

CSCI 15B: Programming and Algorithms II

Prerequisites	CSCI 015A (Programming and Algorithms I)				
Description	This is a second semester object-oriented programming course in computer science that emphasizes problem solving. This course continues the study of software specification, design, implementation, and debugging techniques while introducing abstract data types, fundamental data structures and associated algorithms. Coverage includes dynamic memory, file I/O, linked lists, stacks, queues, trees, recursion, and an introduction to the complexity of algorithms. Students will be expected to design, implement, test, and analyze a number of programs within the Unix environment. 2.0 hours discussion, 2.0 hours activity. CAN CSCI 24.				
Lecture	MW	3:00 p.m. – 4:15 p.m.			O’Connell Technology Center, OCNL 254
Instructor	Dr. Benjoe A. Juliano (<i>a.k.a.</i> Dr. J) Juliano@ecst.csuChico.edu		http://www.ecst.csuchico.edu/~juliano/ http://www.ecst.csuchico.edu/~juliano/csci015b http://www.ecst.csuchico.edu/~juliano/C++		
Office Hours	10:00 a.m. – 11:00 a.m. MTWR (SEN priority Wednesdays)		OCNL-222, ☎ (530) 898-4619		
	<i>Other times strictly by appointment only; walk-ins welcome (see hours posted on office door).</i>				
Laboratory Sections	Section 04	T	12:00 a.m. – 12:50 a.m.	OCNL-244	Jeya Somaskanthan
	Section 05	T	1:00 p.m. – 1:50 p.m.	OCNL-244	Jeya Somaskanthan
	Section 06	W	2:00 p.m. – 2:50 p.m.	OCNL-244	Jeya Somaskanthan
Required Text	<i>Data Structures and Other Objects using C++, 2/e</i> M. Main and W. J. Savitch, 2001. Addison-Wesley Publishing, Inc., Reading, Massachusetts. ISBN 0-201-70297-5				
Recommended Text	<i>The C++ Programming Language, Special Edition</i> Bjarne Stroustrup, 2000. Addison-Wesley Publishing, Inc., Reading, Massachusetts. ISBN 0-201-70073-5				
	<i>Learning the UNIX Operating System, 4/e</i> Jerry Peek, Grace Todino, and John Strang, 1997. O’Reilly & Associates, Inc. ISBN 0-56592-390-1				
Objectives	<ul style="list-style-type: none"> (a) Learn and adopt a disciplined approach to algorithm design and program implementation by covering fundamental areas of structured problem solving, object-oriented programming, data abstraction, and the comparative analysis of algorithms. (b) Understand basic principles and techniques in the specification, design, implementation, and application of basic data types to real world problems. (c) Learn tools to develop correct, efficient, and well-structured programs, thereby building a strong foundation for further studies in the computing sciences. 				
Attendance/Exams	Attendance will not be checked. However, you are responsible for ALL subject matter and procedural information discussed in class (topics may be covered in the exams). If the instructor is notified <i>beforehand</i> as to why an exam cannot be taken as scheduled (and the reasons are approved and decided to be valid by the instructor), the student may take the exam at an earlier date/time.				

Absolutely no makeup test will be given for any missed exam. Excused absences will only be considered as defined in the University Catalog.

Grade Evaluation †

Theoretical Component (50%)		Practical Component (50%)	
At least six (6) Quizzes	25%	Programming Assignments	100%
Exam 0, September 13 (W), class time	0%	(All programs must be designed and implemented to run on a Unix server.)	
Midterm Exam 1, October 4 (W), class time	20%		
Midterm Exam 2, November 6 (M), class time	20%		
Final Exam, December 11 (M), 2:00-3:50 p.m.	35%		

† Students are required to earn a C (70%) or better on **both** components in order to pass the course; otherwise, the minimum of the two components will be used to calculate the final grade.

Assignments/Quizzes

Quizzes are normally given towards the end of a lecture period. You must be present during the whole lecture period in order to take a quiz. Absolutely no make-ups are given for any missed quizzes. Quizzes may only be taken in advance when the instructor decides that circumstances prohibit a student from taking it as scheduled. Only the top five quiz scores will be considered when computing the final grades for the course - the lowest scores will be dropped.

Your lab instructor will have more details on additional guidelines concerning Programming Assignments. For your reference, you may refer to Dr. J's Policies for Programming Assignments.

