

CST 231: Problem Solving and Programming (Section 1)

Fall 2012

Time: Tuesday & Thursday 2:00 PM – 3:50 PM (lecture & lab are combined)

Place: Building 18 (Media Learning Center), Room 106

Instructor: Kate Lockwood (klockwood@csumb.edu)

Office: Building 18 (MLC)/Lobby C/Room 172

Office phone: (831) 582-3416 (email is preferred)

Office hours: TBD (check iLearn)

Contents

| | |
|--|---|
| Description | 1 |
| Course Objectives | 1 |
| Course Outcomes:..... | 2 |
| Textbook: | 2 |
| Required Software | 2 |
| Grading..... | 2 |
| Pair Programming | 4 |
| Schedule..... | 4 |
| What to Expect..... | 4 |
| Communication:..... | 4 |
| Technology Policy | 5 |
| Academic Integrity | 5 |
| Disabilities and Learning Issues | 6 |
| Respect..... | 7 |

Description

This is an introductory programming course that will teach students to develop problem-solving techniques for numerical and non-numerical problems from various disciplines. Students will design the solution of each problem and implement it in the C++ programming language.

Coverage includes introduction to computer system, C++ basics, flow control, functions, I/O streams, arrays, strings, and classes.

Course Objectives

The main objective of this course is to provide students with the C++ programming skills needed to solve a variety of computational problems. Students will be familiar with Microsoft Visual Studio for C++ programming and get experience developing programming projects.

Course Outcomes:

This course is designed to enable students to complete the CSIT programming major learning outcome (MLO). The goal of the MLO is “*Students will create computer programs to solve problems using a computer programming language.*”

In particular, upon successful completion of this course, student should be able to:

- Explain basic organization of computer systems.
- Edit, run, debug, and document a C++ program with Microsoft Visual Studio .NET tools.
- Define and initialize variables and constants.
- Read and write data using a file.
- Demonstrate the usage of selection statements such as if-then-else and switch in C++.
- Implement loop structures such as for and while in C++.
- Use predefined functions in C++.
- Define and use your own functions in C++ including using pass by reference and pointers
- Process several data elements in a 1 or 2-dimensional array.
- Use strings (character arrays) in C++.
- Identify basic concepts of structure, class, and object-oriented programming.
- Solve a simple real world problem by developing an algorithm and writing C++ code to implement the algorithm.

Textbook:

There is no required textbook for this course, however that does not mean there is no required reading! A variety of materials will be provided through the course iLearn site. If you would like a book for reference, there are a variety of C++ textbooks available. I’d encourage you to check out some of the free resources on the iLearn page. If none of those fit your needs, feel free to purchase any introductory C++ book that you find useful. Just remember to cite it as a source if you use it for homework/lab help.

Required Software

We will be using Microsoft Visual Studio in this class. You do not need to purchase Visual Studio. It is available on the computers in rooms 104 and 164 of the MLC. Both labs are open for student use when there is not a class in session. You can also get a free copy of Visual Studio by filling out an ITCD software request form. If you have a Mac you may use XCode instead of Visual Studio. XCode is available for free from the App Store.

Grading

Grades in this class are based on a combination of projects, labs, exams, and participation. Each of these components is described below:

- **Projects (35%):** Projects will be assigned throughout the semester and will be completed **individually**. All due dates will be announced when the projects are distributed and projects will be due by **9:00 AM** on the due date. **Late projects are not accepted for any reason. Missing class does not excuse you from turning in an assignment; you must still upload your completed assignment by 9:00 AM.** Projects must be submitted using

the link provided on iLearn for the given assignment. It is your responsibility to make sure you have access to iLearn before the due date for the assignment. Submissions through any other format (including email) will be ignored. Projects will be graded based on:

- **Correctness:** Does the program compile and run in Visual Studio 2010? (Points will be deducted for warnings as well as hard errors). Homework that does not compile will receive a 0. Does the program function as described in the assignment sheet? Note that while sample runs of the program may be provided, *these are not exhaustive cases – it is up to you to test your program thoroughly.*
- **Completeness & Style:** Is your program well commented including a header comment? Are any supporting documents provided and are all questions answered? Have you completed all problems of the homework?
- **Labs (15%):** Lab assignments will be done primarily during the lab portion of class and will be done ***with a pair programming partner.*** You will get credit for labs by demonstrating them to the instructor during lab time or office hours – labs are not to be submitted via iLearn or email. Both partners must be present during the demonstration and both lab partners must be able to explain how the program works and to answer questions from the instructor. *If either partner is unable to answer a question, neither partner will get credit for the lab.* All labs must be completed by the specified check-off date (these are listed on iLearn and are typically the lab period before an exam).
- **Practical Exams (40%):** There will be several practical exams throughout the semester (dates of exams will be posted on the course schedule on iLearn). The midterm exams are topical and the final is comprehensive. Practical exams will involve a short paper quiz during the lecture portion of class, and a programming assignment during the lab. Other than Visual Studio, there will be no technology allowed on exams, including calculators, cell phones, and the Internet. ***Makeup exams are not provided for any reason. Make sure you attend class for scheduled exam days.***
- **Participation & Preparation (10%).** Each week you will have the opportunity to earn participation points. Participation points cannot be made up. Participation points may be earned by doing the following activities:
 1. Completing pre-class activities or quizzes posted on iLearn. No credit for late work. These are usually posted 1-3 days before class, so check iLearn often.
 2. Participation in in-class activities including labs: These points are awarded for being present, on-time and fully engaged with the course material during class (Points are lost for excessive use of non-class technology, otherwise failing to participate fully or leaving class early).
 3. In-class quizzes and activities.

Final grades will be based on total scores figured according to the percentages above. Final letter grades will be curved with the average for the class being set around a low B-/high C+. Throughout the semester, averages on exams and homework will be announced to help you judge your progress in the course. D's will not be given. Students will be assigned letter grades A through C or F. Unless you choose otherwise, grading will be by letter grade. Students

wishing to take the class on a Credit/No Credit basis should complete the Schedule Adjustment Form and turn it in to the Campus Service Center by the add/drop deadline. Grading is subject to the CSUMB Grading Policy <http://catalog.csumb.edu/general-information/office-registrar/grading-policy>. Incompletes and Withdrawals are subject to the CSUMB Matriculation Policy at <http://policy.csumb.edu/matriculation>

I try my best to grade and comment on all student work in a timely manner. If you ever have questions about an assignment or your class grade, please ask. However, please keep in mind that grades are *earned*, not *given*. I will work with you to help you succeed in this class, but grades will be calculated using the scheme above. **Extra credit will not be offered in this course.**

Pair Programming

Labs in this class will be done in programming pairs. You will have several different partners throughout the semester. Partners will be assigned by the instructor. Guidelines for pair programming will be discussed in class. If you have questions or concerns about your pairing or your progress in the course, please come talk to me. For pair programming assignments, each pair will submit ONE copy of the assignment. In general, both partners in a pair will receive the same grade for a pair programming assignment. However, if one partner does not attend group work sessions or does not contribute, that partner may receive a zero rather than the pair grade. Pair programming is ***required*** in this course. Students will be evaluated on their pair programming throughout the semester. It is up to you to bring any pair programming concerns to the instructor as soon as they occur.

Schedule

A class calendar is posted on iLearn, but it may be changed as the semester progresses. Check iLearn regularly for updates on reading assignments, homework due dates, and topic coverage.

What to Expect

This class meets twice a week for a combined lecture/lab section. During our meetings we will do a combination of learning activities including: group problem solving, discussions, question & answer sessions and lab work. Before each class meeting, you will have some preparatory work to do at home. It is expected that all students come to class with this work done. Please speak up in class if you have a question, or need the material clarified. You should expect to work outside of regular class time ***8-12 hours per week***. Projects assigned in this class are complex and should be started early to allow yourself plenty of time to seek help if necessary.

Communication:

All class announcements will be via **official CSUMB email accounts**. Make sure you are checking your @csumb.edu email regularly to avoid missing important class announcements. All class documents and assignments will be posted on iLearn.

I am always happy to hear from students. Email is definitely the best way to contact me since I check my inbox often. Guidelines for emailing me are:

- If you are emailing me with a question about a course topic or homework assignment that is of general interest, please post it to the class questions forum on iLearn instead. This way, all of your classmates can benefit from the response. If you email me a question directly, I may paste it into the forum and post the answer there. **Never post answers to project or exam questions in the forum.**
- I will generally respond to email within 24-hours, however it might take slightly longer on weekends or over breaks. Emails received after 9pm, almost never get answered until the next day. Make sure you start your homework/studying early enough to get help if you need it.
- Make sure you send me email using my @csumb.edu account and not iLearn messaging.

Technology Policy

Laptops/lab computers will be used throughout this course for in-class lab assignments and project work. No non-class use of laptops/lab computers (including email, Facebook, and working on assignments for other courses) is allowed during class – **this includes use of lab computers during lab sessions**. Students using computers who are disruptive, use computers during lecture, or use computers for non-class purposes may be asked to turn off their monitors or to move to a different area of the classroom. Repeat violators will be asked to leave class and will receive a zero for that day's lab. Cell phones should also be turned off during class. If you receive a call that you must take, you should leave the room before answering (note this includes calls/texts received during in-class lab time as well as during lecture). **Absolutely no technology is allowed during exams or quizzes unless otherwise specified.** This includes cell phones!

