SYLLABUS
CS 162: Introduction to Computer Science
Winter 2015

Prerequisite:	**Prior programming experience using a high level language** *This means you should have experience writing complete programs in a high level programming language.*
Instructor:	**Karla Steinbrugge Fant**
E-mail:	**karlaf@ pdx.edu**
Office:	**FAB 120-19**
Office hours:	**Tuesday and Thursday 2-2:50 in FAB 120-19**
Texts:	D.S. Malik, C++ Programming: From Problem Analysis To Program Design, Course Technology. Russell Shackelford, An Introduction to Computing & Algorithms, Addison-Wesley.
Lab Materials:	**Required.** Purchase from the PSU Book Store
Lecture Notes:	Lecture notes and course power point slides are on D2L with a backup available on the class web site: http://www.cs.pdx.edu/~karlaf
Handouts:	All handouts, due dates, and assignments can be retrieved from D2L
Emails:	Weekly emails are sent to your pdx.edu gmail account
Disabilities:	If you have a disability and are in need of academic accommodations, please notify the instructor immediately to arrange needed support. This includes any accommodations required for taking examinations.
Hardware:	CS linux (linux.cs.pdx.edu).
Compiler:	C++ language implemented by the **g++** compiler. ***All work this term will be done on CS linux!*** ***Allowed editors: vi, vim, emacs, pico, or nano*** ***Do not use Dev Cpp, Visual Studio or xcode; No IDEs are allowed***

Course Description and Goals:

Introduction to programming using a high level programming language. Conditionals, I/O, Files, Functions, Classes, Pointers, Dynamic Memory, Linear Linked lists, Recursion and Multi-Dimensional Arrays. Program correctness, verification, and testing.

The goals of this class are to teach the syntax of a high level programming language to students who already know how to program. This course will introduce the syntax of C++ including: data types, variables, conditionals, loops, functions, and arrays. It will introduce classes, pointers, dynamic memory, linear linked lists, recursion, and multi-dimensional arrays to prepare students for CS163, Data Structures. Concepts will include data abstraction, separate compilation and the use of library procedures.

Prior Knowledge expected:

CS162 is designed for students who have already programmed in a high level language previously. However, you do *not* need to know C++ prior to taking this class.

1. You should already understand concepts such as: variables, loops, arrays and functions.

2. You should be able to design and implement a complete program from a specification and decide how to use functions.

3. You should be able to answer the following questions with ease:
   (a) Write a conditional expression (if) to determine if an age is between 13 and 21
   (b) Using a loop, sum all of the whole numbers stored in an array (assume there are "length" numbers stored in the array)
   (c) Create a function that finds the largest number in an array. Use arguments and returned values in your solution.
   (d) Create a function that will compare two names and display them in order
   (e) Create a complete program from scratch

Class Expectations:

1. **Attendance is required to pass the class.** *Students are expected to arrive within the first 10 minutes to count as attending. It is expected that students will stay for the entire class period, until excused. This applies to class lectures and lab sessions.*
2. **If you miss more than one lab, it needs to be made up within a 1-2 week period.** Arrange with the instructor to attend one of the alternate lab sessions.
3. Pre-lab exercises must be brought to the labs already completed. They are required for your attendance. They are Pass/No-Pass.
4. If lab work is completed prior to the end of the lab period, practice questions may be assigned by the lab assistants. Be prepared to stay the entire lab period.
5. **Homework and Programs are due on Wednesdays uploaded to D2L by 6pm.**
6. **LATE assignments will be accepted the following week no later than Wednesday at 6pm, for 5% off** (the last assignment cannot be turned in late)**.** Assignments may **not** be turned in later than the late due date**.** ***There are no exceptions. Turn in what you have after one week late.***
7. Every assignment must be completed to get a grade on an assignment. All answers and code must be your own work and may not be copied from the web or other students. Be careful to not plagiarize. Doing so will result in a zero on an assignment and a failure in the class.

Computing Environments:

The **CS linux** systems using the g++ compiler **must** be used for all assignments. *Login remotely using ssh, putty, or terminal programs to www.cs.pdx.edu. Dev Cpp, or Visual C++ are not acceptable.* Do not use the excuse *but it runs at home on my PC.* This is even the case if your PC has linux installed.

- Each student needs a CS account (which can be received from FAB 88 or contacting the tutors (tutors@cs.pdx.edu)
- Lab work is done using **quizor1.cs.pdx.edu.**
  - Login with your CS account login name and password.
  - The lab system is only available for the term in which you take the class and all materials will be deleted at the end of the term.
- Individual homework assignments are to be done using **linux.cs.pdx.edu**, or as directed by the tutors.

Lab Sessions:

- Every student in CS162 is enrolled in both a lecture and a lab session.
- **Bring your lab workbook** (from the PSU Book Store) to each lab session
- Some lab sessions will be held in classrooms without computers. Therefore, it is important to either bring a laptop, netbook, or tablet to the lab session or notify your instructor 24 hours in advance that a school computer is needed.
- Make sure to fully charge your computer –electrical outlets may not be available
- No food or drink while labs are in session
- No use of the internet for web surfing, social media, or email during lab time. With the exception of D2L, karlaf's website, and the use of putty, ssh, or terminal to work remotely with the CS systems. *Any violation will result in an immediate No Pass for that particular lab session.*
- **Attendance to the labs is required to pass CS162.**
- **If you miss more than one lab, it needs to be made up within a 1-2 week period.** Arrange with the instructor to attend one of the alternate lab sessions.
- Students are expected to arrive within the first 10 minutes to count as attending and stay for the entire lab period until excused. Practice questions are in the lab manuals for those that finish early. If those are completed, then students are to work on the self check exercises in the book (so bring your materials!)
- Pre-lab exercises must be brought to the labs already completed. They are required for your attendance. They are Pass/No-Pass.

