Introduction to Computer Science II

COSC1030.03 -- Winter term 1996/97

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Last modified: 1997 January 8

MARKS Fall 96

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Instructors

- Jeff Edmonds -- Course director -- Section M
- Tim Brecht -- Section N
- Gunnar Gotshalks -- Section P

Course Outline

Course Outline

Class Times and Locations

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Section M  Mon, Wed, Fri 2:30-3:30    121 CCB
Section N  Tues 15:30-17:30           VH D
           Thurs 15:30-16:30          VH D
Section P  Mon, Wed, Fri 10:30-11:30  121 CCB
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Office Hours:

You may see any of the course instructors, not just your section instructor.

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Monday    2:30 - 4:30  216 CCB  G. Gotshalks
Monday    3:30 - 4:30  350 CCB  J. Edmonds
Tuesday   1:30 - 2:30  220 CCB  T. Brecht
Wednesday 2:30 - 4:30  216 CCB  G. Gotshalks
Wednesday 3:30 - 4:30  350 CCB  J. Edmonds
Thursday  4:30 - 5:30  220 CCB  T. Brecht
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Course Description

This course is a continuation of COSC1020 and covers some of the fundamentals of software development, various data structures (arrays, queues, stacks, trees, lists), and algorithms that use these structures (sorting, searching). An object oriented approach will be introduced. Students will use the Unix operating system with the X Window System.

Required Text:

- **Data Structures: An Object-Oriented Approach** , Barnard, Holt, and Hume, Holt Software Associates Inc., 1995.

Suggested reference:

- **Turing Reference Manual**, R.C. Holt, T. West, 5'th edition, Holt Software Associates, Inc., 1994. Could try the computer store in York Lanes or the University of Tronto Bookstore at College & St. George. See section Obtaining OOT Software for HSA telephone numbers.

Useful books:

- Koffman, Holt and Dimarco, Turing, Problem Solving and Program Design, Addison-Wesley, 1995.
- Grogono, Programming with Turing and Object Oriented Turing, Springer Verlag, 1995.
- The Little Grey Book: An Ultrix Primer, Digital Press, 1990.
- X Window System User's Guide, O'Reilly & Assoc., May 1993.
- Polya, How to solve it; a new aspect of mathematical method, Princeton Univ. Press, 1973.
- Bentley, Programming Pearls, Addison-Wesley, 1989.
- Kernighan and Plauger, The Elements of Programming Style, McGraw-Hill, 1978.
- Kernighan and Plauger, Software Tools in Pascal, Addison- Wesley, 1981.
- Brooks, The Mythical Man-month, Addison-Wesley, 1975.

Extra Reading

- Different Programming Paradigms
- How pointers work (written for C)
- Programming Development
- Loop Invariants (Insertion Sort)

Course Goals

Students successfully completing this course should be able to demonstrate the following knowledge and/or skill sets:

- Develop a correctly working, well structured, readable, maintainable and documented program that meets the given specifications and is completed on time.
- Ability to design, implement, test, and debug functions and procedures as well as the program as a whole.
- Experience with larger programs (larger than those seen in 1020).
- Ability to perform algorithm analysis and to be able to compare the time and space tradeoffs of various algorithms.
- Be comfortable writing, testing, debugging, and analyzing the complexity of recursive functions and procedures, as well as understanding how recursion works.
- Thorough understanding of what pointers are, how they are used, and when they should and should not be used.
- UNIX skills including: the use of an editor, high-level understanding of what separate compilation is and how to compile and link separate components of a program.
- General understanding of what lists, stacks, queues, priority queues, dictionaries, trees and graphs are, how they work and how they can be implemented.
- Different sorting methods their pros and cons and time versus space tradeoffs.

Evaluation

There are four assignments, one midterm and a final exam. Each piece of work will receive a letter grade (A+, A, B+, B, C+, C, D+, D, E or F). A final grade will be obtained by weighting the individual pieces of work as shown in the following table. The assignments and final examination are common to all sections. The midterm tests will be customized for each section.

Work	Date	Weight	Topic
Assignment 1	Wed Jan 22	6%	Testing & Debugging
Assignment 2	Wed Feb 12	8%	t.b.a
Midterm Test	Wed/Thu Feb 19/20	20%	(50 minutes)
Assignment 3	Wed Mar 19	8%	t.b.a
Assignment 4	Wed Apr 9	8%	t.b.a
Final Exam	after Apr 8	50%	All

NOTE: You must obtain a weighted GPA of 2.0 on each component of the course (exams and assignments) to pass the course. That is, you must obtain a weighted GPA of >= 2.00 on the assignments and you must obtain a weighted GPA of >= 2.00 on the exams to pass the course.

Marks will be made available online via the following Unix command. You must choose one of M, N, or P depending upon the section in which you are enrolled.

courseInfo 1030 [M,N,P]

The following York University standard letter grade system will be used.

Grade	Definition	Point Value
A+	Exceptional	9
A	Excellent	8
B+	Very Good	7
B	Good	6
C+	Competent	5
C	Fairly Competent	4
D+	Passing	3
D	Barely Passing	2
E	Marginally Failing	1
F	Failing	0

To See More Details

Important dates

First day of classes:	Monday, January 6
Last day to enrol in the course:	Saturday, January 18
Last day to drop the course:	Saturday, March 8, 2pm
Good Friday:	Friday, March 28 -- no classes
Last day of classes:	Monday, April 7

Assignments

Assignments represent your own individual work. Do not misrepresent another's work as your own; it will be considered academic dishonesty if you do. Some guidelines are given in the following document. All students should be familiar with the section on academic honesty in the university calendar. If you have any questions about this please ask your course instructor.

