

**University of Denver**  
**COMP 2355-1**  
**System Programming**  
**Winter 2014**

**Professor:** Dr. Nathan Sturtevant  
Aspen Hall 78a (Suite 200)  
[sturtevant@cs.du.edu](mailto:sturtevant@cs.du.edu)  
OH: TBA

**Teaching Assistant** Will Mitchell ([mitchell@cs.du.edu](mailto:mitchell@cs.du.edu))  
Aspen Hall North, 3rd floor  
OH: MTWT 4:00-5:00pm

**Course Web Page:** <http://www.cs.du.edu/~sturtevant/w14-sys.html>

**Lecture Room & Time:** Sturm Hall 287  
TuTh 2:00-3:50pm

**Course Description:** An introduction to C/C++ programming emphasizing advanced features in C++ including templates, operator overloading, polymorphism and design patterns. Students will use a modern IDE and cover topics such as classes, objects, templates, types, pointers, constants, operators, scoping, static typing, memory allocation, I/O and the Standard C Library, operator overloading, polymorphism, exceptions, templates, generic programming and the Standard C++ Library, including containers and algorithms. Students are expected to have a solid foundation in imperative and object-oriented programming as imparted from COMP 2673, including an understanding of linked-lists, trees, sorting, and arrays.

**Course Prerequisites:** COMP 2673 or equivalent.

**Required Textbook:**

C++ Primer (5th Edition), by Stanley B. Lippman, Josée Lajoie, and Barbara E. Moo.  
Addison-Wesley Professional, 2012.

**COURSE FORMAT:**

Reading in the textbook and/or on the web will be assigned for each class meeting. Typically the first half of each class will consist of discussion of the assigned readings, and the second half of the the class will be a lab. Lab assignments can be found on the course page.

Students are expected to bring their laptop computers to each class in order to do the lab programming assignments.

**ATTENDANCE:**

Attendance at class is very important in this course. Class discussions will often cover material not in the book. Part of each class will consist of a lab, which will count towards your grade in the class. Should you need to miss a class, please check with a classmate for notes and also check the class web site for any announcements or assignments. If you cannot attend an exam for any reason, or are unable to complete an assignment, contact me as soon as possible in advance.

**EXAMS:**

There will be two exams during the course:

- Midterm Exam: Thursday, Feb. 6, 2:00-3:50pm
- Final Exam: Thursday, Mar. 13, 2:00-3:50pm

Exams will be given in the normal classroom, Sturm 287. The final exam will cover the entire course, with emphasis on the material covered after the midterm exam. No electronic devices (phones, calculators, tablets, computers, etc.) may be used during the exams. They must be turned off or muted.

**GRADE EVALUATION:**

<b><u>COURSEWORK</u></b>	<b><u>WEIGHTING</u></b>
<b>Labs (1.5% each - must do 15)</b>	<b>22.5%</b>
<b>Midterm</b>	<b>20.0%</b>
<b>Homework (4 x 8% each)</b>	<b>32.0%</b>
<b>Final</b>	<b>25.0%</b>
<b>Course Participation</b>	<b>0.5%</b>

Final grades will be determined on a (relative) curve.

**LATE WORK:**

**EXAMS:** If you are unable to take an exam at the scheduled time, you must notify me as soon as possible. Rescheduling of exams and assignments will be possible only in exceptional circumstances.

**LABS:** Lab assignments are due by noon of the day following the class session. No late lab assignments will be accepted.

**HOMEWORK:** For homework programming projects, the due date and time will be noted in the assignment description. Late submissions no later than 48 hours after the deadline will be accepted with a 20% penalty. Exceptions may be made to this policy on a case-by-case basis. Please notify me as soon as possible, preferably in advance, if you believe you have a valid reason for an exception to this policy.

Assignments which are turned in on time will be graded as soon as possible. Late assignments will have a lower priority in grading than on-time assignments, and may take somewhat longer to grade.

**HONOR CODE:**

Exams must be entirely your own work.

For in-class labs, you must write your own program code, but you may consult with other students (and the instructor and GTA). You may not copy code verbatim, and if you receive help from another student you must include a comment in your code giving credit to the student who helped you (this will not negatively impact your grade or that of the person who helped you). You may use web sites or other outside sources, but you may not copy code verbatim, and you must include a reference to the source.

For homework programming assignments, you may consult with the instructor or the GTA. You may work individually or together with one other student from the same section of the course. You may consult with other students, but should credit them. For homework programming assignments, you may not copy code from other students you are not officially working together with, or other outside sources. Any other work drawn from outside sources, whether quoted directly or paraphrased, must contain citations to the original work.

Violations of conduct policies have important consequences. Please familiarize yourself with the University Honor Code at [www.du.edu/honorcode](http://www.du.edu/honorcode). When in doubt about any academic conduct policy, please consult your instructor or academic advisor for guidance.

## **DISABILITY SERVICES PROGRAM**

If you qualify for academic accommodations because of a disability or medical issue please submit a Faculty Letter to me from Disability Services Program (DSP) in a timely manner so that your needs may be addressed. Disability services determines accommodations based on documented disabilities/medical issues. DSP is located on the 4th floor of Ruffatto Hall, 1999 E. Evans Ave.; 303.871. 2372/ 2278 / 7432. Information is also available online at [www.du.edu/disability/dsp](http://www.du.edu/disability/dsp); see the Handbook for Students with Disabilities. Please consult with DSP well in advance of any exams or assignments for which you need accommodation.

## **RELIGIOUS ACCOMMODATION POLICY**

Accommodations will be provided to students for religious obligations and observances according to University policy. You are expected to notify the instructor by the end of the first week of class of any absences or other conflicts with the course schedule. For the full policy, please see [http://www.du.edu/studentlife/religiouslife/DU\\_religious\\_accommodations\\_policy.html](http://www.du.edu/studentlife/religiouslife/DU_religious_accommodations_policy.html).

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## Other Course Information

### Topics:

The course will roughly cover the material in the textbook, but will cover some material not in the textbook (threads).

### Useful links:

C++ FAQ

<http://www.parashift.com/c++-faq-lite/>

Many topics in this course are also covered here

STL - Standard Template Library

<http://www.cplusplus.com/reference/>

[http://www.sgi.com/tech/stl/table\\_of\\_contents.html](http://www.sgi.com/tech/stl/table_of_contents.html)

SVN - Source control

<http://tortoisesvn.net/>

<http://svnbook.red-bean.com/>

Programming help

<http://stackoverflow.com/>

<b>Lecture</b>	<b>Date</b>	<b>Topic</b>
1	January 8	Course overview, introduction (Ch 2)
	January 10	Types+typedef+classes/struct (Ch 3-4)
2	January 15	Memory allocation (Ch 4)
	January 17	Objects & classes (Ch 10)
3	January 22	Arrays & strings (Ch 4)
	January 24	Loops, branching (Ch 5-6)
4	January 29	Logical & bitwise operators (Ch 6, Appendix E)
	January 31	Functions - arguments (Ch 7-8)
		HW #1 (build a class for a single-agent problem)
5	February 5	
	February 7	Midterm
6	February 12	Disk (Ch ??)
	February 14	
		HW #2 (TBBFS + mem)
7	February 19	
	February 21	Threads (--)
8	February 26	
	February 28	
		HW #3 (TBBFS + disk)
9	March 5	Templates (Ch 8)
	March 7	
10	March 12	Review
		HW #4 (TBBFS + threads)
Final	March 14	