CS172
COMPUTER SCIENCE II SYLLABUS
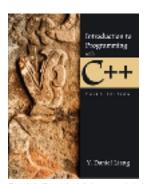## SPRING 2016
JOHNSTON 308

Instructor: Joe Dumoulin
    Office: Johnston 320   **Office Hours**: T 11:00-12:00 TH 11:00-2:00 or by appointment
    Email: jdumoulin@whitworth.edu

Course Description: This class focuses on fundamental computer science techniques for developing solutions to a wide range of problems facing the world today. A great diversity of disciplines in the world today can benefit from the solutions that computer scientists can offer. Develop an intermediate level of critical thinking skills that allow one to research, analyze, design, and develop computer automated solutions to almost any of this wide array of relevant and interesting problems.

Text:

Introduction to Programming with C++
By Y. Daniel Liang, 2013
Third Edition, Prentice Hall Publishers, Inc.

Course Goals:
    CG 1: Explore connections between computer science and your worldview
    CG 2: Increase foundational computer science concepts including: object-oriented programming, pointers, dynamic memory, templates, file I/O, characters, strings and recursion
    CG 3: Increase C++ programming proficiency and the ability to apply foundational concepts
    CG 4: Apply structured software engineering approaches to analysis, design, development, testing and documentation of computer programs
    CG 5: Increase the ability to develop effective, efficient algorithms to solve programming problems
    CG 6: Increase ability to utilize pseudocode, object oriented diagrams and project specifications
    CG 7: Increase confidence and ability in problem solving

Department Goals Supported by this Course:	**DG 1: Demonstrate an appropriate theoretical foundation in computer science.** **DG 2: Develop the proficiency for software engineering.** **DG 3: Cultivate problem solving and critical thinking skills.** **DG 4: Learn interpersonal skills and develop the ability to effectively function in teams.** **DG 5: Demonstrate proficiency in communication skills - written, verbal, and presentation.**
Requirements:	Students complete several programming assignments designed to reinforce concepts learned through reading and lecture. The course includes periodic quizzes, two examinations, homework assignments and a final group project with project presentation. Attend class meetings regularly and consistently. You can expect to spend an average of 2 hours outside of class for each meeting. Consult Blackboard for assignments and course information.
Grading Assessment Criteria:	**To receive an A for the course**, you must perform extraordinarily well. An "A" student completes all the required assignments on time, excels in the exams, presents an outstanding final project, and takes the initiative to extend his/her understanding of the subject matter.

Requirement	% of Total Average
Homework	60%
Exams (2)	20%
Final Project	20%

Total % Earned	Grade
93% - 100%	A
90% - 92%	A-
80% - 89%	B- to B+
70% - 79%	C- to C+
60% - 69%	D- to D+
0% - 59%	F

Policies:

Due dates are firm
- Due dates are firm. If there are extenuating circumstances, you should make prior arrangements with your instructor. For other serious, extenuating situations you must provide an excuse from the academic dean's office.
- All late assignments will receive a grade of 0.
- It is your responsibility to get assignments finished ahead of time so last minute circumstances don't prevent you from turning in your assignment.
- There are **no make-ups for missed exams**.
- Re-scheduled exams with **documented excused absence only**.

Attendance
- Students with either 3 consecutive unexcused absences or 6 total unexcused absences will automatically receive a grade of WW at the end of the semester (that computes as an "F" in GPA).
- Excessive unexcused absences will be factored into the attendance percentage of grades and will reflect significantly on your ability to perform on assignments and exams.

Backup Copies and Turning in Code
- Place your code for your programs in a GitHub folder, shared with me.
- Keep backup copies (somewhere else besides CS1) of all your assignments and projects submitted.

Academic Dishonesty: Please note that I take extremely seriously the university's policy on the need for academic honesty in all your work. **I refer you to the Whitworth Catalog, and the current Student Handbook, where guidelines on plagiarism and other forms of academic dishonesty are spelled out. Any form of dishonesty in an assignment will lead to a zero on the assignment, and I reserve the right to give a grade of F for the course as well.**

Examples of <u>academic honesty</u> for this class:
- Turning in one's own work.
- Obtaining help from either the instructor or course grader.
- Discussing assignments with fellow student(s).
- Submitting one copy for multiple students for projects where the instructor specifically permits or requires students to work together.
- Getting or giving help with syntax errors, runtime errors or on how to run the computers.
- Citing a source from which you fashioned a code excerpt (e.g. MSDN, online sites, etc.)

Examples of <u>academic dishonesty</u> (cheating) for this class:
- Turning in other's programs or homework as your own.
- Copying other's programs, tests, homework answers, etc.
- Submitting one copy for multiple students on individual assignments.
- Copying someone else's work and then modifying it to look like your own work.
- Including code excerpts verbatim and unreferenced from an online site.

Special Needs: Whitworth University is committed to providing its students access to education. If you
have a documented special need that impacts your ability to learn and perform to your potential in the classroom, you will need to contact the Educational Support Office in Student Life to identify accommodations that are appropriate.

Contact Information
Craig Chatriand, Associate Dean of Community Standards and Compliance Phone: 509.777.4655
Email: cchatriand@whitworth.edu

MSDN Academic Alliance: Whitworth University joined the Microsoft Developer Network Academic Alliance (MSDNAA). Through this alliance students are able to download many of the Microsoft software products developers use at no charge, including Visual Studio .NET. Contact me if you have not received an email from the MSDNAA, and wish to download this software.