On Academic Honesty (ascii)

Assignments are to be deposited by 10:30 a.m. on the due date (a Wednesday) in the boxes marked with COSC 1030 and your instructor's name and section. The boxes are in the north hall of the 1st floor of CCB near room 132CCB.

Assignments that are up to 1 day late (i.e., deposited in the boxes by 10:30 a.m. of the next day) will have two full letter grade deducted (e.g., A becomes C, B+ becomes D+, and C+ or lower becomes F). After Thursday 10:30 a.m. NO late assignments will be accepted with the sole exception if you give your instructor a signed medical note and ask for permission to be late. In this case, you must hand in the medical note and late assignment to your instructor. Please note that events such as last minute printer slowdown or breakdown DO NOT constitute valid excuses for lateness.

Programming assignments typically require reports. These must be readable and should be prepared in a manner consistent with the **How to do a report** as outlined in the laboratory book for COSC1020. If you do not have a copy, please see the course directory /cs/course/1020.

We will provide cover sheets for your assignments that you can print. Please include them as the **very first page** of your report or else you will lose one full letter grade (e.g., A becomes B, C+ becomes D+, and D or lower becomes F). **NO BINDERS OR ENVELOPES**.

REMEMBER: That in order to receive a passing grade in the course your weighted GPA on each component must be >= 2.00. That is, the weighted GPA of on the assignments must be >= 2.00 and the weighted GPA of the midterm and the exam together must be >= 2.00 to pass the course.

Throughout this course and for all assignments the following will be stressed:

- clear, well organized, divided into sections and subsections.
- grammatically correct writing (including spelling)
- proper program design
- good implementation style and techniques
- debugging
- demonstrating correctness using proofs and testing

Assignment 1 -- Testing & Debugging

- Probably available Tuesday, January 7

Assignment 2 -- Pointers & Classes

Assignment 3 -- Recursion

Assignment 4 -- ???

Exams

- Midterm Fall 96-97

Reappraising Assignments

If you would like to have an assignment or exam reappraised you must do so within two weeks of it being returned. Note that the **entire** assignment or exam will be remarked and that your grade may go up or down as a result of being remarked.

Before resubmitting ask yourself if it is worth the time required by yourself, the TA, and the professor. For example, suppose you want an extra mark on a question that is worth 1/8 of the assignment and the assignment is worth 7.5% of the final mark. Then if you get the extra mark, your final GPA will change by 1/8 * 0.075 = 0.01. More over, last term the marks of only two out of approximately 25 resubmissions were increased. This means that the expected change to your GPA is 1/8 * 0.075 * (2/25) = 0.00075. Be sure, however, to determine how to do better on the next assignment.

In order to resubmit an assignment for remarking, you must fill out this form and hand it in along with your assignment.

- Reappraisal Form

Midterm test and Final Examination

REMEMBER: That in order to receive a passing grade in the course your weighted GPA on each component must be >= 2.00. That is, you must obtain a weighted GPA of >= 2.00 on the assignments and you must obtain a weighted GPA of >= 2.00 on the exams to pass the course.

Midterm tests and the final examination are closed book.

- Midterm tests -- Are customized for each section but are closely coordianted to be approximately the same in content. Midterm tests written in pencil will not be considered for reappraisal.
- Final examination --All sections write a common exam at the same time at the same location.

The Course Newsgroup

- The Course Newsgroup

The course newsgroup is the first place you should look for course-related announcements and for answers to course-related questions. If you are registered in 1030 you should read the newsgroup regularly.

You may read the course newsgroup using your favorite newsreader. Alternatively, you may use your WWW browser to read the group by clicking on the hypertext reference above. Some WWW browsers, like mosaic, require you to set the environment variable NNTPSERVER before reading newsgroups. If you have trouble reading the course newsgroup using your WWW browser, try this

```
setenv NNTPSERVER blue.cs.yorku.ca
```

before starting your browser. Better yet, add this line to your .cshrc file.

The Course Directory

The course directory lives on the Ariel machines and is: /cs/course/1030. You may find the following subdirectories of interest.

- notes -- contains files and subdirectories with notes on different topics in the course.
- text-code -- all of the programs in the course text book are available
- text-code-modified -- variations on the textbook of stacks, queues, trees and address book
- examples -- contains interesting examples as to "why a math book is not enough" when programming mathematics.

Obtaining OOT Software

NOTE: the Computer Science Department and in particular the people in 126 CCB do not provide techincal support for versions of Object Oriented Turing (OOT) that run under DOS, Windows, Windows ’95 or the MacIntosh Operating System. If you have any problems with your disks, the installation of the software or with the actual software please contact Holt Software Associates Inc.

Holt Software Associates Inc.
203 College St., Suite 305,
Toronto, Ontario, CANADA, M5T 1P9
Phone: (416) 978-6476, 1 (800) 361-8324

Note that the "Computer Science Introductory Handbook" (September, 1995) contains information that should be helpful when installing this software on your machine.

If you purchased the OOT software last term you’ll be able to use it for this course. Assignments will be done using OOT.

You can purchase Object Oriented Turing (OOT) at a special price of $35.00 (for disks only). You must know which version you will need **BEFORE** you purchase your software and after you have puchased your disks you should not bother the people who sold you the disks all problems should be directed to Holt Software Associates.

There are three versions of OOT available:

- MacIntosh Version
- DOS Version
- Windows Version (also works on Windows ’95)

The software can be purchased in CCB 126 during the first two weeks of classes and during the following times only:

- 10 - 12 am
- 2 - 4 pm

Other Computer Science Courses