This syllabus is a summary of the most important administrative information for CISC 220. Students enrolled in the course should also refer to the information available in the course's OnQ area.

Instructor: Margaret Lamb
    office: Goodwin 527
    office phone: 613-533-6763
    home page: http://cs.queensu.ca/home/malamb
    office hours: may vary during the semester; current details will always be on my home page
    e-mail: malamb@cs.queensu.ca

Lecture Times:
    Mondays 10:30-11:20
    Wednesdays 9:30-10:20
    Fridays 8:30-9:20
    There will be no lecture on Monday, Oct. 9 (Thanksgiving Day)

Lecture Locations: Chernoff Auditorium

Pre- or Co-requisite: CISC 124

Please note that professors for individual courses do NOT have the authority to waive a pre-requisite for this course. Any such requests must go through the Undergraduate Chair for the School of Computing.

Calendar Description:
    Basic concepts of Unix-like systems. Shells and scripting. System-level programming in the C language. Software development tools and techniques.

Purpose: *(From the School of Computing web site):* In the past, students entered Computing programs with little or no computing experience. They were required from the very beginning to learn the Unix user interface and conventions for files, directories, permissions and processes. They acquired experience of software-development techniques and tools incrementally in subsequent courses.

But increasingly, students have been starting Computing programs with considerable experience using graphical user interfaces on Windows and Mac computers, and our introductory courses have been taking advantage of this prior experience. As a consequence of this, the students have not been acquiring a foundation of system-level concepts on which subsequent courses can build and have been graduating without any opportunity to learn the basics of Unix-like systems and widely used system-level software-development techniques and tools. The aim of this course is to provide this opportunity.

Textbook: *The C Programming Language* by Brian W. Kernighan and Dennis Ritchie, second edition Students will also be assigned readings from online course notes written specifically for CISC 220.

You must do the assigned readings! You can't expect to pick up everything you need for this course just from lectures. Many students find this course difficult and you should make sure you have the resources to handle it.

Intended Student Learning Outcomes
By the end of the course you should be able to demonstrate your ability to:
- Use the bash shell to create files and run programs, including the use of multiple processes, pipes and I/O redirection.
- Write short scripts using the bash shell, including the use of variables, conditionals, loops, arithmetic, pipes and command substitution
- Explain the basics of a Unix-like file system and answer questions about the effects of hard and symbolic links
- Write small C programs including the use of pointers, strings, structs and file I/O
- Demonstrate good memory management in C programming, avoiding both dangling pointers and memory leaks
- Make simple use of multiple processes in C programs, including sending and receiving signals
- Use "make" or a similar tool to build and maintain programs involving multiple modules and scripts

Course Organization: For most topics there will be assigned readings from the textbook or course notes. Lectures will not review the readings in detail but will focus on examples to illustrate the techniques and ideas in the readings and to demonstrate good programming techniques. Lectures will also include opportunities for students to work on practice problems with help available from the instructor.

Assignments and Practice Problems: Students will be given six marked assignments as well as many unmarked practice problems to work on. These are essential for doing well in the course. If you can't apply what you're learning in class to programming problems you will not be able to pass the quizzes and final exam.

Group Work: Group work is *forbidden* for the marked assignments in this course. What you hand in *must* be your own work and nobody else's. If you need help with an assignment, please talk to the instructor or a TA, but not to your classmates or anyone else. Failure to abide by this rule will be viewed as a violation of Queen's Academic Integrity regulations and may result in serious academic penalties.

For unmarked practice problems, learning is the only goal. If working in a group and discussing problems with other students helps you learn please feel free to do that. Just remember that seeing and understanding someone else's solution to a problem is no guarantee that you would be able to solve that problem or similar ones on a quiz or exam. It's important to include solo work in your studying to prepare yourself for writing your quizzes and exams on your own.

Course Schedule: Will be available on OnQ by the start of the term. Students will have adequate warning of all quizzes and assignment dates.

