CSC 110: Fundamentals of Programming: I

Term	Summer 2012
Course Website	http://www.csc.uvic.ca/courses/csc110
Instructor	Gautam Srivastava Email: gsrivast at uvic.ca Office: ECS 516 Phone Number: 250-472-5752 Office Hours: Tuesdays 10:30 - 12:30 p.m. (or by appointment)
Lecture Schedule	(A01) MR 10:00 - 11:20 a.m. ECS 125
Laboratory Schedule	Labs begin the week of ***May 14, 2012***. Please attend the lab you have registered for. Lab times and locations are available from the timetable. To access, you may need to sign in with your Netlink ID.
Course Overview	Fundamentals of Programming I Introduction to designing, implementing, and understanding computer programs using an object-oriented programming language. Topics include an introduction to computing and problem solving, selection and iteration, arrays and collections, objects and classes, top-down design and incremental development.
Topics	• Computer organization basics • Basic syntax and semantics of a high-level language • Variables, expressions, and assignment • Primitive and reference types • Representations of numbers • Simple I/O • Conditional and iterative control structures • Functions/methods and parameter passing • Problem-solving strategies (including structured decomposition) • The role of algorithms in the problem-solving process • Implementation strategies for algorithms • Testing and debugging strategies • Arrays • Strings and string processing • Data representation in memory • Linear search

- Selection sort
- Encapsulation and information hiding
- Separation of behavior and implementation
- Classes

Course Objectives And Learning Outcomes

Upon successful completion of CSC 110 you will be able to:

- Describe the major parts of a computer system
- Choose appropriate conditional and iteration constructs for a given programming task.
- Use pseudocode or a programming language to implement, test, and debug algorithms for solving simple problems.
- Analyze and explain the behavior of simple programs involving the fundamental programming constructs (variables, types, expressions, assignment, simple I/O, conditional and iterative control structures, functions and parameter passing, structured decomposition).
- Design, implement, test, and debug simple programs in an object-oriented programming language.
- Indentify correct Java language syntax
- Describe strategies that are useful in debugging.
- Describe the mechanics of parameter passing.
- Trace the execution of code, including method calls with both primitive and object-reference parameters.
- Discuss the properties of good software design.
- Discuss the importance of algorithms in the problem-solving process.
- Write programs that use each of the following: arrays, objects, strings.
- Describe how the class mechanism supports encapsulation and information hiding.
- Create algorithms for solving simple problems.
- Discuss type conversion and type incompatibility.
- Design, implement, test, and debug a program that uses each of the following fundamental programming constructs: basic computation, simple I/O, standard conditional and iterative structures, and the definition of functions.
- Modify and expand short programs that use standard conditional and iterative control structures and functions.
- Discuss the issues involving the testing of object-oriented software.
- Identify the necessary properties of good algorithms.
- Describe various simple problem-solving techniques (decomposition, top-down design, boundary-case analysis, etc.).

- Distinguish between program validation and verification.
- Explain the value of application programming interfaces (APIs) in software development.
- Identify and describe the properties of variables such as their associated values, scope, persistence and size.
- Explain the difference between the static and non-static variables and methods of a class.
- Describe the structure of objects and data in computer memory.

Textbooks

Required: Building Java Programs: A Back to Basics Approach, Second Edition
Stuart Reges, Marty Stepp
Addison Wesley, ISBN: 978-0-13-609181-3

Recommended: (A second Java book of your choosing.)

Assignments

In this course there will be **8** assignments. Each assignment is worth **3**% for a total of **24**%. Typically, you will have 1 week to solve each assignment.

Exams

There will be two in-class midterm exams, worth 10% each towards the total mark, and a final exam, worth 40% of the total mark.
There will be 2 midterms *tentatively* scheduled for **June 7, 2012** and **July 16, 2012**.

The final exam will be scheduled by the University during the usual exam period.

Students are ***strongly*** advised not to make plans for travel or employment during the exam period since special arrangements will not be made for examinations that may conflict with such plans.