Final Grades

Final grades shall be expressed as a percentage of the maximum possible score of all evaluated materials. Assigned letter grades are based on the following scheme:

Real Interval	Letter Grade	University Definition
[96 , 100] [90 , 96)	A A-	Superior Work
[87 , 90) [83 , 87) [80 , 83)	B+ B B-	Very Good Work
[77 , 80) [73 , 77) [70 , 73)	C+ C C-	Adequate Work
[66 , 70) [60 , 66)	D+ D	Minimally Acceptable Work
[0 , 60)	F	Unacceptable Work

Academic Policies

The professor will strictly adhere to the University's policies for *Dropping Courses and Changing Grade Options* (please refer to the *University Catalog* for details regarding *Academic Policies and Regulations* at Chico State). "During the third and fourth week of classes, petitions to drop and change grading option will require the approval signature of the instructor." Furthermore, "[a]fter the fourth week of classes, petitions to drop [the class] and change grading option require a serious and compelling reason" supported by verifiable documentation. Intentions to drop the course after the fourth week of classes should also be supported by verifiable documentation and a formal letter to the professor, detailing and explaining the grounds for dropping the class. All such paperwork must be given to the professor before the last week of classes; otherwise, the petition will not be given any consideration at all.

According to University policies for *Dropping Courses and Changing Grade Options*, "[t]he following situations are typical of those for which serious and compelling is appropriate justification for approving withdrawals and changes of grade option after the fourth week of classes:

1. An extended absence due to a verifiable accident, illness, or personal problem serious enough to cause withdrawal from the University; for example, a one- to two-week absence with a doctors written excuse.
2. An extended absence due to a death in the immediate family. This applies to absences exceeding a week due to family affairs that must be attended to by the student.

3. A necessary change in employment status which interferes with the students ability to attend class. This change in employment status must be verified in writing by the students employer.
4. Other unusual or very special cases, considered on their own merit.”

“The following situations would **not** fall under the intent of serious and compelling:

1. Grade anticipated in class is not sufficiently high, or student is doing failing work.
2. Failure to attend class, complete assignments, or take a test.
3. Dissatisfaction with course material, instructional method, or instructor.
4. Class is harder than expected.
5. Pressure of other classes, participation in social activities, or simple lack of motivation.
6. A change of major.”

The professor will assign a grade of I (Incomplete) only on rare cases and the student must have a passing grade on the day the Incomplete was requested. The professor will strictly adhere to the University’s policies for assigning a grade of I. According to the *University Catalog*, “[a]n I signifies that a portion of required coursework has not been completed and evaluated within the prescribed time. Incompletes (I) will be assigned only in cases where instructors conclude that a clearly identifiable pattern of course requirements cannot be met for unforeseen reasons. *An Incomplete must be made up within one calendar year from the end of the term which it was assigned whether or not you maintain continuous enrollment.* Failure to complete the assigned work will result in a grade change from I to F or NC, depending on the grading method for the course. It is your responsibility to bring pertinent information [supported by verifiable documentation] to the instructor to reach agreement on the means by which you will satisfy remaining course requirements. The conditions for removal of the Incomplete shall be put in writing by the instructor and given to you with a copy placed on file in the department office. A final grade is assigned when the work agreed upon has been completed and evaluated.” Note that in taking an I for the class, the student is aware that they will be continuing from where they left off – the student takes their current standing/grade with them. Students are also held responsible for understanding that CSU-Chico has a policy for *Undergraduate Repeat with Forgiveness*.

Any questions regarding the above policies should be discussed with the professor before the end of the second week of classes.

Academic Integrity

“Academic honesty is an issue of serious concern here at CSU, Chico. Faculty expect students to maintain a high standard of academic integrity. When faculty suspect students of cheating, they may bring formal charges, and a pretty unpleasant process is set in motion. If charges are proved, the consequences are severe, ranging from failure in an individual course to expulsion from the University and denial of a degree. The Coordinator for Student Judicial Affairs deals directly with cases of academic dishonesty.” – from the *University Catalog*.

Student-teacher relationships are built on trust. For example, students must trust that teachers have made appropriate decisions about the structure, content, and evaluation procedures of courses they teach. Teachers must trust that the assignments which students turn in are their own. Acts which violate this trust undermine the educational process.

Students should familiarize themselves with University definitions of various forms of *Academic Dishonesty* and procedures for responding to them. Refer to the information below regarding various forms of violations of the trust between students and teachers. Note that the penalties for plagiarism and other forms of cheating can be quite harsh.

