

Carleton University
Department of Systems and Computer Engineering
Course Outline

SYSC 3101 - Programming Languages - Winter 2019

Instructor

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Undergraduate Calendar Course Description

SYSC 3101 [0.5 credit]

Programming Languages

Principles underlying different kinds of programming languages (procedural, functional, logic programming) and their semantics. Overview of machinery needed for language support (compilers, interpreters and run-time systems).

Precludes additional credit for COMP 3007.

Prerequisite(s): SYSC 2004.

Lectures three hours a week, laboratory three hours alternate weeks.

Course Web Site

This course uses cuLearn, Carleton's learning management system. To access your courses on cuLearn, go to <https://carleton.ca/culearn>.

For help and support, go to carleton.ca/culearnsupport/students. Any unresolved questions can be directed to Computing and Communication Services (CCS) by phone at 613-520-3700 or via email: ccs_service_desk@carleton.ca.

Textbook and References

- Textbook: *Introduction to Computing: Explorations in Language, Logic and Machines*, David Evans, Version: August 19, 2011. This book is distributed under the Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. A PDF copy of the most recent version can be downloaded from the computingbook.org website.
- Reference: *Structure and Interpretation of Computer Programs, Second Edition*, Harold Abelson and Gerald Jay Sussman with Julie Sussman. MIT Press, 1996.

This book is copyrighted, but is provided online under the Creative Commons [CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/) license:

<https://mitpress.mit.edu/sites/default/files/sicp/full-text/book/book.html>

- Reference: *Simply Scheme: Introducing Computer Science, Second Edition*, Brian Harvey and Matthew Wright. MIT Press, 1999.

This book is copyrighted, but the authors have provided it online for personal use:

<https://people.eecs.berkeley.edu/~bh/ss-toc2.html>.

Link to Software

The IDE used in this course is free. Our lab computers run the Windows versions of this software, but it is available for the macOS and Linux operating systems.

- Racket (Scheme) 7.1 can be downloaded from: <http://racket-lang.org/>

Evaluation and Grading Scheme

Students will be evaluated primarily by means of a midterm test and a final exam. In addition, the marks assigned for lab work and assignments will contribute towards the final grade.

To pass the course, students must pass the final examination (50% or better). For students who pass the final exam, a numeric mark out of 100 will be calculated by weighting the course components according to Scheme 1:

Component	Scheme 1	Scheme 2
Lab work	0%	10%
Assignments	0%	10%
Midterm test	30%	20%
Final exam	70%	60%

This mark will be converted to a letter grade, using the table of percentage equivalents shown in Section 2.3 of the *Academic Regulations of the University*.

If the grade under Scheme 1 is D+ or lower, this will be your final grade. If the letter grade under Scheme 1 is C- or higher, a second numeric mark will be calculated using Scheme 2's component weighting, and this mark will be converted to a second letter grade. Your final grade will be the higher of the two letter grades.

Early Feedback

See Section 2.2.1 of the *Academic Regulations of the University*.

The weekly lab exercises will normally be graded during the lab period. Outside of the scheduled labs, you can obtain feedback during office hours or by making an appointment to see your instructor.

Lab Periods

Attendance at the scheduled laboratory periods is mandatory, and attendance will be taken. During the labs you will work on short programming exercises that are intended to help you understand concepts that have been introduced in the lectures. You will normally be required to demonstrate your lab work by the end of the lab period, as indicated in that week's lab "handout".

When you demonstrate your lab work, you may be asked by a TA to provide a detailed explanation of your solution to one of the exercises (e.g., discuss your design decisions, explain how you would modify your code to reflect different requirements, etc.) Your explanation will

contribute to your grade for that week's lab.

During the lab period, your work will be graded *satisfactory*, *marginal*, or *unsatisfactory*.

