Fall 2014
03-60-140-02
Introduction to Algorithms and Programming I

Course Outline

SCHOOL OF COMPUTER SCIENCE

INSTRUCTOR:

Dr. Ziad Kobti
Email : kobti@uwindsor.ca *(best way to contact me!)*
Office: 5101 Lambton Tower
Phone: 519-253-3000 ext. 2990 / 3792
Office Hours: *Monday & Wednesday 2:30pm to 5:00pm or by appointment*
Note: Only email originating from a valid University of Windsor student account will be accepted from students wishing to contact the instructor.
Please include your full name and student ID along with the course code in your correspondence.

PRE-REQUISITES:

Interest in Computer Programming!
Note: no student is allowed to take a course more than two times without permission from the Dean

LECTURES:

Section 02 – Monday and Wednesday, 5:30pm – 6:50pm – Erie Hall 1118

LABS:

You must register in one of the following lab sections in addition to the lecture:
Section 55: Monday 7pm-8:20pm West Library 305
Section 56: Monday 8:30pm-9:50pm West Library 305
Section 57: Wednesday 7:00pm-8:20pm West Library 305
NOTE: You must register in one lab section. Attendance is mandatory. Labs start the week of September 15
You must have a working student computer account before coming to the lab.
You can obtain a UWINID account from the Computer Centre or call ITS ext. 4440.

**Any questions relating to laboratory should be addressed directly to your lab instructor.*

COURSE DESCRIPTION:

This course is the first of a two-course sequence designed to introduce students to algorithm design and programming in a high-level language such as C. The main objectives of the course are to develop the ability to identify, understand and design solutions to a wide variety of problems. Topics include: computer system overview, hardware and software, problem solving steps, concepts of variables, constants, data types, algorithmic structure, sequential logic, decisions, loops, modular programming, one-dimensional arrays, text files. If possible, problems like searching/sorting will be addressed. (3 lecture, 1.5 laboratory hours a week; plus unsupervised study and work on individual assignments.)

REQUIRED TEXTBOOK:

C.I. Ezeife, "Problem Solving and Programs with C", Nelson Thomson Learning Ltd., August 2010, 3rd edition, ISBN 0-17-633082-8.

Other recommended textbook:
Deitel & Deitel, "C How to Program", Prentice Hall, 2012, 7th edition.

SUPPLEMENTS:

http://cs.uwindsor.ca/~kobti/cs140/ (available on CLEW)
http://csrc.cs.uwindsor.ca/
http://cs.uwindsor.ca/~cezeife/courses/60-140/ (Refer to lab exercises and textbook materials)
Check websites frequently for announcements and other useful info.

GRADING SCHEME:

You will receive a numeric grade based on the course evaluation.

COURSE EVALUATION:

16% Midterm #1 (October 8, in class)
16% Midterm #2 (November 5, in class)
45% Final Exam (December 8, 7pm)
10% Laboratory (Mandatory Attendance 2% and Lab Exercises 8%)
10% Assignments
3% Lecture attendance/Quizzes (in class up to 3 randomly selected classes by the instructor without prior notice, and/or up to 3 unannounced Quizzes)

NOTE: Consistent with University Senate Bylaws, no marked work will be assigned to students during the last week of classes, nor will any assigned work come due for submission during the last week of classes or during the period of the final examinations.

Course Schedule:

Week		Topic & Readings	Lab
1	Sep 8/10	Chap 1. Overview of Computer Systems	No Lab
2	Sep 15/17	Chap 2. Problem Solving Steps	Lab 1
Sep 17 Last day for late registration and change of course for Fall term, day and evening. Last day for full tuition refund.			
3	Sep 22/24	Chap 3. Types of Algorithmic and Program Instructions	Lab 2
4	Sep 29/Oct1	Chap 4. Problem Solving Tools (Top-Down Design)	Lab 3
5	Oct 6/8	**Midterm 1 – Oct 8 in class**	Lab 4
Oct 13 Thanksgiving Day. No classes. University Closed.			
Oct 11-19 Reading Week (No classes)			
6	Oct 13/15	Chap 5. Program Logic Structures	Lab 5
7	Oct 20/22	Chap 6. Problem Solving with Decisions	Lab 6
8	Oct 27/29	Chap 7. Repetition Logic Structure	Lab 7
9	Nov 3/5	**Midterm 2 – Nov 5 in class**	Lab 8
10	Nov 10/12	Chap 8. Arrays	Lab 9
Nov 12 Last day to voluntarily withdraw from Fall term courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund.			
11	Nov 17/19	Arrays Chap 8	Lab 10
12	Nov 24/26	Searches and Sorts (Chap 9. Pointers, Files, Records)	Lab 11
13	Dec 1/3	Review	Lab Review
Dec 3 Last day of classes			
Dec 8, 7pm Final Exam			