Quizzes and Exams:
- There will be 3 quizzes during the term. I will average all three marks, weighted equally, to make up the quiz portion of your course mark.
- The final exam will be a three-hour exam given during the exam period. It will be cumulative; anything we do during the semester may show up in an exam question unless I specifically tell you otherwise. You must write the final exam at the published time and place unless you have arranged accommodations or there are exceptional documented circumstances, such as illness on the day of the exam.
- The dates and locations for the quizzes and the final exam will be announced far ahead of time. For the quizzes, the class will probably be split between multiple rooms, with some students writing in a room different from their usual location. It is your responsibility to listen to announcements and read OnQ news posts and note the time and place for your quizzes and exam and show up to the right place on time. Students who oversleep or forget to show up for a quiz or exam will get a zero.

Assignments:
- There will be six assignments during the term. I will average all six marks, weighted equally, to make up the assignment portion of your mark.

Missed Work: If you miss an assignment or quiz without a very good reason you will receive a zero for it and that zero will be averaged into your course mark. If there are special circumstances – for example, if you are sick on a quiz day or shortly before the due date for an assignment – please contact me as soon as possible and we'll make some kind of fair arrangement and obtain documentation if possible. Depending on the circumstances, your accommodation might be an extension on an assignment, a make-up quiz, or a change to your marking scheme. If you have to miss the final exam for any reason you will have to write a make-up exam and you *must* obtain some kind of documentation.

Sometimes students are concerned about privacy when I ask for documentation of illnesses. Please be assured that I don't need to know any personal details. All I need is a letter from a health professional verifying that you had a health problem on a particular date or range of dates that was serious enough to interfere with your course work.

Please note that things like workload, forgetting to set your alarm, or a last-minute computer crash are not adequate excuses for missing an assignment deadline, a quiz or the exam.

Basic Marking Scheme:
The basic marking scheme is as follows:
> Assignments (average of all 6 assignments during the term): 10%
> quizzes (average of all 3 quizzes given during the term): 50%
> final exam: 40%
> total: 100%

I will translate your percentage mark to a letter grade using the official Arts & Science scheme.
(http://www.queensu.ca/artsci/sites/default/files/policy_on_grading.pd_.pdf).

Important Exception to the Basic Marking Scheme:
Your assignments *do not count* unless you get at least a C minus in the rest of the course. In other words, I will average your quizzes and final exam according to the scheme above to get a mark out of 90. If that mark is at least 54 (i.e. 60% of those 90 points), I will add your assignments to the total to get your final percentage mark. If not, your assignments count as zero.

For example, suppose at the end of the term your marks are as follows:
> Assignments 10/10
> Quizzes: 29/50
> Final Exam: 22/40

With the normal marking scheme, your percentage for the course would be 10+29+22 = 61%, which is a C minus. However, without assignments your percentage is 51/90, which is 57%, so your course mark will actually be a D plus.

How To Get Help: Even the best students have questions from time to time! It's nothing to be ashamed of. It's part of how we all learn. (Yes, even profs….) Here are some helpful strategies for when a question comes up:
- Make sure you done the assigned reading; the answer to your question may be in there.
- If it's an administrative question, look in the syllabus and also check the OnQ news and calendar.
- Check the OnQ discussion forum to see if your question has been asked and/or answered already. If not, post the question.
- Visit instructor or TA office hours.
- Talk with me after class. I try to avoid scheduling things right after lectures. Occasionally I may have to rush off to a meeting or other appointment, but usually I will be able to hang around and talk with people when needed.

Accessibility & Accommodations:
Queen's University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Wellness Services (SWS) and register as early as possible. For more information, including important deadlines, please visit the Student Wellness website at: *http://www.queensu.ca/studentwellness/accessibility-services/*.

If you think any of the above applies to you, please do get in touch with Student Wellness Services as soon as possible. They will assess your needs and provide you with a letter to give your profs. This letter won't include any personal details, just a list of the accommodations you need (extra time, large print, or whatever). It is your responsibility to complete this registration and provide all of your profs with a copy of your letter.

