University of Guelph (Main Campus)
School of Computer Science, College Engineering and Physical Science
Winter 2018 - CIS*2500 **Intermediate Programming W (3-2) [0.50]**

In this course students learn to interpret a program specification and implement it as reliable code, as they gain experience with pointers, complex data types, important algorithms, intermediate tools and techniques in problem solving, programming, and program testing.
Prerequisite(s): CIS*1500

Instructor Name:	Dr. Stefan C. Kremer
E-mail:	cis2500@socs.uoguelph.ca (see also note below)
Office location:	J.D. MacLachlan 224
Office hours:	Tuesdays and Thursdays 10:00-11:30, or by appointment.
TA Names:	Benjamin Baird, William Bolduc, Evan Burak, Kevin Glover-Netherton, Yun Hao, Joshua Lange, Manav Patel, Devin Rose, Jackson Zavarella, Betty Zhao.
E-mail:	cis2500@socs.uoguelph.ca
Note:	If you need to send a private or confidential e-mail that the TAs cannot read, you can e-mail the instructor at skremer@uoguelph.ca (use this only for private or confidential correspondence; expect a slower response than e-mails to cis2500@socs.uoguelph.ca).
Office hours:	See list of office hours posted on courselink.
Class Schedule:	Section 01: Mondays, Wednesdays, Fridays, 2:30pm-3:20pm RozH 103/106.
	Section 02: Tuesdays and Thursdays, 8:30am-9:20am, RozH 103/106.
	There are no classes or labs during Winter Break – Feb. 19-23.
Lab Schedule:	2 hours per week, various locations
	Labs begin on Friday, January 12th (Friday of the first week of classes) and end on Thursday, March 29th (Thursday of the 11th week of classes).
Final Examination:	April 16, 2018, 8:30-10:30, Location: TBA.
Texts:	Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, 2nd Edition, Prentice Hall, 1988.

Detailed Course Description:
This course teaches students a process to systematically and efficiently develop more complex programs than those in CIS*1500. Emphasis will be on analyzing software requirements, translating those requirements into appropriate data structures and algorithms, encoding those structures and algorithms as understandable and modifiable code in the C programming language, and verifying the correctness of the resulting program relative to the original software requirements. The course will the taught in a "flipped classroom" format where students will be expected to read about programming concepts for homework while the lecture timeslot will be used to practice software development in a hands-on, applied format. Labs will be devoted to individual, graded programming exercises. Individual assignments and a final examination will round out the evaluation instruments of the course.

Learning Outcomes:
1. Create methodically tested and debugged programs that guard against input errors (user-proofing).
2. Correctly and effectively use dynamic and static memory allocation to solve computing tasks using C.
3. Create modular programs using functions and third-party libraries that adhere to prescribed coding conventions and meet specification.
4. Construct well designed, reusable C language modules with appropriate data types (reading/writing binary and text files, and linked list).
5. Use programming tools effectively (git, make, gcc, pre-processor, gdb, valgrind, text editors).

Topic List and Schedule:

Week 1-2: Review of CIS*1500	Week 7-8: Dynamic Memory Allocation with Pointers
Week 3-4: Memory, Pointers and Binary Files	Week 9-10: Pointer Arithmetic and Arrays
Week 5-6: Dynamic Memory Allocation with Arrays	Week 11-12: Data Structures with Pointers

Evaluation – *Methods, Breakdown (% of grade) and specific due dates:*

Assignments (x5) Assignments   (4x10% each)   – Jan. 29th, Feb. 12th, Mar. 5th, Mar. 19th.
Lab exercises   (10x5%)   – Jan. 12th – Mar. 29th
Final Exam   (10%)   – Apr. 16th

All assignments are due at 8:30am on the dates indicated. In the absence of Academic Consideration (http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml), late assignments receive a grade of zero (i.e. hand it what you've got when its due).

Standard Statements

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

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. See the undergraduate calendar for information on regulations and procedures for Academic
Consideration: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Drop Date   The last date to drop one-semester courses, without academic penalty, is the 40th day of classes. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

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.

Accessibility   The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.csd.uoguelph.ca/csd/

Academic Misconduct   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 discourages misconduct. 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.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

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

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

http://www.uoguelph.ca/registrar/calendars/index.cfm?index