- *Satisfactory* means that you were present at the lab and made reasonable progress towards completing the exercises. Note that you do not have to finish all the exercises to receive a *satisfactory* grade.
- *Marginal* means that you made some progress towards completing the exercises, but your solutions were not sufficiently complete to warrant a *satisfactory* grade. This grade indicates that you may be falling behind and should take steps to remedy this situation.
- *Unsatisfactory* means that you made little or no progress towards completing the lab exercises. This indicates that you are likely having difficulty understanding important concepts and should seek help from your instructor as soon as possible. You will also receive *unsatisfactory* **if it is apparent to the TA that you did not do enough of the lab work on your own; that is, you relied on your colleagues to explain the exercises and provide solutions (approach, algorithms or code).**

For each *satisfactory* or *marginal* grade, you will receive 1/1 towards the lab component of the course. Each *unsatisfactory* grade will receive 0/1.

You must attend the lab section in which are enrolled. **If you demonstrate your work in a different lab section, you will receive 0 for that lab.**

Students cannot "make up" missed labs by attending an alternate lab section. Here's what you should do if you miss a lab because of illness, a medical appointment, job interview, etc.

- **If you have documentation that confirms the reason for your absence (e.g., a medical certificate, appointment card or email from a doctor's office, or other appropriate supporting documentation):** Do the missed lab work on your own time. No later than three working days after your lab, upload your lab work to cuLearn and send your instructor an email that clearly indicates your lab section and which lab you missed. Attach a scanned copy of the supporting documentation or make arrangements show the document to your instructor in person. A TA will be assigned to review your lab work and assign a grade.
- **If you don't have supporting documentation:** Do the missed lab work on your own time. No later than three working days after your lab, upload your lab work to cuLearn and send your instructor an email that clearly indicates your lab section and which lab you missed. A TA will be assigned to review your lab work and assign a grade. **Students can receive credit for at most one missed lab without providing supporting documentation. For all subsequent missed labs, supporting documentation must be provided; otherwise, you will receive 0 for those labs.** We strongly recommend that you not use this accommodation to "skip" a lab so that you can study for a test. You should instead complete the exercises ahead of time and demonstrate your work at the start of the lab; you can then use the remainder of the lab session to study.

If you miss a lab for reasons related to disabilities, pregnancy or religious obligations, please contact your instructor immediately to arrange appropriate accommodations. (See *Academic*

Accommodations, towards the end of this document). For example, a student who is registered with the Paul Menton Centre and who misses multiple labs for reasons related to the disability, will not be required to provide supporting documentation over and above the documentation that was originally supplied to the PMC. Arrangements will be made so that it is possible for the student to receive credit for all labs absences that are related to the disability.

Serious long-term illness will be dealt with on an individual basis; in these circumstances, please contact your instructor to discuss appropriate arrangements.

Portions of the designs and code from any lab or assignment may be reused and refined in subsequent labs and assignments. Doing the labs and assignments is the best way to learn the course material and prepare for the exams, so students are encouraged not to "write off" any particular lab or assignment just because of its relatively low weight in the overall grading scheme.

Students are responsible for backing up their lab work before they leave the lab; for example, we recommend that you copy your files to a USB flash drive or to a cloud-based file hosting service; e.g., Google Drive, Dropbox, OneDrive, etc. **Requests to attend an alternate lab section because you don't have the files from previous labs that are required for the current lab, will normally not be approved.**

Students can use the Systems and Computer Engineering undergraduate computer labs whenever the Mackenzie Building, Minto CASE and the Canal Building are open, except for those times when labs are reserved for specific courses.

Midterm Test

There will be one closed-book midterm test, which will be held in class after Break Week. Computers will **not** be used during the midterm test.

Students who are unable to write the midterm test because of illness or other circumstances beyond their control (e.g., family or religious obligations) should contact their instructor to request accommodation for the missed test. These requests must be made no later than 3 working days after the test date, and must be fully supported by appropriate documentation (in cases of illness, a medical certificate is required). For more information, see the *Academic Regulations of the University*, Section 2.6, *Deferred Term Work*.

