Computer Science 1003
Foundations of Computer Systems
Fall 2023

MEMORIAL UNIVERSITY

Department of Computer Science

Instructor: Mark Hatcher

Office Hours: Mondays and Fridays 1-2pm, EN-2016

e-mail: mhatcher@mun.ca
- Include COMP2006 in the subject line
- I don't use email in Brightspace

Lectures: Monday, Wednesday, Friday 10-10:50am, EN2043

Lab: Wednesday or Friday 2-4:50pm, CS1019
You must attend only your lab section.

Course Prerequisite: COMP 1001

Course Co-requisite: COMP 1002. **If you are taking COMP1002 and COMP1003 together and drop COMP1002 then you will be automatically de-registered from COMP1003 and unable to continue.**

Course Content:
This course aims to provide a solid introduction to foundational topics in computer science.

Topics include:
Python data structures and algorithms, using and creating abstract data types, the theory of computing, number representation, machine architecture, digital circuits.

Evaluation Scheme:

Type	%	
Assignments	10	
Laboratory Quizzes	15	
Midterm Exam	30	Oct 18/20th in lab time (tentative, to be confirmed)
Final Exam	45	

You <u>must</u> obtain an average score of 50% or higher between your midterm and final exams to pass this course.

Required Text:
- Computer Science -An Interdisciplinary Approach by R. Sedgewick and Kevin Wayne.
  - Addison-Wesley, ISBN-13:978-0-13-407642-3
- You can buy a digital copy from either of these sites:
  - https://www.vitalsource.com/en-ca/products/computer-science-robert-sedgewick-kevin-wayne-v9780134076454?term=978-0-13-407642-3
  - https://www.informit.com/store/computer-science-an-interdisciplinary-approach-9780134076478 (publisher's site, price in $USD)

- The website for the book is here: https://introcs.cs.princeton.edu/java/home/
- Python versions of the first four chapters are here: https://introcs.cs.princeton.edu/python/home/

Course Schedule (tentative):

Week Beginning	Topics	Readings
September 4th	The Python Data Model; Encryption	Chapters 1 & 2 (Python version)
September 11th	Recursion	Chapter 2 (Python version)
September 18th	Using and Creating Data Types	Chapter 3 (Python version)
September 25th	Stacks and Queues	Chapter 4 (Python version)
October 2nd	Formal Languages	Chapter 5: 5.1
October 9th	Thanksgiving October 9th & 10th Turing Machines	Chapter 5: 5.2, 5.3, 5.4
October 16th	Turing Machines **MIDTERM EXAM**	(review the above)
October 23rd	Intractability	Chapter 5: 5.5
October 30th	Number Representations	Chapter 6: 6.1
November 6th	Assembly Language (TOY)	Chapter 6: 6.2
November 13th	Boolean Algebra	Chapter 7: 7.1, 7.2
November 20th	Combinational and Sequential Circuits	Chapter 7: 7.3, 74
November 27th	Digital Devices	Chapter 7: 7.5

Lab Schedule (tentative). You must only attend the lab section that you are registered for:

Lab	Material Covered	Wednesday Lab	Friday Lab
1	Python Data Model, Functions and Classes	Sept 13th	Sept 15th
2	Stacks and Queues	Sept 27th	Sept 29th
3	Formal Languages	Oct 11th	Oct 13th
4	Turing Machines	Oct 25th	Oct 27th
5	TOY Programming	Nov 8th	Nov 10th
6	Boolean Algebra and Digital Circuits	Nov 22nd	Nov 24th

Assignment Schedule (tentative):

Assignment	Topic	Due Date
1	Python: Functions and Classes	Sept 18th
2	Python: Recursion	Sept 25th
3	Formal Languages	Oct 11th
4	Number Representations	Nov 6th
5	TOY Programming	Nov 20th
6	Boolean Algebra and Digital Circuits	Dec 4th

Important Notes:

1. Classes and exams will be delivered on-campus. Class slides and other course materials will be made available in Brightspace on a weekly basis. In the event that on-campus activities are suspended, classes and assessments will be delivered online, as seamless as possible.

2. Memorial University of Newfoundland is committed to supporting inclusive education based on the principles of equity, accessibility and collaboration. Accommodations are provided within the scope of the University Policies for the Accommodations for Students with Disabilities(www.mun.ca/policy/site/policy.php?id=239). Students who may need an academic accommodation are asked to initiate the request with the Glenn Roy Blundon Centre at the earliest opportunity (www.mun.ca/blundon).

3. Some assignments and labs require programming in Python 3. See the guidance in Brightspace for how install on your own computer.

4. Some assignments and labs require a Java Virtual Machine (JVM) to be installed on your computer. See the guidance in Brightspace for how install on your own computer.

5. **You must only attend the lab section that you are registered for, which will always be on a Wednesday or Friday as appropriate. <u>Do not attend the other lab section for any reason</u>, including if you miss your own lab.**

   Lab Exercises will be available approximately one week in advance of the actual lab time. You may start and/or complete the exercises whenever you wish within that time period. Lab assistants will be available during the first 2 hours and 30 minutes of the allotted lab time to answer any questions that you may have about the lab exercises. We **strongly recommend that you complete all of the lab exercises before attempting the lab quiz.**

   The Lab Quiz must be completed in the last half hour of the lab and must be done on a lab computer.

