CSI 310 – Data Structures – Spring 2005
http://www.cs.albany.edu/~sdc/CSI310 (Official location for announcements)

Course Policies

Instructor: S. Chaiken
Office Hours: T, Th: 1:30PM-2:30
LI 96H, 442-4282 Wed: 9:30-11:00AM
sdc@cs.albany.edu other times drop-in if I’m not busy

Prerequisite: CSI201 or equivalent CS1 course in fundamental programming (variables, arrays, control statements, basic problem solving) with C++, beginning programming/testing/debugging under Unix.

Teaching Assistants: Rachel Pocino (pocino@cs.albany.edu), Goutam Paul (goutam@cs.albany.edu), and Dipo Ramli (goutam@cs.albany.edu) Scheduled office hours will to be held in lab room HU-025. See the office hour page linked from the web site.

Required Texts:


2. Your CS1 C++ textbook and/or other references for C++ and other programming fundamentals. The book by Walter Savitch, “Problem Solving with C++, the Object of Programming”, Addison-Wesley, has been used at U. Albany for CSI201 and is recommended. If your CS1 course was in Java, you should be able to make the transition to C++ with the help of this book. You might want to attend the CSI201 lectures this semester too.

3. Other handouts, online materials and Web references that will be provided through the lectures and labs throughout the semester.

1 Learning Objectives

1. To develop fluency and problem solving skills in computer programming to levels expected after the second semester of university Computer Science major study. This includes the writing of preconditions, postconditions and invariants to precisely document interfaces and implementations.

2. The principles, practice and elementary analysis of data organization in certain (more or less non-obvious) ways that are well-known and understood by computer scientists, professional programmers and software designers. The power, efficiency and learning difficulty for some beginners subtlety of these linked and/or arrayed data structures results from the pointer and/or index DATA whose purpose in to locate (i.e., access, refer to, or retrieve in short, constant time) other DATA. The latter is often structured and includes its own pointers and/or indexes to function likewise. Additional efficiency results from other contraints on data organization, for example, arrays, lists or trees being sorted or ordered.
3. The powerful problem solving and computer code organization technique of recursion: Defining something in terms of itself in a way that avoids the philosophical problem of circularity. (By the way, abstract mathematical approaches to recursion are taught in Albany’s CSI210 course.)

Important but secondary learning objectives include some principles of object oriented design and programming, as supported by some features of C++. They also include additional understanding and proficiency with computing environments (such as command line shell controlled Unix systems as opposed to more popular and easy to use graphical environments) that expose and enable programmers to control, customize and script the steps relevant to their tasks. Finally, technical proficiency with a particular programming language (C++) and operating environment (Solaris Unix) is included in the curriculum.

A. Laboratory Exercises: The schedule for lab sessions and staff office hours will be linked from the course web page. Each lab exercise will be posted on or before the Tuesday of the week it should be done. Some lab exercises will include a “pre-lab” assignment which you are expected to complete before attending the lab session.

The due time for electronically submitting the reports and other specified work of the lab is completing each lab exercise is the end of the week (Friday, 11:59PM) following the week of the exercise. If classes are not in session that Friday, the due time will be one week later. Analysis shows you will have at least 11 days to submit the results after receiving the assignment.

You must register for some lab session, but you can attend any (one or more!) scheduled session or TA office hour period. (In the unlikely event that a scheduled session is overloaded, the students registered in that session who arrived on time will be seated.) The detailed instructions and/or locations for finding details will be printed in the assignment. The supervisor and other staff will then be available to give personal assistance with the current lab assignment. They will also take attendance so that you will get one “checkpoint” for each lab exercise you start.

Help, explanations and attendance reports can be done with any of the course staff (not just your lab instructor), subject to the due time defined above.

Laboratory exercises are an integral part of the course. At least for the first few lab exercises, the lab supervisor will give a short orientation lecture at the beginning of each session. You will then work on completing the exercise with any reasonable assistance of the TA, instructor and/or other students. If you do not complete the exercise in the lab session, you can go do it in a subsequent one, on your own, or with the assistance of a TA or the instructor during office hours. Each exercise handout will include a list of items that will be checked in your work submission. Your lab grade is based on number of exercises started in the lab, and the number of these checkpoints achieved.