Proficiency Demonstrations:

- Every student in CS162 must show proficiency in programming in C++ (for the syntax covered in this course) using linux with either vi, vim, emacs, pico, or nano in order to Pass.
- Demonstrating syntax proficiency is Pass/No Pass.
- Demonstrations will occur twice a term – once by midterm time and once by final exam time.
- If a student receives a non-passing score on the midterm proficiency demo, students may re-demo within a week. A passing score is required to pass CS162. There are no re-tests available for the final proficiency demo.

Individual Homework Assignments:

- 5 individual written homework assignments and 5 individual programming assignments
- Comprises 35% of your grade
- Every assignment must be completed to get a grade on an assignment. All answers and code must be your own work and may not be copied from the web or other students. Be careful to not plagiarize. Doing so will result in a zero on an assignment and a failure in the class.
- All programs must be created individually and written in C++ on CS linux using a linux editor.
- Every program must have a minimum 600 word algorithm written for the programming part, which is to be placed in your header comments of the .cpp file. This is 20% of a progam's grade
- 20% of a program's grade is based on the program style, comments, and documentation provided with the program. Make sure to follow the STYLE SHEET!

- **Homework and Programs are due on Wednesdays uploaded to D2L by 6pm.**

- **LATE assignments will be accepted the following week no later than Wednesday at 6pm, for 5% off** (the last assignment cannot be turned in late)**.** Assignments may **not** be turned in later than the late due date**.** ***There are no exceptions. Turn in what you have after one week late.***

- **Partial credit will be given for incomplete work.** This means that it is better to turn in something, even if it doesn't work. If you find you are continually having problems meeting the due dates, make an appointment. However, to pass the class the course you must have an average passing score on your programming assignments. ***However a score of 40% is required to pass and an overall average of all assignments must be 65% or greater to pass.***

- **Submit assignments** electronically **to the D2L Dropbox (make sure to select the "submit" button after uploading the files, otherwise your submission will be lost).** It is important to submit your assignment to the correct D2L Dropbox, otherwise it cannot be graded. **For backup, please also email your assignment's files as attachments to karlaf@pdx.edu.** You may need to use a file transfer program – you can talk with the tutors (tutors@cs.pdx.edu) to get more information.

- Each student is expected **to submit only original work**. Software and passwords must be kept **confidential**. Any person who violates these will receive a **grade of zero on an assignment which will result in an F** for the course and a letter will be sent to the head of the CS Department. Identical programs will be treated as copying even with cosmetic changes. Material copied from the web will not be graded.

Exams:

- Midterms are 25% of your grade and Final Exams 40% of your grade
- **In emergency situations, makeup exams can be proctored through the testing services center and cost students a fee ($10).** To make arrangements with the testing center you must first get authorization from your teacher, then set up an appointment with the testing center, which then is followed by communicating the date/time of the exam to your teacher so that they can get the testing center an exam. *Do not assume that the testing center will be available.*

Administrative and Grading Policies

Demonstrate Proficiency in C++ - Midterm Demo - Final Demo	Pass/No Pass	At PSU or by Proctor (must pass both demos)
Lab Participation - Prelabs - Lab Code Submitted	Pass/No Pass	Pre-labs and Lab code (Attendance to all but 1 lab required)
Individual Assignments - Written Homework - Programming Projects	35%	Submit to D2L Dropbox (All assignments must be submitted and must have scores of 40% or above; the average score must be 65% to pass)
Midterm Exam	25%	At PSU or by Proctor (Must receive 65% to pass CS162)
Comprehensive Final Exam	40%	At PSU or by Proctor ***** Must receive a Passing score of 65% to pass the class *****

- For C or better in this class, you must receiving a PASS on all of the Pass/No pass components of this class (see the chart above)

- Failure to turn assignments on-time or within the allowed late period will result in a zero for that assignment. Assignments will not be accepted after 1 week late. ***There are no exceptions.*** Assignments will not be accepted after the last day of class

- **GRADING** will be done near 90% (A), 80% (B), 65% (C). However, exact break points for grades will depend upon the overall class results. For P/NP grade option, a "pass" grade requires an overall class grade of at least a C.

- **No Basis for a Grade** – A no basis for a grade in this class only applies when a student has not turned in any work, not taken any exams, and have not participated on D2L. If you have complications and cannot finish the class, make sure to drop or withdraw. *Otherwise you will get a grade in the class.*

- **INCOMPLETES** will be given only when a minimal amount of work remains to be completed, only for a valid reason and only for a fixed time period. Do not expect an incomplete in this class.

CHEATING: Each student is expected to submit only original work. **Any person who violates these requirements will receive a grade of zero for an assignment which based on the above grade requirements will result in an F for the course.** A letter will be sent to the head of the CS Department.

Students will receive a zero on an assignment if any of these activities take place: *(This list does not apply to collaborative work performed as part of the lab work)*

1. Student accepts an assignment and/or program from another student
2. Student supplies an assignment and/or program to another student
3. Student posts the assignment and/or program on the web, social networking site, or D2L discussions
4. Student shares their password with another student at PSU giving that student access to their assignments and/or programs
5. Students work together on assignments and turn in the same and/or similar assignments.
6. Student turns in work that was obtained from other sources such as the web, friends, tutors or TA's.
7. Student leaves work available for others to copy from
8. Student attempts to purchase programs (in person or electronically).

The work you submit must be your own. It is not acceptable to hand in assignments in which substantial amounts of the material was done by someone else. You must be especially careful that in the process of discussing problems with other students that they do not inadvertently end up using your work. In such an event, all students involved will receive a zero on that assignment.

Try to Exceed my Expectations!