

# COSC 1P02 — Introduction to Computer Science — Fall 2019/20

COSC 1P02 is an introduction to Computer Science. Computer Science is the study of information and its transformation via algorithms. Typically information is stored on a computer system and is transformed by programs — algorithms written in a programming language. COSC 1P02 introduces the programming language Java and teaches the process of analyzing, designing, testing and debugging programs.

Labs, Tutorials and Assignments are very important components of this course in order to provide hands-on programming learning experience.

## Staff

<b>Instructors</b>	S01: Earl Foxwell, MCD410	Mon. 19:00–21:00, THSOS
	S02: John Futers, MCJ304	Thu. 8:00–10:00, THSOS
<b>Course Coordinator</b>	John Futers, <a href="mailto:jfuters@brocku.ca">jfuters@brocku.ca</a>	
<b>Tutorial Leader</b>	Maysara Al Jumaily, <a href="mailto:ma14ht@brocku.ca">ma14ht@brocku.ca</a>	T1: W. 16:00–18:00, DHOWES T2: T. 9:00–10:00, THSOS
<b>Lab Demonstrators</b>	Maysara Al Jumaily Jordan Maslen	Emilia Rutkowski Rajko Colakovic Pawel Jocko Eric Chen John Futers
<b>Mentor</b>	Poling Bork, MCJ403, x4025, <a href="mailto:pbork@brocku.ca">pbork@brocku.ca</a>	
<b>COSC Help Desk</b>	MCJ 328, x5039	

## Textbook

Introduction to Computer Science; D. Hughes; (2014); Available “print-on-demand” from Campus Store, or as free ebook download from COSC 1P02 Sakai site.

## Software

Dr. Java is used in the laboratories and class. It is recommended that computer owners install Dr. Java for use at home.

Download and setup instructions are available under the resources tab on the Sakai site, and assistance will be provided in the first tutorials (Sept 11 and 17).

## Course Learning Outcomes

Upon successful completion of this course, students will be able to:

- List significant events in the evolution of modern computing systems
- Describe the organization of a basic computer system
- Describe the representation of various types of information
- Explain the execution of the fundamental control structures
- Explain method call process including parameter passing
- Explain scope and visibility in a program example
- Describe the role of objects and classes in programs
- Analyze and explain the behaviour of simple programs involving control structures and method calls with parameter passing
- Choose appropriate data types for representation of information
- Choose appropriate control structures in solution of a problem
- Apply procedural abstraction to decompose a problem
- Use an IDE in the development of programs
- Apply coding/documentation standards in the preparation of a program solution
- Adopt coding/documentation standards as a mechanism for developing readable/modifiable programs
- Understand intellectual property and appreciate its place in academic society and the computer profession

## Course composition

Work	Total weight
Tutorial participation	10%
Laboratory participation	10%
Assignments (7)	21%
Term fluency test	5%
Lab term test	10%
Lab final exam	20%
Written final exam	24%

## Assignments

Number	Expected Due Date	Topic
1	Fri. Sept 27 @17:00	repetition/nesting
2	Fri. Oct 4 @17:00	methods
3	Fri. Oct 11 @17:00	parameters
4	Fri. Oct 25 @17:00	pictures
5	Fri. Nov 1 @17:00	collections
6	Fri. Nov 15 @17:00	I/O
7	Fri. Nov 29 @17:00	GUI/multiple classes

## Schedule

Week	Date	Chap.	Topics	Tutorial	Lab
1	Sept 4–10	1–2	Computer systems, history, hardware, software, a Java program	No tutorials	No labs
2	Sept 11–17	2	Variables, repetition (Turtle Graphics)	Ex. 0: Java setup, program development	L1: development environment
3	Sept 18–24	3, 4	Methods, expressions (Turtle Graphics)	Ex. 1: variables, references, nesting	L2: repetition, composition
4	Sept 25–Oct 1	3	Methods: parameters and scope	Ex. 2: expressions	L3: methods
5	Oct 2–8	5, 6	Control structures and functions (Pictures)	Ex 3: scope, parameters	L4: parameters
6	Oct 9–22	7	Iteration (Sounds)	Ex 4: control structures	L5: pictures
			Oct 14–18 — Fall Break Week		
7	Oct 23–29	8	Collections: 1D and 2D indexing	Ex 5: booleans	<b>Lab test</b>
			<b>Midterm progress test (Sakai)</b>		
8	Oct 30– Nov 5	9	Data: input, files, EOF, reports	Ex 6: indexing	L6: pictures, sounds
9	Nov 6–12	10	GUIs and switch (forms and widgets)	Ex 7: debugging	L7: data processing
10	Nov 13–19	11	Classes: objects, class design	Ex 8: widgets	L8: GUIs
11	Nov 20–26	12	Persistence: Binary files and Object IO	Ex 9: class design	L9: multiple classes
12	Nov 27–Dec 3	12	File processing algorithms	Ex 10: code reuse	L10: persistence
	<b>Dec 4/5</b>				<b>Lab exam</b>

**Note: Each week officially starts on *Wednesday*, and ends on the following *Tuesday*.**

## Notes

- As part of Brock University's commitment to a respectful work and learning environment, the University will make every reasonable effort to accommodate all members of the University community with disabilities. If you require academic accommodations related to a permanent disability to participate in this course, you are encouraged to contact the Student Accessibility Services (4<sup>th</sup> floor, Schmon Tower, x3240), and also to discuss these accommodations with the professor/instructor.
- Assignments will be available online. Assignments are due at the time and date specified on their Sakai listings when posted. Late assignments will be accepted, subject to a penalty of 25%, up to three days late.

- Assignments will be carefully examined regarding plagiarism. Cases of suspected plagiarism will be dealt with according to the University regulations and Departmental procedures. A Software Similarity Evaluator may be used to electronically compare assignments for the purpose of detection and prevention.
  - Be advised that unauthorized distribution of university-provided materials may constitute both academic *and* non-academic misconduct, and may be prosecuted as such.
- Exams and tests are closed book, with no aids permitted outside of accommodations accounted for above.
- The midterm progress evaluation will be conducted through Sakai. It will be made available on Wednesday, October 23<sup>rd</sup>, and will be due by Tuesday, October 29<sup>th</sup>.
- The lab midterm test will be conducted during the normally scheduled lab times, starting Wednesday, October 23<sup>rd</sup>, running through to Tuesday, October 29<sup>th</sup>.
- The lab final exam will be conducted in batches across Wednesday, December 4<sup>th</sup> and Thursday, December 5<sup>th</sup>. The schedule will be provided closer to the exam date.
- A combined mark of at least 40% on the final written exam, and the lab exam, is required to receive credit for this course.
- Consideration regarding illness for missed works, labs, etc. will only be considered if accompanied with the completed Departmental Medical Excuse form (available on the COSC website). Forms must be submitted, in paper, to the COSC administrative assistant within 3 working days of return from illness.
- November 5<sup>th</sup> is the last day for voluntary withdrawal without academic penalty. 15% of the final grade will be available to students by Nov. 1<sup>st</sup>.