Note 1: The Student Evaluation of Teaching (**SET**) will be conducted during the last week of class.
Note 2: Students are advised that the schedule and topics described above are tentative and that the material and/or depth and order of presentation are subject to change at the discretion of the instructor and student pace.

CAUTION: This course assumes the student will allocate a significant amount of independent study and time spent on coding programs in C. You are strongly encouraged to ensure sufficient time needed to succeed in this course.

LEARNING OUTCOMES:

Students who successfully complete this course will be able to:

1. Define and implement C program solutions to problems involving use of sequential logic, decision logic and repetition logic control structures, simple standard input and output using C library functions, simple output formatting, simple and array data structures, simple array algorithms including search, functions with different parameter-passing mechanisms, and variables with different scope.
2. Use tools for top-down design approach to problem solving, such as structure chart, flow-chart, test and verification and tracing.
3. Prepare and create algorithmic and C program solutions to a wide variety of problems.
4. Demonstrate interaction with computers and work with standard UNIX operating system within a laboratory environment and demonstrate general programming skills within a laboratory environment.
5. Prepare programming assignments following professional principles of protection of intellectual property
6. Learn good programming style including program documentation.

Computing Resources Available for Course Work

Computing laboratories will be available from the second week of the semester onwards. The CS laboratories are located on the third floor of Lambton Tower and Erie Hall (ER 3150) and X-lab ER 3139, as well as West Library 3rd floor West). The general IT services laboratories at the basement of the Computer Centre, next to the CAW Student Centre are also available to students. Students can also connect to campus machines from their home PCs or laptop through available Internet connections (alpha/bravo.cs.uwindsor.ca or arc1.uwindsor.ca as backup, but they do not share the file system!).

Notes to Students:

- Attendance and student participation are essential to succeed in this course. You are encouraged to ask questions.
- A website is setup for the course. This should be regarded as a complementary source of information and not as a primary reference. It is the responsibility of the student to attend classes and keep up with the latest course contents and announcements. Note that the website is not guaranteed to be up-to-date or accurate. Any student who relies solely on the website information, contrary to this warning notification, may place him/herself in academic jeopardy.
- Students are encouraged to keep class notes in good order, repeat the examples demonstrated in class, and ask questions. Solving exercises on your own and participating in class are very important to succeed.
- Assignments and projects are expected to be completed on the assigned due date and time. **LATE ASSIGNMENTS ARE NOT ACCEPTED**. You must allocate enough time to complete the assignments; start early and report difficulties to the instructor. **UNDOCUMENTED CODE WILL NOT BE GRADED** and will receive a mark of zero. Failure to submit the work in the correct format will be penalized. (i.e. incorrect email subject or unreadable/missing file attachments as instructed, etc…).
- **THERE IS NO MAKE-UP FOR MIDTERMS**. Missing a test or an exam will greatly affect your grade since they carry a lot of weight. In the case of illness or serious and unavoidable reason (as per the senate bylaws), please consult with the instructor in advance if possible to make alternate arrangements. You must formally inform the instructor in writing and present proper supporting documents (stating that the student was unable to attend the exam at the specified time and date) within a week from the midterm or earlier to be verified – use the Student Medical Certificate form. If the reason is deemed valid, the weight of the midterm will be added to that of the final exam. (i.e. the final exam's weight will increase to include the missed midterm weight). All students are required to write the final exam in order to pass the course.
- You will need access to a C compiler and a university email account. You need a UNIX (UWinID) student account (from ITS x4440 or helpdesk@uwindsor.ca for support).
- **PLAGIARISM:** Should the instructor or grader find a reason for suspicion – or just cause – in a plagiarised student's work (assignment, lab or test), the work in question will not be graded and the student(s) will have to answer to the department's head and the dean of Science. Please refer to the University's policy on Plagiarism in the senate bylaws.
- **Students who submit semantically equivalent assignments [or labs] (in other words, the same thing to within trivial modifications) will receive a grade of zero on ALL assignments [or labs].**
- All students should keep the instructor informed about their difficulties with the course.
- To the extent possible, students should contact the instructor outlining their problems with the course.