Academic Integrity

Cheating of any kind will not be tolerated in this class. It is expected that you yourself have done the work you turn in. That is not to say you cannot get help from another student, your instructor or any other person such as a tutor. However, you need to be very clear about the difference between getting help and another person doing your work. ***On all assignments if you receive any help from anyone or use any outside sources, you must acknowledge that help/source in writing (on the assignment either as an attached document or in the comments of your code) and you must do this separately for each assignment on which you receive help.*** You should explain who you got help from, how much they helped, and how the work you turned in still represents your understanding of the material. If you used an outside source you must provide the title of that source (if a textbook) or url (if a website or online forum). **If you receive help or use a source and do not acknowledge it, you will not receive credit for this course.** I encourage you to discuss ideas and topics from the class with each other and to form study groups however, when you are doing project assignments I expect the work to be your own individual effort.

The CSUMB Academic Integrity Policy is available at: <http://policy.csumb.edu/site/x16011.xml>
You are responsible for reading and understanding the **Academic Integrity policy**.

Students who violate the academic integrity policy, or submit someone else's work as their own will be subject to the following sanctions:

- 1) The first violation will result in failing the assignment
- 2) The second violation will result in failing the class
- 3) **ALL** violations are reported to academic affairs

In CST 231, there will be times when collaborating with other students is encouraged, but it is important to make sure that the assignments you turn in accurately reflect your work. It is ok to **discuss** the solutions to projects in general terms, however it is never ok to:

- Copy and paste (or copy) code from another student or turn in another student's code as your own. The simple act of typing code does not make it your own.
- Copy and paste (or copy) code from the Internet
- Post an assignment on an Internet forum to ask for help
- Use an Internet forum for help without citing it as a source in your project
- Turn in or copy from an assignment from a past semester or another course
- Get help on a project/homework without attributing/citing the source
- Have another student or a tutor write part of your program for you or dictate lines of code that you type
- Discuss or collaborate on any part of a practical exam
- Use any unapproved resources on a practical exam (including the Internet)

All of the above are examples (but not an exhaustive list) of violations of the academic integrity policy and will be dealt with according to class policy. We will go over more specific examples in class. If you are ever unclear of about the academic integrity policy, ask me for clarification.

Disabilities and Learning Issues

Your instructor wants every student to succeed. Students with disabilities who require accommodations such as time extensions or test accommodations must present verification from Student Disability Resources as soon as possible. If you think a disability may impact your performance in this class, please see the instructor. You may want to meet with SDR professional staff at:

Student_Disability_Resources@csumb.edu

Health & Wellness Services Building (Building 80, Campus Health Center)

Phone: 831/582-3672 voice, or 582-4024 fax/TTY

<http://sdr.csumb.edu/>

All requests for exam accommodations must be submitted no later than **2 weeks prior** to the exam to allow time for alternate arrangements to be made.

Respect

The CSUMB Mission Statement reads in part:

"To build a multicultural learning community founded on academic excellence from which all partners in the educational process emerge prepared to contribute productively, responsibly, and ethically to California and the global community."

All students are required to show respect to their fellow students and the Instructor. Personal attacks, humiliating or degrading comments, verbal or written, are very serious matters, and will be treated as such.

Getting Help

Topics in this class build so that later concepts depend on a solid understanding of earlier material. Therefore it is very important to get help early if you feel like you are struggling. There are a variety of resources available to help.

ASAP

The ASAP tutoring service offers free tutoring to CSUMB students. The technology tutor is available to provide support for 231 students. ASAP is an excellent resource and I strongly encourage students to take full advantage of their services. Even if you are not currently struggling, ASAP can help you practice your programming skills and build good study habits.

Online: asap.csumb.edu/appointments

By Phone: 831-582-4104

By Email: asap@csumb.edu

Instructor Office Hours

Your instructor has regular office hours posted on iLearn and is also available by appointment when necessary.

ITCD Department Tutor

The ITCD department provides a tutor who can help with C++. The tutor is only available during posted office hours and won't answer email questions outside of office hours. Tutor office hours are available on the course iLearn site.

Course Questions Forum

There is a forum on iLearn for course questions. Students are encouraged to post questions here to be answered by the instructor or other students. Please do not post project code on the course questions forum.

Missing Class

Because you will be working with a pair programming partner it is important to try not to miss class. If you must miss a class, it is up to **YOU** to figure out what you missed. Try contacting your pair programming partner or other students in the class to get notes and any important announcements. Also check iLearn for the materials covered during class.