2 Lab Exercise 1 Assignment

The first lab exercise will be to (1) make and “cd to” a subdirectory, (2) copy (from directory “~acsi310/Lab1”) the 3 files named throttle.h, throttle.cxx and demo2.cxx featured in Chapter 2 of the textbook (“DSO”), (3) compile and test them in the lab under the Albany Unix cluster system, (4) learn and practice some basic uses of the ddd graphical debugger, (5) get started using emacs to create edit files beginning with a shell script to automate “building” the demo2 executable program file, and (6) make, compile, and observe with the debugger modifications of demo2.cxx to explore and experience variables, values, and their behavior under copying under C++ with
Complete instructions are provided on the accompanying handout (for Lab 1).

**IMPORTANT:** If you do not have an Albany Unix cluster account now, **GO ASAP after class** to the helpdesk office (LC-27) for help with getting an account. Tell them you are taking CSI310 and need quick start handouts on common unix commands, getting started on Unix, X-Win32, Emacs, and remote access to Unix.

The Lab (HU-025, basement level) sessions and office hours will begin next week (Jan. 26).

All students, such as transfer students and others who did not take Albany’s CSI201, and especially those whose programming experience is not C++ under Unix, are expected to get a Unix account and become ready to do these 4 steps **before** their Lab next week. They should seek help from the student assistants in LC-27 and practice with access and use of Albany’s itsunix systems in LC-3 and LC-4.

Additional help/office hour resources will be posted on the course web page as soon as they are available.

**B. Evaluation:**

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<tbody>
<tr>
<td>Midterm</td>
<td>Mar. 15, 2005</td>
<td>25%</td>
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<tr>
<td>Final</td>
<td>May 5, 2005</td>
<td>35%</td>
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<tr>
<td>Weekly Laboratory Exercises</td>
<td></td>
<td>10%</td>
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<tr>
<td>Programming Projects</td>
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<td>30%</td>
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Final letter grades will be based on cutoffs applied to your score computed as above and modified according to the following policy:

- 40% on each of at least two of the 5-6 programming projects, a 40% total score AND a final or average exam grade of at least 40% is the minimum for passing the course (with a D-).
- 60% on each of at least three of the 5-6 programming projects, a 60% total score AND a final or average exam grade of at least 60% is the minimum for a C. However, I reserve the right to assign a higher grade based on a record of substantial improvement.

I will set a grading scale so that C (2.0) indicates the minimum necessary preparation for passing CSI333 (Programming at the Hardware/Software Interface or “Assembly Language”, the 3rd Albany CS Major programming sequence course). Similarly for CSI311 (Principles of Programming Languages), if you also get a C or better in CSI210.

Estimated grades based on the midterm exam score will be announced with the midterm results.

**The “C” (2.0) or better grade in CSI310 is a prerequisite for the two required CS major courses CSI333 and CSI311.** (except if you declared your CS major prior to Sept. 1, 2002) If you are a CS major, CSI310 is your most important course so far and you should aim for an “A”. (Ask any professional programmer.) If you get a B, that is fine. If not, consider switching majors. If you get below C, you are probably not in the right major: Your choices are to switch or try CSI310 again.

Details regarding the exams will be announced later. Last year’s midterm is posted on the Web and this year’s will have a similar style.

**C. Programming Projects:** There will be five to six programming project assignments. These
assignments will be graded using Albany’s ITS/Academic Computing SUN/Sparc/Solaris Unix cluster systems, so you are expected to fully test them there before submitting them for grading. **Submissions that do not compile and link get ZERO points, automatically!** See the future handout for **incremental software development**. (You can log on to these machines over the Internet from computers all over the world, including your dorm, LC-3 and LC-4. A few SUN Ultra5 workstations are available to you in LC-3/4 for “Power User Experience” but their number is limited. Although the programming work can be done on your own computers, especially if you install a unix variant such as Linux or FreeBSD, problems (hardware, software, network access) with your system will not be accepted as excuses for late or missing programming project or lab completion work.

Programming guidelines and submission information will appear in a separate handout.

**Very Important:** If you do not turn in syntax error free and generally working programs for at least two of the programming projects assignments will result an **E grade for the course**, regardless of laboratory exercises and exam grades.

**D. Policy on Cheating:**

1. Cheating in an exam will result in an E grade for the course. Further, the students involved will be referred to the University Judicial System.