If your letter says you need to write your quizzes with a computer, you will be proctored by the Exams Office, but only if you apply to the Exams Office (with documentation) *at least 10 days before the first quiz*. If you don't bother to do this I will not be able to arrange a computer for your quizzes. Please note that if you are allowed to write your quizzes with a computer it will be a special computer with no Internet connection and only a few basic programs such as Notepad and Microsoft Word. You will not have access to any programming tools such as compilers; these would give you an unfair advantage over students writing on paper.

If you need other sorts of accommodations for quizzes (extra time, a small room, etc), you must inform me *no later than Friday, September 22* and *include a copy of your complete class schedule* (preferably a screenprint from SOLUS). The reason for the deadline is that in a class this size there many be quite a few students needing accommodations of various kinds and it takes time to make arrangements for everyone. The reason for the class schedule is that it may not be possible to have everyone who needs accommodations write at the same time as the rest of the class and I need to make sure I don't schedule your quiz at a time when you have another class. If you don't get in touch by the deadline and provide me with a schedule it may not be possible to arrange a quiz that meets your needs and avoids conflicting with your other classes.

If you need any sort of accommodation for your final exam, that is handled by the Exams Office. Queen's Accessibility services will probably set this up for you, but it's your responsibility to make sure this happens. The deadline is in early November, so please check with Accessibility Services early in the term. If you have a long-term disability and neglect to inform the Exams Office you will have to write in the regular exam hall without any accommodations. I will not proctor a special exam for you if you neglect to arrange it with the Exams Office.

If you have a short-term situation that requires accommodation for your final exam (for example, if you break your arm a week before the exam), please talk with me about it and we'll make a plan.

Academic Integrity: For the full statement of Queen's Academic Integrity policy, please see Arts & Science Academic Regulation 1 at http://www.queensu.ca/artsci/sites/default/files/academic_regulations.pdf#page=1. You are responsible for familiarizing yourself with these principles, which apply to all Queen's courses.

For this course, Academic Integrity prohibits any of the following:
- collaborating with other students for a solution to a marked assignment – including copying another student's work or allowing another student to copy your own work
- posting a solution to an assignment (or even *part* of an assignment) in any public space (online or a physical space)
- submitting a solution to an assignment in which all or part is copied from a solution posted elsewhere
- copying another student's work on a quiz or the final exam
- discussing a quiz or the final exam with another student who is being allowed to write it late
- asking another student to discuss a quiz or the final exam with you if you are being allowed to write it late.

Please be warned that I take Academic Integrity quite seriously and WILL make formal charges if violations are detected. These charges will affect your mark and possibly your status at Queen's.

Tips For Doing Well in This Course:

- Read all of the assigned readings carefully and on time.
- Attend lectures regularly.
- Get an early start on the assignments; don't leave them until the last minute.
- Work on practice problems in addition to the assignments. Practice problems for many of the topics in this course will be suggested on the web site. I will also be posting quizzes from the last few years of this course in our OnQ area and there are many years of old final exams available on Exambank. Even though you don't get marks for practice problems, practicing is the best way to make sure you understand the course material and can apply it on your assignments, quizzes and exam, which *are* marked. You're not confined to the practice problems I post; you can look on the web for more example or make up your own experiments.
- Check the OnQ news for this course daily (or subscribe to it and make a habit of checking your Queen's e-mail daily). When I need to make important announcements they will go on the OnQ news and I will assume that students will see them there. I won't spam your e-mail by sending announcements directly to your e-mail unless there's something really urgent, like a last-minute lecture cancellation.
- There will also be an OnQ discussion forum, including a separate topic for each assignment. You can subscribe to the whole forum or individual topics and posts will be sent to your Queen's e-mail address.
- When you have questions, the OnQ news and the forums should be the first place you look for answers. Someone may already have asked your question and gotten an answer. If not, feel free to post your question on the relevant forum if you think the question might be of interest to other students.
- For general help with this course, or to discuss administrative issues, please feel free to visit my office hours. No appointment is necessary. I'm hoping to schedule some TA office hours as well. In a class this size, please understand that the TAs and I can't make extra individual appointments to tutor students at other times. The only exception is if you need help and all of my office hours in the next few days conflict with other Queen's classes of yours. In that case, send me a copy of your class schedule (preferably a screenprint from SOLUS).