CIS*1300 Programming

Fall 2019
Section(s): C01

School of Computer Science
Credit Weight: 0.50
Version 1.00 - August 23, 2019

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1 Course Details

1.1 Calendar Description

This course examines the applied and conceptual aspects of programming. Topics may include data and control structures, program design, problem solving and algorithm design, operating systems concepts, and fundamental programming skills. This course is intended for students who plan to take later CIS courses. If your degree does not require further CIS courses consider CIS*1500 Introduction to Programming.

Restrictions: CIS*1500 This is a Priority Access Course. Enrolment may be restricted to particular programs or specializations. See department for more information.

1.2 Timetable

Lecture Section 01

Tuesday, Thursday 04:00PM to 05:20PM in ROZH 103

Lecture Section 02

Tuesday, Thursday 10:00AM to 11:20AM in ROZH 103

Labs

There are 11 lab time slots. Labs are 2 hours in length. Labs are mandatory. The labs are in Reynolds 0002 (basement).

Please see WebAdvisor or the SOCS Program Counsellor, Dr. Greg Klotz (gklotz@uoguelph.ca) if you need to change lecture or lab sections.

Timetable is subject to change. Please see WebAdvisor for the latest information.

1.3 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

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2 Instructional Support

There are six (6) ways that you can access instructional support in this course:

1. Lectures - come to class! There will always be a review of past material at the start of the lecture and a review and "hotwash" at the end. Questions during the lecture will always be entertained as long as they do not unduly interrupt the flow of the presentation. Support = Instructor.
2. Labs - you will have a 2 hour lab every week in Reynolds 0002. You will be able to get help on assignments and there will be special lab material to aid with your learning of concepts from the class. There will be two (2) teaching assistants (TAs) in each lab. Support .= Teaching Assistants.
3. CourseLink Materials - there will be many materials posted to the CourseLink site including lecture notes, extra readings, supplementary tutorials, etc. And there is always the textbook! It is short and concise and you should be able to read the entire book by the end of the semester (some parts more than once). Instructional Support = Instructor (and yourself!).
4. CourseLink Discussion Forums - discussion threads related to assignments and course content will be posted and the questions will be monitored by some of the Teaching Assistants and the Instructor. Please use these discussions first to see if your question or concern has already been addressed before using the office hours. Support = Teaching Assistants and Instructor.
5. Office Hours - the instructor and the teaching assistants will provide office hours in Reynolds 0001 (across from the lab). The hours will be posted on CourseLink. You should use these times to ask questions about the assignments (both individual and lab assignments). The instructor will also post office hours that will be held in her office but these times should only be used for either personal issues (e.g. cannot write the midterm at the time posted because of a family issue, etc.) or major problems with the course material. Support = Teaching Assistants and Instructor.
6. Email - you can email the instructor if all of the above do not help. Always send the email from your university account (@uoguelph.ca) and put CIS1300 at the start of the subject line. Email can take up to two days to answer and there may

be no answers on the weekend. Support = Instructor.

2.1 Contact Information for Course Instructor

Name: Deborah Stacey

Email : dastacey@uoguelph.ca

Office: Reynolds 3301

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3 Learning Resources

3.1 Required Resources

The C Programming Language (2nd Edition) by Brian Kernighan and Dennis Ritchie (Textbook)

3.2 Recommended Resources

Twitter Feed for CIS1300 (Other)

There will be messages about the course on the Twitter account @cis1300. Information will include reminders about due dates and exam dates, hints about exam questions, hints that will help with the assignments, interesting articles about programming, software development, and the computer/software industry.

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4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Analyze problems and design algorithms.
2. Design, implement, test, and debug a program.
3. Demonstrate some of the basic principles of software development.
4. Design and construct programs in a conventional procedural programming language.
5. Write programs that use each of the following data structures: arrays, strings.
6. Understand programming language constructs, e.g. conditional and iterative structures.
7. Demonstrate working knowledge of dynamic memory allocation.
8. Demonstrate knowledge of some standard algorithms and data structures.
9. Understand the Unix operating system, including the command line, and system tools used in programming.