Electronic Devices & Music During Class Policy
- During **hands on lab time**, you may use headphones to listen to MP3 players, CD players, radios, and similar devices. You must not use these devices (or cell phones) during lecture time.
- **Please do not surf the web, check email, send text messages etc. using the lab computers, your laptop, or phone, during class.**
- You may use your laptop to take notes during class.
- Please respect the need of your fellow students to concentrate and do not play music on the lab computer's speakers unless you have received the instructors permission to use music for a presentation.

Solving Difficult Problems: During the course of the semester you will encounter difficult and challenging problems. You may not be able to solve all problems by yourself. Use the following guide to help you approach these types of problems:

1. Read the problem statement carefully (2 – 3 times).
2. Refer to the class handout for problems that may be similar to the problem you were given. Read the handout carefully and the assigned reading carefully.
3. Refer to any additional materials that your instructor provides.
4. Attempt to solve the problem by yourself.
5. If you still have problems, discuss the problem with your fellow students. We encourage you to form "study discussion groups" to discuss possible solutions (at a high level) to the programming problems, but we discourage "group programming" or sharing code except on specific group projects when specified.
6. If you still have difficulties seek out a TA or your instructor.

Title IX:

Whitworth University faculty members are committed to the well-being of each student. It is common for students to discuss non-course related issues with faculty and, when possible, faculty will keep such conversations strictly confidential. However, because federal law views faculty members as mandated reporters of any incidents of sexual misconduct, if a student informs a faculty member of an issue of sexual harassment, sexual assault, or discrimination, the faculty member is required by federal law to bring it to the attention of the Title IX Coordinator, Rhosetta Rhodes. The Title IX Coordinator will make the student aware of all options and resources available to them under Whitworth University policies and under the law.

There are Whitworth University employees whom federal law does not view as mandatory reporters, to whom a student could speak without the conversation being reported to the Title IX Coordinator. These include Pam Oswalt (counselor and Whitworth first responder), other counselors in Counseling Services, and any of the university chaplains on the staff of Campus Ministries.

Contact Information
Rhosetta Rhodes, Title IX Coordinator, Vice President for Student Life and Dean of Students
Phone: 509.777.4238
Email: titleixcoordinator@whitworth.edu
Pam Oswalt: 509.777.4778; poswalt@whitworth.edu; Schumacher 105 Counseling Center: 509-777-4450; Schumacher Hall.
Campus Ministries: 509-777-4345; Seeley G. Mudd Chapel

Non-Discrimination:

Whitworth University is committed to delivering a mission-driven educational program
that cultivates in students the capacity to engage effectively across myriad dimensions of diversity. Whitworth University is committed to the fair and equal treatment of all students in its educational programs and activities. The University does not discriminate against students based on race, color, national origin, sex, gender identity, sexual orientation, religion, age, or disability and complies with all applicable federal or state non-discrimination laws in its instructional programs.

Fair and equal Treatment:

Whitworth University professors strive to treat all students fairly and equally, applying the same rigorous standards and expectations to each of our students and working to invite students from all backgrounds into the challenges and rewards of our academic disciplines. Students who have concerns about classroom fairness should contact Dr. Randy Michaelis, McEachran Hall 218, 509.777.4402, rmichaelis@whitworth.edu.

- Chapters 9 and 10 – Objects and Class design

** Exam 1 **

- Chapter 11 – Pointers/memory management
- Chapter 12 – Templates and vectors
- Chapter 13 – File Input and Output
- Chapter 14 – Operator Overloading

** Exam 2 **

- Chapter 15 – Inheritance and Polymorphism
- Chapter 17 - Recursion

CS172 TENTATIVE SCHEDULE
SPRING 2017

DATE	TOPIC	READING	ASSIGNMENT DUE
Feb 2	Introduction		
Feb 7	Computation and the World CS-171 review Lab Day		
Feb 9	GitHub		
Feb 14	Designing with Software Objects - Part 1	Ch. 9	HW 1: CS-171 Review
Feb 16	Designing with Software Objects - Part 2		HW 2: Reflection Essay
Feb 21	Building Blocks: String and Classes	Ch.10	
Feb 23	Building Blocks: More on classes		HW 3: Classes
Feb 28	Review Exam 1		
Mar 2	**Exam 1**		
Mar 7	Building Blocks: Pointers	Ch. 11	
Mar 9	Building Blocks: Pointers II		
Mar 14	Building Blocks: Pointers III		
Mar 16	Lab: Pointers		
Mar 21	Building Blocks: Templates	Ch. 12	HW 4: Pointers
Mar 23	Building Blocks: Stacks and Vectors		
Apr 4	File I/O		HW 5: Templates & Vectors
Apr 6	Building Blocks: Operator Overloading		
Apr 11	Exam 2 Review Introduce Final Project		HW6: File I/O and Operator Overloading
Apr 13	**Exam 2**		
Apr 18	Building Blocks Inheritance	Ch 14	Final Project Proposal
Apr 20	Building Blocks: Polymorphism	Ch 15	
Apr 25	Lab Day - Homework		
Apr 27			
May 2	Lab - Inheritance & Polymorphism		
May 4	Lab - Inheritance & Polymorphism		Final Project Specification

May 9	Building Blocks: Recursion	Ch 17	
May 11	Lab - Recursion		
May 18	Final 8:00-10:00am		