Term Schedule

This schedule is subject to change. Please consult the course webpage for accurate due dates.

Assignment/Quiz/Other	**Weight**	**Tentative Due Date**
Assignment 1	3%	May 18
Assignment 2	3%	May 25
Assignment 3	3%	June 1

Midterm # 1 Exam	10%	June 7
Assignment 4	3%	June 15
Assignment 5	3%	June 22
Assignment 6	3%	June 29
Assignment 7	3%	July 13
Midterm # 2 Exam	10%	July 17
Assignment 8	3%	July 27
Final Exam	40%	To be scheduled by the University

Grading Scheme

Course Component	**Weight (out of 100%)**
Assignments	24%
Lab Exercises	10% (1% each)
In-Class Participation	6%
Midterms	20% (10% each)
Final Exam	40%

Grades	**Description**
A+, A, A-	**Exceptional**, **outstanding** or **excellent** performance. These grades indicate a student who is *self-initiating*, *exceeds expectation* and has an *insightful* grasp of the subject matter.
B+, B, B-	**Very good**, **good** or **solid** performance. These grades indicate a *good* grasp of the subject matter or *excellent grasp in one area balanced with satisfactory grasp in the other areas*.
C+, C	**Satisfactory**, or **minimally satisfactory**. These grades indicate a *satisfactory performance and knowledge* of the subject matter.
D	**Marginal Performance**. A student receiving this grade demonstrated a *superficial grasp* of the subject matter.
F	**Unsatisfactory performance**. Wrote final examination and completed course requirements; no supplemental.

Final Grades are obtained by converting the numerical scores using the conversion table below.

F	D	C	C+	B-	B	B+	A-	A	A+
0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100

Posting Of Grades

Term marks, provisional final grades and final grades will be posted by student number on connex. NO NAME WILL APPEAR. These postings are for your information and for your validation of the data entry. If you do not wish your term marks and grades to be publicly posted in this manner, please notify the course instructor

by **May 14, 2012**. Csc Student Groups The Computer Science Course Union (http://cscu.csc.uvic.ca/mediawiki/index.php/) serves all students who are either in a computer science program or taking a class in computer science. Please sign yourself up on their mailing list if you would like to be informed about their social events and services.

The Engineering Students' Society (ESS) serves all students registered in an Engineering degree program, including Software Engineering (BSEng). For information on ESS activities, events and services navigate to http://www.engr.uvic.ca/~ess . Course Policies And Guidelines ***Late Assignments:*** Late assignments will be penalized **20% per day** unless authorized by the course instructor. Personal extensions will be granted only in extenuating circumstances (e.g. illness).
Coursework Mark Appeals: All marks must be appealed **within 7 days** of the mark being posted.
Attendance: We expect students attend all lectures and labs. It is entirely the students' responsibility to recover any information or announcements presented in lectures from which they were absent.
Electronic devices in labs and lectures: No unauthorized *audio* or *video* recording of lectures is permitted.
Electronic devices in midterms and exams: Calculators are only permitted for examinations and tests if explicitly authorized and the type of calculator permitted may be restricted. No other electronic devices (e.g. cell phones, pagers, PDA, etc.) may be used during examinations or tests *unless explicitly authorized*.
Plagiarism: Submitted work may be checked using plagiarism detection software. Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult http://web.uvic.ca/calendar/FACS/UnIn/UARe/PoAcI.html for the UVic policy on academic integrity. Note that the university policy includes the statement that "A largely or fully plagiarized assignment should result in a grade of F for the course".

The Faculty of Engineering Standards for Professional Behaviour are at
http://www.uvic.ca/shared/shared%5fengineering/docs/professional-behaviour.pdf

The department guidelines concerning fraud are at
http://www.csc.uvic.ca/courseinfo/policies/fraud.html

Department Policies: A list of department policies regarding all

courses may be found at
http://www.csc.uvic.ca/courseinfo/policies/index.html

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Resource Centre for Students with a Disability located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.