Academic Rigor at CSU, Chico
Ethical Standards and Disciplinary Procedures

http://www.csuchico.edu/adv/Adv_Info/AcRigor.html
<http://www.csuchico.edu/catalog/student/ethd.html>

On-line information on Campus Policies:

- Academic Honesty <http://www.csuchico.edu/sjd/honesty.html>
- Code of Students’ Rights & Responsibilities <http://www.csuchico.edu/sjd/9206-toc.html>
- Computing Resources Policy <http://www.csuchico.edu/sjd/compolicy.html>
- Guidelines for Speech and Advocacy <http://www.csuchico.edu/sjd/8612-toc.html>
- Sexual Assault Policy <http://www.csuchico.edu/sjd/harass.html>

- Student Disciplinary Procedures <http://www.csuchico.edu/sjd/628-toc.html>

Dr. J's policy on academic integrity is simple: *Credit will not be received in any case of Academic Dishonesty and may result in failure of the course along with any appropriate disciplinary action.*

For more information, contact CSU-Chico's Student Judicial Affairs at:

Office of Student Judicial Affairs
California State University, Chico
Kendall Hall 110
Chico, CA 95929-0125

Phone: 530 898-6897
URL: <http://www.csuchico.edu/sjd/>

Disabled Students

Students with disabilities are responsible for submitting all appropriate documentation and forms from the *Disability Support Services* (DSS) Office within the first week of classes. If necessary, please schedule an appointment to discuss your disability options and DSS accommodations.

Disability Support Services
Educational Support Programs
Building E
California State University, Chico
Chico, CA 95929-0726

Phone: 530 898-5959
Fax: 530 898-4411
URL: <http://www.csuchico.edu/dss/>

Grade Disputes

Students have the whole semester to inquire their class standing and to contest any perceived grade discrepancies. See your lab instructor for matters concerning your programming assignments and your lecture instructor for all other matters. You are expected to adhere to the following procedure when resolving disagreements with any given score, grading, or calculated class standing:

1. Submit, in writing, a detailed description of the disagreement in question. This must be submitted within a week after the item in question was announced, posted, or distributed. The document must have the student's signature and the date when the student signed it. There should also be an area where the professor can sign and date the document as to when it was received.
2. The professor will sign and date the said document once it is received. At that time, the professor and student may discuss the discrepancy or an appointment may be made so that both professor and student can review the disagreement.
3. Any settlement will be noted in the document submitted by the student. A photocopy of this document will be returned to the student immediately after an agreement has been made.

Other Matters

Dr. Juliano does not hold regular office hours during finals week. However, appointments may be made if necessary (availability based on that week's schedule). Walk-ins are welcome only if his office door is open.

Under no circumstances should students inquire (in person, through the phone, etc.) about their final grades during finals week and the week after. Dr. Juliano will post final grades (for students requesting such) as soon as they are available. If a student wishes to contest any perceived grade discrepancies this late in the semester, the above procedure must be followed; however, all such matters must be settled before final grades are submitted to the Registrar's Office.

Tentative Schedule	<u>Week</u>	<u>Week of</u>	<u>Chapter</u>	<u>Topic</u>
	1	Aug 21	1,2	Introduction: program specification, design, and analysis; abstract data types (ADTs) and C++ classes
	2	Aug 28	3	Container classes <ul style="list-style-type: none"> • <i>September 1 (Friday), last day to add or drop classes without special permission of instructor and department chair.</i>
	3	Sep 4	4	Pointers and dynamic memory, dynamic arrays, dynamic classes <i>September 4 (Monday), Labor Day, no classes.</i>
	4	Sep 11	5	Linked lists, building a toolkit, variations to the linked list ADT <p>EXAM 0: <i>September 13 (Wednesday), class time.</i> This optional exam is designed as a "prerequisite check" to facilitate the student's decision to stick with the course or not.</p> <ul style="list-style-type: none"> • <i>September 15 (Friday), Census Date, no adding, dropping of classes, or changing of grade option beyond this date without a serious and compelling reason approved by the instructor, department chair, and college dean.</i>
	5	Sep 18	5	More linked lists and review
	6	Sep 25	6	Template functions and template classes; iterators
	7	Oct 2	6,7	Standard library; stacks <p>EXAM 1: <i>October 4 (Wednesday), class time</i></p>
	8	Oct 9	8	Queues; priority queue ADT
	9	Oct 16	9	Recursion and recursive thinking
	10	Oct 23	9	Catch-up and review
	11	Oct 30	10	Trees: representation, traversals; binary search trees <ul style="list-style-type: none"> • <i>ISCA's IRI-2000 Conference, Honolulu, HI, November 1-3</i>
	12	Nov 6	11	Heaps and B-trees <p>EXAM 2: <i>November 6 (Monday), class time</i></p>
	13	Nov 13	12	Searching: sequential search, binary search, and hashing
		Nov 20		T H A N K S G I V I N G B R E A K <i>(November 20-24, no classes)</i>
	14	Nov 27	13	Sorting: quadratic sorting algorithms, Mergesort, Quicksort, Heapsort
	15	Dec 4	14	Derived classes: inheritance; wrap-up and review
	16	Dec 11		FINAL EXAM: <i>December 11 (Monday), 2:00 p.m. - 3:50 p.m.</i>

NOTE: The above schedule is subject to change. It is your responsibility to make sure you know what is to be covered in the following weeks and if any changes were made on the schedule.