Carleton University School of Computer Science
COMP 2401 -- Introduction to Systems Programming
Course Outline -- Winter 2016
Final version
Last modified: Sunday, January-03-16

Class Schedule

<table>
<thead>
<tr>
<th>Classroom</th>
<th>TB 360</th>
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<tbody>
<tr>
<td>Class times:</td>
<td>Tue. and Thu. 16:00 – 17:30</td>
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<tr>
<td>Course web site:</td>
<td>cuLearn</td>
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</tbody>
</table>

Instructor Information

<table>
<thead>
<tr>
<th>Instructor</th>
<th>Office</th>
<th>Telephone</th>
<th>Email</th>
<th>Office Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Christine Laurendeau</td>
<td>5376 HP</td>
<td>613-520-2600 x1253</td>
<td><a href="mailto:christine.laurendeau@carleton.ca">christine.laurendeau@carleton.ca</a></td>
<td>posted on cuLearn</td>
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Teaching Assistants: Detailed TA information can be found on cuLearn.

Course Description

Introduction to system-level programming with fundamental OS concepts, procedures, primitive data types, user-defined types. Topics may include process management, memory management, process coordination and synchronization, inter-process communication, file systems, networking, pointers, heap and stack memory management, and system/library calls.

Topics Covered

The course will cover the following topics, although some material may be omitted due to time constraints:

- Introduction to Computing
  - Basics of computer organization
  - Basics of programming
- Data Representation
  - Primitive data types
  - Compound data types
  - Pointers
- Memory Management
  - Stack and heap
  - Dynamic memory allocation
  - Linked lists
- Program Building
- Concurrent Computing
  - Concurrent systems
  - Processes (signals, sockets) and threads
- Program Structure
  - I/O
  - Procedural program design and organization
  - Using libraries
- Shell scripts

Prerequisites

COMP 1406 or COMP 1006, with a minimum grade of C-

Note: Students who are granted equivalencies or transfer credits in lieu of the prerequisite course(s) and students who performed poorly in the prerequisites are responsible for learning all missing background material on their own.

Textbook(s)

Evaluation

Students will be evaluated in this course according to the following measures:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignments and projects</td>
<td>35 %</td>
<td>bi-weekly</td>
</tr>
<tr>
<td>Tutorials</td>
<td>10 %</td>
<td>weekly</td>
</tr>
<tr>
<td>Tests</td>
<td>20 %</td>
<td>in-class (Feb. 25 and Mar. 10)</td>
</tr>
<tr>
<td>Final exam</td>
<td>35 %</td>
<td>TBA</td>
</tr>
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Evaluation Notes

- In order to pass the course, students must obtain a passing grade on the final exam.
- All marking disputes regarding assignments, midterms/tests and tutorials must be addressed with the individual responsible for marking the work (TA or instructor), within **one week** of the marks being posted. In cases where a student and a TA cannot agree, the matter will be referred to the instructor for resolution.
- There will be no extra credit available in this course.

Course Material

- All concepts covered in class and during tutorials are part of the course material, including the course notes and annotations, all in-class coding exercises, tutorial exercises, and in-class and forum discussions.
- Lecture recordings may be provided, but **exclusively** as a supplemental study aid. They are **not** a substitute for lecture attendance and note taking. *Some lectures may not be recorded and some recordings may not be available* for pedagogical or technical reasons, at the sole discretion of the instructor. Students are responsible for learning the material covered during all lectures, whether recordings are available or not.
- All materials created for this course (including course notes, coding examples, lecture recordings, tutorials, assignments, assignment code bases, marking schemes, tests, exams, and test/exam solutions) remain the **intellectual property of the instructor**. They are intended for the personal and non-transferable use of students registered in the course. Reposting, reproduction and/or distribution of any course materials, in part or in whole, without the written consent of the instructor, is illegal and **strictly prohibited**.

Assignment and Projects

- There will be four (4) assignments and/or project deliverables in this course, and the assignment/project requirements will be posted on cuLearn.
- Additional information and requirement clarifications will be posted in the assignment/project discussion forums on cuLearn. Students are responsible for following all instructions posted in these forums.
- All assignments/projects must be completed in the programming environment (VM) provided for the course.
- All assignments/projects are to be submitted on cuLearn, before the due date and time. Do not email assignments/projects to TAs or to the instructor. **LATE ASSIGNMENTS WILL NOT BE ACCEPTED FOR ANY REASON.**
- A maximum of one (1) assignment may be waived, for reasons of medical emergency only, supported by a completed Carleton University Medical Certificate form. No alternate documentation will be accepted. No additional assignments will be waived, for any reason. The final assignment/project will **not** be waived.
- Assignment/project marks will be released to students when **all** the grading is completed.