Requests for accommodation because of poor performance on the midterm test will not be considered. There will be no "make-up" test. So, if you are ill on the day of the midterm test, don't write the test and later claim that your performance was impaired because you were unwell. You are better off to miss the test, obtain a medical certificate and request accommodation.

Final Exam

A closed-book final exam will be held during the University's April examination period. Computers will **not** be used during the final exam.

All students are eligible to write the final examination, regardless of the marks they received during the term.

Students who miss the final exam because of illness or other circumstances beyond their control

may apply to write a deferred examination. For more information, see the *Academic Regulations of the University*, Sections 2.5, *Deferred Final Examinations*, 2.5.1, *Missed Deferred Examinations*, and 2.5.2, *Early Departure from Final Examinations*.

The final examination is for evaluation purposes only and will not be returned to students. You will be able to make arrangements with your instructor to see your marked final examination after the final grades have been made available. Your exam will not be remarked during this meeting and solutions to the exam questions will not be provided.

General Regulations

Copyright on Course Materials

The materials created for this course (including the course outline, slides, posted notes, labs, projects, assignments, quizzes, exams and solutions) are intended for personal use and may not be reproduced or redistributed or posted on any website without prior written permission from the author(s).

Attendance

Students are expected to attend all lectures and lab periods. The University requires students to have a conflict-free timetable. For more information, see the current Undergraduate Calendar, *Academic Regulations of the University*, Section 1.2, *Course Selection and Registration* and Section 1.5, *Deregistration*. Requests to accommodate a missed midterm exam, lab periods, etc., because of conflicts with jobs or vacation plans will not be considered.

Health and Safety

Every student should have a copy of our Health and Safety Manual. A PDF copy of this manual is available online: sce.carleton.ca/courses/health-and-safety.pdf.

Deferred Term Work

Students who claim illness, injury or other extraordinary circumstances beyond their control as a reason for missed term work are held responsible for immediately informing the instructor concerned and for making alternate arrangements with the instructor and in all cases this must occur no later than three (3.0) working days after the term work was due. The alternate arrangement must be made before the last day of classes in the term as published in the academic schedule.

For more information, see the *Academic Regulations of the University*, Section 2.6, *Deferred Term Work*.

Appeal of Grades

The processes for dealing with questions or concerns regarding grades assigned during the term and final grades are described in the *Academic Regulations of the University*, Section 2.7, *Informal Appeal of Grade* and Section 2.8, *Formal Appeal of Grade*.

Academic Integrity

Students should be aware of their obligations with regards to academic integrity. Please review the information about academic integrity at: carleton.ca/registrar/academic-integrity/

This site also contains a link to the complete Academic Integrity Policy that was approved by the University's Senate.

Academic Accommodations

You may need special arrangements to meet your academic obligations during the term. To request academic accommodation, the processes are as follows:

Pregnancy

Email your instructor with any requests for academic accommodation during the first two weeks of term, or as soon as possible after the need for accommodation is known to exist. For more details, visit the *Accommodation* pages at the Equity Services website:

carleton.ca/equity/accommodation

Religious Obligations

Email your instructor with any requests for academic accommodation during the first two weeks of term, or as soon as possible after the need for accommodation is known to exist, but in no case later than the second-last week of classes. For more details, visit the *Accommodation* pages at the Equity Services website: carleton.ca/equity/accommodation

Academic Accommodations for Students with Disabilities

The Paul Menton Centre for Students with Disabilities (PMC) (website: carleton.ca/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 your instructor 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. After requesting accommodation from PMC, meet with your instructor to ensure accommodation arrangements are made. Please consult the PMC website (carleton.ca/pmc/students/dates-and-deadlines) for the deadline to request accommodations for the formally-scheduled final exam.

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and its survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit carleton.ca/sexual-violence-support.

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation will be provided to students who compete or perform at the national or international level. Please contact your 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 information, read <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

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