2. The code and any written reports or answers for programming assignments; and written answers for lab exercises must be written by yourself. You are welcome to discuss the class material, the problems and ideas for solutions; but each person is expected to write the code and answers he or she submits independently, without copying.

Cheating in a programming assignment or lab exercise will result in a ZERO for that requirement for **all** the students involved. Students who cheat in two or more programming assignments/ lab exercises will receive an E grade for the course.

A report of the every cheating incident will also be made to the Office of Undergraduate Studies in accordance with the University regulations concerning “Penalties and Procedures for Violations of Academic Integrity” in the Undergraduate Bulletin.

We may do automated code comparisons between submissions of current students together with submissions from prior course offerings to detect copying.

3. Violations of Computer and Network Usage policy on laboratory systems are regarded as academic integrity violations, like cheating.

**E. Policies on Computer and Network Usage:**

1. Attempts to use ECL or ITS computers in violation of the regulations set forth in all the Web pages linked from [http://www.albany.edu/its/policies/](http://www.albany.edu/its/policies/) may result in account suspension, course failure or referral to University disciplinary action. The implications of the responsible use requirements of shared computer and network infrastructure is an element of this course’s curriculum and so course failure or grade reduction can be imposed by the instructor as a sanction against the violation of laboratory rules and procedures. Failure to comply with instructions given to you by system administration or
course instructional team staff members in regard to Lab usage is disruptive and is grounds for sanction.

Willful illegal, malicious or disruptive use, or attempts to disguise one form of computation as another will be taken particularly seriously.

You are also warned against disclosing your password to anybody either willfully or by accident. Another person knowing your password can really get you into trouble. Similarly, if your password is compromised or you change the permissions of your files so that others can read them, they might copy your work and you might get caught when we compare submissions.

2. Ignorance of the quota -v command to monitor your Unix account disk quota and the steps you must take to reduce disk space usage are likely to result in your account becoming unusable when you need it most. If this happens, corrective actions might take several days. Lateness of programming projects or lab exercises will not be excused, nor can any “urgent” system administration actions be taken.

F. Make-up Exams: Make-up exams will be given only for valid and verifiable excuses (e.g. a major medical situation). In such a case, it is your responsibility to contact the instructor ahead of time if at all possible.

G. Policy on I grades: A grade of I will only be given for genuine extenuating circumstances that are beyond your control after the midterm point. Both of the following conditions must be met:

1. Your work must be in good standing as of March 15, 2005, the day of midterm exam, defined as follows: You must have an average score of at least 50% on the programming assignments and at least 50% on the lab exercises completed up to that point; and further, your midterm grade must also be equivalent to at least a C. Therefore, if you miss the midterm or have performed poorly on programming assignments or lab exercises, you are not eligible for an I grade.

2. Written documentation must, upon request, be supplied about the extenuating circumstance either by you or by the University administration. The Dean of Undergraduate Studies and her assistants are there to assist you and will write letters to your professors that request appropriate accommodations.

Under no circumstances will the condition for completing an I grade be that the entire course be retaken later without a new registration.

H. Disabilities, etc: Accomodations will be made for clients of the Office of Disabled Student Services upon adequate prior notice and according to that office’s policies.

Students with genuine continuing hardship situations, or any disability related problems with Lab usage should confer with the professor before February.

I. Attendance: You are responsible for all material presented in the lectures. Some of that material will not be presented anywhere else.

Sometimes quizzes (like the readiness quiz) will be given in lectures. They will be counted into the lab scores. No makeups will be given except for genuine, documented extenuating circumstances.
Make sure you have a trusted friend to lend you lecture notes if you are going to miss a lecture.

**J. Other Notes:**

1. During their office hours, the instructor and the teaching assistants for this class will be glad to help you with the course material and the programs.

2. In addition to the regular office hours, you can also set up an appointment to meet with your instructor and the teaching assistants.

3. We will answer “reasonable” questions by email; which means definite questions that have definite and short answers; and which are at the academic level of the course and on course topics. We may edit and post on the Web questions and answers we think would be helpful to others (but I will email you a personal reply too.) We will remove your name to preserve privacy, unless you specifically state in your message that you would like your name included if we decide to post the question. We might ignore any others. We will not write or copy long explanations that repeat material we presented or are available for you to read.