Collaboration Policy

- Collaborating on the assignments is **strictly disallowed** and will be reported to the Dean of Science as an instructional offense. You must complete the work by yourself. If you need help, please see a TA.
- Collaboration on the projects is restricted to members of the same group, which will consist of no more than two (2) students. Collaboration between groups is **strictly disallowed** and will be reported to the Dean of Science as an instructional offense.
- Posting assignment/project solutions online and distributing assignment/project solutions to other students **at any time during the term** is also prohibited.
Tutorials

Tutorial attendance:
- Tutorials begin on Jan. 8. The official schedule with all tutorial dates for the term is posted on cuLearn.
- Tutorial attendance is mandatory and will be counted towards your final grade.
- You must attend the tutorial session for which you are registered. Permission to attend an alternate session must be obtained from the instructor in advance and will only be granted for reasons of medical emergency only, supported by a completed Carleton University Medical Certificate form. No other reason will be accepted.
- Tutorial work cannot be submitted for credit. To get your grade, you must do the work during a tutorial session.

During your tutorial session:
- You must work on the tutorial provided. Anyone not working on the tutorial will be asked to leave the room.
- Tutorial questions must be completed in sequence.

Tutoring grading:
- Tutorial TAs will assign you a grade at the end of the tutorial.
- For each tutorial, you get one point (1% of your final grade) if:
  o you work on the tutorial during the entire session
  o you complete at least 50% of the tutorial work
- For each tutorial, you get zero if:
  o you are absent for any reason
  o you do other work during the session
  o you do not complete at least 50% of the tutorial work
  o you complete or even start the tutorial before the session
- Tutorial grading is at the discretion of the TA and is not negotiable.

Communications Policy

- Students are expected to check their email on a daily basis. Important course-related announcements will be posted on cuLearn and forwarded to students’ cmail accounts.
- Students are expected to respond to emails within 24 hours on weekdays.
- All assignment related questions must be posted on cuLearn.
- Questions posted on cuLearn will be answered within 24 hours on weekdays.
- All non-confidential course-related questions must be asked during the lectures or posted on cuLearn.
- Students are expected to ask all other questions in person during the instructor’s office hours.
- The in-class time immediately before and after lectures is not considered office hours, as the instructor has other responsibilities and cannot give students undivided attention. Students with questions at those times will be asked to see the instructor during office hours.
- Students are expected to make judicious use of email when contacting the instructor or the TAs. Most questions can be posted on cuLearn instead. Students asking assignment-related or non-confidential questions will be directed to post them on cuLearn. Others can expect a reply within 24 hours on weekdays.
- The TAs are the first point of contact for students requiring help with completing the assignments.
- The instructor is the first contact for students requiring help with the course material or academic advising.
- In case of technical issues with the installation or operation of the provided Virtual Machine, students are required to first read the documentation posted on cuLearn. Additional assistance may be provided by the SCS technical support team, and not by the TAs or the instructor.
- The instructor’s office hours are in effect from Jan. 6 to Apr. 8, excluding the week of the Winter Break.

Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP, by telephone at 520-2600, ext. 4364 or by email at undergraduate_advisor@scs.carleton.ca. The undergraduate advisor can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisor will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and the Writing Tutorial Services.
University Policies

Student Academic Integrity Policy
Every student should be familiar with the Carleton University student academic integrity policy. A student found in violation of academic integrity standards may be awarded penalties which range from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar.

Plagiarism
As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science.

Unauthorized Co-operation or Collaboration
Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis". Please refer to the course outline statement or the instructor concerning this issue.

Academic Accommodations for Students with Disabilities
The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam (if applicable) at http://www2.carleton.ca/pmc/new-and-current-students/datesand-deadlines/

Religious Obligation
Write to the instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www2.carleton.ca/equity/

Pregnancy Obligation
Write to the instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: http://www2.carleton.ca/equity/

Medical Certificate
The following is a link to the official medical certificate accepted by Carleton University for the deferral of final examinations or assignments in undergraduate courses. To access the form, please go to http://www.carleton.ca/registrar/forms