedule:

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

UNIT	Lecture Topic
1	Introduction to the C Programming Language
2	Binary Representation and Memory Maps
3	Basic Control Statements
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.

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 or post a question in OWL, 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 1037 F22” in the subject line. (spaces/case do not matter: ex: cs1037f22 works)
Email messages without **CS 1037 F22**” 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 (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 your 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.

Student Evaluation (tentative dates):

Element	Weight
5 Assignments	30%
2 Online Quizzes	20%
10 Labs (out of 12)	10%
Final Exam	40%

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.

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 OWL site. It is the **student's responsibility** to ensure that all parts of each assignment are correctly uploaded and submitted in OWL, 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	5%	Simple Control Statements	September 26 th , 2022
2	6%	Arrays	October 12 th , 2022
3	6%	Sorting	October 26 th , 2022
4	6%	Structures and Pointers	November 18 th , 2022
5	7%	Lists	December 05 th , 2022

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 five (5) assignments are worth 30% of the overall mark for the course. If an assignment must be cancelled by the instructor for any reason, the remaining assignment weights will be prorated to add up to 30%.

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**.

Important:

To be eligible to obtain a passing mark in the course, the student's 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.

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. 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 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 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

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	10%	Thursday - October 20 th , 2022 @ 08:30 AM EDT
2	10%	Thursday - November 17 th , 2022 @ 08:30 AM 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.

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. 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 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.

Key Sessional Dates:

Classes begin: September 8, 2022

Canadian Thanksgiving weekend: October 8 – 10, 2022

Reading Week: October 31 – November 6, 2022

Classes end: December 8, 2022

Exam period: December 10 – 22, 2022

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, 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.

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.

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/accommodation_medical.pdf.

The Student Medical Certificate is available at

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

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult the University's list of recognized religious holidays (updated annually) at

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

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a “Multiple Exam Situation” (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

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.

Accommodation and Accessibility

Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD), which provides recommendations for accommodation based on medical documentation or psychological and

cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_disabilities.pdf),

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.

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.

Tests and examinations 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>.

Assignments will be checked through the use of MOSS for similarities between submitted assignments, past and present in this course. Assignments may also be subject to metadata analysis using custom software developed for this course. Metadata analysis can show the history of the file, including sharing between individuals and flag potential academic dishonesty.

Ethical Conduct:

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.

Plagiarism

All required assignments, quizzes and exams may be subject to submission for textual and metadata similarity review to plagiarism detection software. All assignments, quizzes and exams submitted for such checking may be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of such services are subject to the licensing agreement with The University of Western Ontario. These services and software may include but are not limited to Turnitin (<http://www.turnitin.com>), MOSS, SCANEX, and custom plagiarism detection software developed for the course.

Computer-marked multiple-choice quizzes and exams may be subject to remote proctoring software and submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating. For details on remote proctoring see the final exam section.

Students must write their assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

All assignments are individual assignments. You may discuss approaches to problems among yourselves; however, the actual details of the work (assignment coding, answers to concept questions, etc.) must be an individual effort. All assignments will be subject to both content and metadata plagiarism analysis.

All quizzes and the final exam are to be written individually, the content and questions not shared and provided rules followed.

Tutors and Outside ‘Help’ on assignments

Students may receive the help of a tutor on assignments, so long as the tutor only identifies errors or demonstrates sample problems that are not part of the assignment. If the content of your assignment is significantly different than if you had not received help, then this is an indication you may have crossed the line into cheating. Again, if you are unsure about how much help is too much, ask your instructor.

The role of tutoring is to help students understand course material. Tutors should not write any part or all of an assignment for the students who hire them. Tutors should not ‘advise’ or ‘suggest’ what is to be entered into an assignment or the solutions to any portion of the assignments. Any aid beyond what you would have received directly from the instructor will be considered an academic offense. Having employed the same tutor as another student is not a legitimate defense against an accusation of collusion, should two students hand in assignments judged similar beyond the possibility of coincidence.

Academic dishonesty in assignments includes (but is not limited to):

- Unacceptable collaboration
- What is unacceptable? There is a difference between discussing assignments and solutions with fellow students and working together on the solutions to the point where the work submitted is clearly not individual work. If in doubt, ask your instructor.
- **Copying** of another student's assignment
- **Allowing** another student to copy your work ← *this is also an **Academic Offense***
- Sharing your assignment with another student electronically or otherwise → *this an **Academic Offense** for **both** students.*
- Using another student's assignment or work as a "template" or "starting point" for your own work. ← *this is an **Academic Offense** for **both** students*
- Using sites dedicated to sharing assignment solutions or aiding cheating, including but not limited to Course Hero, OneClass, and Chegg.
- Using code from an external source (text, instructor, course website) where a student's own code is expected (if in doubt, ask your instructor)

Academic dishonesty in quizzes and exams includes (but is not limited to):

- Writing a quiz/exam with the aid of another person ← *this is an **Academic Offense** for **both** students.*
- Sharing quiz/exam questions/answers or using ones sent to/obtained by you.
- Having another person write a quiz/exam for you.
- Failing to follow the specific rules given in the quiz/exam.
- Sharing you screen or virtually taking a quiz/exam with others (e.g. being in an online chat of any kind while taking a quiz/exam).

The penalty for academic dishonesty in any course component is receiving 0% for that component **AND** the possibility of additional penalties as deemed appropriate by the course instructor, department or university including but not limited to an additional penalty equal to the course component, or a failing overall grade being entered for the course. Note that receiving 0% on an assignment may make you

ineligible for a passing grade due to the 49% requirement given in the Student Evaluation section. Receiving 0% on the final exam, will make you ineligible for a passing grade in this course.

You are responsible for reading and respecting the Computer Science Department's policy on: Scholastic Offences:

https://www.csd.uwo.ca/undergraduate/current/policies/scholastic_offenses.html

and Rules of Ethical Conduct:

https://www.csd.uwo.ca/undergraduate/current/policies/ethical_conduct.html

Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at (519) 661-2147 if you have any questions regarding accommodations.

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

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.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.

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

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