   The lab quiz will be based on material covered in lectures and in the lab, based on the lab topic. The quiz is the only means of obtaining credit for work done during the lab period. Lab Exercises are not for credit and do not have to be submitted.

   While taking the lab quiz, make sure your answers to each question are saved as you answer them. If you are working on a "long answer" style question for a while, then please click away from it periodically to force a save. If you run out of time and the auto-submit feature forces you to submit your quiz, then it will only accept the answers that have already been saved. You are allowed only one attempt for each quiz. Make sure you finish and submit each quiz well before the cutoff time, on the due date, since the time on your computer may be off by a few minutes from CITL's system clock and CITL's system will cut you off based on its system clock. Note that, depending on the quiz setup, once you save an answer to a quiz question and move on, you may not be allowed to go back and change it.

   Once you complete and submit the lab quiz, you will receive feedback on your quiz results once the due date/time for that quiz has passed and any required manual grading has been done.

   There will be no deferred lab quizzes for this course.

   Lab quizzes are to be done individually. If cheating is detected for a quiz, the quiz will be given 0%. The department head will also be notified.

6. Assignments are due at **11:00 p.m. Newfoundland Time** on the specified date, in the specified manner. <u>No late assignments will be accepted</u>. **It is your responsibility to make sure that the correct files are actually uploaded or present, so check for the confirmation that your files have been uploaded.** Be aware that the files you submit for evaluation should be uploaded on or before the due date and much before the cut off time. Even if you are late by a few seconds you will not be allowed to submit your work; hence you should try to upload the files at least 15 minutes before the cut off time since your system clock is not synchronized with the CITL's system clock and the cutoff time is based on CITL's system clock. Please note that if your files have been correctly uploaded, you will get a confirmation receipt from the Dropbox tool. If you do not receive this receipt, please contact the CITL Support team (https://www.citl.mun.ca/support/).

7. Note that, while the due times are at 11:00pm Newfoundland Time, help is not available after 4:30pm during weekdays, and not at all on weekends. The last few hours from 4:30pm to 11:00pm should be used to finalize your work and submit it. Any questions you may have about the assignment should be asked well in advance of the due date/time to allow time for help to be given.

   The on-campus Computer Science Student Help Centre is located in EN-2026, S. J. Carew Engineering Building, St. John's campus. Please see the following link (also available on the course Brightspace page) for hours of operation each semester: https://www.mun.ca/computerscience/undergraduates/help-centre-schedule.

8. If, for special circumstances (such as medical or bereavement) you are going to miss a lab quiz, assignment or exam, then you must notify your instructor **as soon as possible**. Unless there is good justification this should happen before the assignment deadline, or before the start of the exam, and you must subsequently provide any related documentation (if required). Failure to do this can result in a mark of 0% for that work. For more information, please see the University Calendar - University Regulations - General Academic Regulations (Undergraduate) 6.7.5 (**Exemptions from Parts of the Evaluation**) and 6.15 (**Appeal of Decisions**) or consult the Registrar's Office. If your reasons for the missed work are acceptable, then your instructor will provide details of any alternate evaluation scheme.

9. **This course does not have an option for writing a deferred midterm exam. If, for any reason, you are going to miss a class exam, you should contact your instructor right away, <u>before the exam begins,</u> giving the reasons for missing the exam and requesting that the weight of the missed exam be added to the weight of the final exam. If you first contact the instructor <u>after</u> the missed exam, you will have to provide documentation that <u>proves</u> why it was not possible to make contact beforehand. Any change will be subject to approval.**

10. Requests for any deferred **Final** exam should be made by filling in the Request for Deferred Exam form, along with required documentary proof. See here for what is required and where to submit your form: https://www.mun.ca/computerscience/ugrad/UGAdvising/registration_issues.php#deferring

11. **No supplementary exam will be given for this course.** (See **Supplementary Exams** - University Calendar - Faculty of Science Degree Regulations 7.3 - Regulations to Govern Supplementary Exams in the Departments of Biochemistry, Computer Science, and Mathematics and Statistics.)

12. Assignments, lab quizzes and exams must be original and independent work. Using all or part of a solution found online, or securing assistance to compete an assessment, or copying someone else's work or allowing your work to be copied are all serious breaches of university regulations and ethics. Any and <u>all</u> copied material will receive the mark of 0%. and the Head of Department will be notified of your misconduct. Anybody caught cheating over several assessments or on the final exam will be reported to the Senate Committee for Undergraduate Studies. **If your submission is quite similar to that of another person then it can be construed as copying.** Even if you have done your own work but have consulted a friend as you are doing the assignment then the assignment will turn out to be quite similar. Please see the University Calendar - General Academic Regulations (Undergraduate) - 6.12 (**Academic Misconduct**).

13. The final grade assigned for his course will be numerical. See: https://www.mun.ca/regoff/calendar/sectionNo=REGS-0661

14. In addition to your instructor, instructional staff are also available to help students with course material.

Name	Position	E-mail
Stephen Anthony	Lab Instructor	stephen@mun.ca
Cindy Milley	Lab Instructor	cindy@mun.ca
Frankie Tu	Instructional Assistant	frankiet@mun.ca

For more information, please visit the *Instructional Staff Contact Information and Schedule* web page. A link can be found in the *Important Links* module in Brightspace.