10. Apply consistent documentation and program style standards.

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5 Teaching and Learning Activities

5.1 Course Topics

INTRODUCTION TO OPERATING SYSTEMS

- Basics of Unix OS: architecture, shells
- Unix shell script programming (bash)
- Unix commands and tools
- System tools for software: make, git, command-line compiling

BASIC PROGRAMMING

- Brief overview of programming languages
- Program comprehension: reading and understanding code
- Programming style: whitespacing, indenting, comments etc.

BASIC LANGUAGE SYNTAX

- Basic elements of the C programming language
- Variables, data types, expressions and operators
- Basics of memory
- Standard I/O

CONTROL STRUCTURES

- Conditional control structures: if and switch
- Repetitive control structures: for, while, do-while

FUNCTIONS

- Structural decomposition
- Simple parameter passing (including elementary pointers)

ARRAYS AND STRINGS

- Introduction to array data structures
- Introduction to character arrays: strings
- One and two dimensional arrays

ADVANCED STRING FUNCTIONS AND FILE I/O

- Introduction to advanced string functions
- Introduction to File I/O

PROBLEM SOLVING AND ALGORITHMS

- Basic problem solving skills
- The role of algorithms in the problem solving process
- The basics of software development: design techniques

DEBUGGING AND TESTING

- Program debugging strategies
- Defensive programming techniques
- Elementary methods of program testing, creation of testing data

USABILITY

- Principles of basic program usability
- Command-line parameters
- Design of text-based messages in programs

ADVANCED TOPICS

- Basic pointers and memory management
- Advanced shell commands and system management

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6 Assessments

6.1 Marking Schemes & Distributions

There are two types of assessment in the course: Assignments (Scheme A: individual and lab) and Examinations (Scheme B: midterm and final). Both are worth 50% of your final grade. You must achieve a passing grade in each type (i.e. 25/50 in Assignments and 25/50 in Examinations). If you do not achieve a passing grade in one of these assessment types then you will not pass the course and your grade will be based entirely on the grade in the assessment type that you failed. This is done mainly to stop people from cheating on the assignments and then not being able to pass the examination portion of the course. This rule is rarely used for people who are honestly doing the assignments and examinations so do not worry about this rule - just do your best on both types of assessments and you should be fine.

Name	Scheme A (%)	Scheme B (%)
Individual Assignment 1	10	0
Individual Assignment 2	10	0
Individual Assignment 3	10	0
Individual Assignment 4	10	0
Lab Assignment 1	2	0
Lab Assignment 2	3	0
Lab Assignment 3	3	0
Lab Assignment 4	2	0
Midterm Examination	0	15
Final Examination	0	35
Total	50	50

6.2 Assessment Details

4 Individual Assignments (40%)
Date: Fri Sept 27, Fri Oct 18, Fri Nov 1, Mon Nov 18
More information about the individual assignments is available on CourseLink.

4 Lab Assignments (10%)
Date: Weeks 2, 4, 7, 9, Reynolds 0002

Midterm Examination (15%)
Date: Thu, Oct 10

Final Examination (35%)
Date: TBD

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7 Course Statements

7.1 Emailing the Instructor

When you send email to the instructor, please use your uoguelph email account and the Subject line must start with CIS1300, e.g. CIS1300: Conflict with the final exam date and time.

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Graduate Calendar - Grounds for Academic Consideration
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Graduate Calendar - Registration Changes
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml

Associate Diploma Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml

8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website
https://www.uoguelph.ca/sas

For Ridgetown students, information can be found on the Ridgetown SAS website
https://www.ridgetownc.com/services/accessibilityservices.cfm

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Graduate Calendar - Academic Misconduct

https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
https://www.uoguelph.ca/academics/calendars
