



**Winter 2011**  
**03-60-256-01**  
**Systems Programming**

**Course Outline**

**SCHOOL OF COMPUTER SCIENCE**

**INSTRUCTORS:**

**Dr. Ziad Kobti**

Email : kobti@uwindsor.ca (*best way to contact me!*)

Office: 5101 Lambton Tower

Phone: 519-253-3000 ext. 3792

Office Hours: Tuesday & Thursday 2:30-3:50

*Please refer to the posted schedule for additional office hours and changes*

*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 in your correspondence.*

**PRE-REQUISITES:**

You cannot register in this course unless you have completed 60-141 with a minimum grade of C-

**LECTURES:**

Section 01 – Tuesday and Thursday, 5:30pm – 6:50pm

Chrysler Hall South room 53

**LABS:**

You must register in one of the following sections:

Section **51** – Tuesday 4:00pm – 5:20pm Erie Hall 3119

Section **52** – Thursday 4:00pm – 5:20pm Erie Hall 3119

Section **53** – Thursday 7:00pm – 8:20pm Erie Hall 3119

*NOTE: You must register in one lab section. Attendance is mandatory. Labs start the week of January 10. 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 with your lab instructor.*

**COURSE**

**DESCRIPTION:**

This course introduces students to advanced software development techniques in system programming using the C language in the UNIX environment. Topics include introduction to modern operating systems, system calls, managing processes, the use of fork and exec, signals, file processing, filters, pipes, scripting languages, introduction to concurrency (e.g. synchronization), network programming (e.g. using sockets), client-server problems. (Prerequisite: Minimum grade of C- in 60-141.) (3 lecture, 1.5 laboratory hours/ week; plus unsupervised study and work on individual assignments.)

**REQUIRED**

**TEXTBOOK:**

Advanced Programming in the Unix Environment

ISBN 9780321525949, W. Richard Stevens, Stephen A. Rago, Pearson

*Other reading text for additional reference: (Not Required)*

G. Glass & K. Ables, Unix for Programmers and Users (3rd edition), Prentice Hall.

K. Haviland, D. Gray & B. Salama, Unix System Programming (2nd edition), Addison-Wesley.

**SUPPLEMENTS:** A Course website is setup under the “class notes” link off the “Current Students” link from the University’s main page. Check it frequently for announcements and other useful info. <http://cs.uwindsor.ca/~kobti>

**GRADING SCHEME:** A+ ≥ 93 ; A ≥ 86 ; A- ≥ 80 ; B+ ≥ 77 ; B ≥ 73 ; B- ≥ 70 ; C+ ≥ 67 ; C ≥ 63 ; C- ≥ 60  
D+ ≥ 57 ; D ≥ 53 ; D- ≥ 50 ; F ≥ 35 ; F- < 35

**IMPORTANT DATES:**  
-January 19 Last day of registration, change of courses and full refund for Winter term courses, day and evening.  
-February 21 Family Day holiday: University Closed; February 22 – 25 Study week  
-March 16 Last day to voluntarily withdraw from Winter term courses. After this date students remain registered in courses and receive final grades as appropriate. Last day for partial tuition refund.  
-April 6 Last day of classes

**COURSE EVALUATION:** 20% Midterm #1 (February 10 in class)  
20% Midterm #2 (March 10 in class)  
40% Final Exam (April 14, 3:30pm)  
10% Laboratory (Mandatory Attendance, Lab Exercises and Quizzes)  
10% Assignments  
*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:** Tentatively, the topics of will follow the following sequence:  
1. Introduction to Unix  
2. Unix shells  
3. C standard I/O Library  
4. Unix I/O  
5. Process Management and Control  
6. Signals  
7. Pipes (named and unnamed)  
8. Introduction to computer networks  
9. Socket programming

**Note: The Student Evaluation of Teaching (SET) will be conducted during the last 2 weeks of class.**

**NOTE:** Students are advised that the 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 on a UNIX system. You are strongly encouraged to ensure sufficient time needed to succeed in this course.

## 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. 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 and PASS 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](mailto:helpdesk@uwindsor.ca) for support).
  - **PLAGIARISM:** Should the instructor or grader find a reason for suspicion – or just cause – in a plagiarized 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. Most consultations will be by e-mail or in person.
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