TIP: To succeed in this course you need to PRACTICE! Allocate a minimum of 2 to 6 hours a week on reading and coding!

Reality Check!

Too EASY… I am bored! → Prove yourself and join the ACM Programming Competition, Practice every Monday 11:30-2:20 in ER3139. Competitions generally on a Friday afternoon with dates to be announced.

Too HARD… Lunatic prof going over my head! → Option 1: at the beginning of class just before it starts, write a question or note on the board for the prof to explain what topic you like to see revisited. Option 2: go to the prof's office hours and ask all you want. Option 3: Mutiny! Gather enough number of students (minimum 5) and tell the prof to run an extra tutorial class customized just for your group. Dropping the course should not be an option if you can make a reasonable effort and apply options 1-3.

Well… I am catching up, lost some marks from the last midterm/assignment; is there a way to earn EXTRA MARKS so I can bring my grade up in the course? → Yes, available on demand (Minimum 10 students requesting it) however the opportunity will be made available for all students in the class in the form of an extra assignment credit. This offer expires Nov. 26!!!

CONFIDENTIALITY AGREEMENT & STATEMENT OF HONESTY*

I confirm that I will keep the content of this assignment/examination confidential. I confirm that I have not received any unauthorized assistance in preparing for or doing this assignment/examination. I confirm knowing that a mark of 0 may be assigned for copied work.

_____ _____

Student Signature ** Student Name (please print)

_____ _____

Student I.D. Number Date

*To be submitted with every assignment submission or your assignment will not be graded.

** When submitting digitally, simply type the text at the beginning of your code as a comment, include the statement, your name, ID and date. Submitting/emailing it from your webmail/UWindsor account serves as a signature.

Late Assignment Penalty Waiver/Bonus Coupon

Usage: This coupon is primarily intended to provide the student extra time to complete an assignment properly if the need arises for whatever reason. Use this coupon if you feel you are unable to submit the assignment on time. It grants you to extend the original deadline by 72 hours without being penalized for late submission. If you successfully complete ALL assignments on time, and do not use this coupon for the purpose of time extension, then you may submit this coupon in person to the instructor on or before the last official lecture and earn 1% toward your cumulative total of the assignments. For late waiver, the student must notify the instructor and submit the coupon in person within 24 hours from the original assignment due date. If you submit the coupon for late waiver and do not submit the assignment, or submit it after 72 hours from the original due date, then you will lose the coupon value and your assignment will not be graded.

Rules: Limit one per student. Not valid with any other offer. Coupon expires at **the end of your last regular lecture**. Non-negotiable, not redeemable for marks other than that specified above, not transferable. No late coupon submission is accepted once the offer expires. The instructor reserves the right to refuse or cancel this coupon offer at any time without notification. You must present this original coupon **in person and in class before the end of the last lecture to the instructor**. Copies or digital reproductions are not accepted.

PLEASE COMPLETE ALL FIELDS LEGIBLY

PRINT NAME: _____ LECTURE SECTION: _____ LAB SECTION: _____
Last name, First name

STUDENT ID: _____ DATE: _____

CHECK ONE: ❑ WAIVE LATE PENALTY FOR ASSIGNMENT NUMBER: _____ DUE: _____
(This grants the student up to 72 hours to submit the assignment from the original due date/time without penalty. Submitting the assignment after the 72 hours grace period is considered late and will be penalized accordingly; not submitting the assignment void the coupon and as a result the coupon can no longer be used for "bonus" and the assignment mark will be zero. This coupon does not apply for labs.)

or: ❑ CLAIM 1 BONUS POINT **(Valid only if ALL assignments were successfully submitted on time)**