

# COSC 480 - Topics in Computer Science

Small Scale Computing

Fall 2013

Syllabus

Just rocking out with computers that would have blown my mind 20 years ago.

## Just the Facts

**Course Number:** COSC 480

**Title:** Topics in Computer Science - Small Scale Computing

**Semester:** Fall 2013

**Meeting Time:** MWF 10:40-11:50 am

**Locale:** Schaefer 253

**Instructor:** Alan Jamieson

**Office:** Schaefer 154

**Office Hours:** MW 1:30-2:30 pm, MW 5-6pm

**Email:** acjamieson@smcm.edu

**Google Messenger:** acjamieson@smcm.edu

**Facebook:** via COSC480 Group **Online Office Hours:** Most evenings and weekends

**Textbook:** None, several recommended.

**Website:** <http://faculty.smcm.edu/acjamieson/f13/cosc480.html>

**Catalog Description:** This course is a rigorous study of an important field in computer science. Examples: data security; bioinformatics; natural language processing; compilers. A detailed course description will be available before registration. The course may be repeated for credit where the topic is not repetitive. Prerequisite: COSC 201 or permission of the instructor.

**Overview:** In this course, you will be learning the ins and outs of small prototyping microprocessor boards. You will also be introduced to many of the skills necessary to do small-scale digital electronics prototyping, including digital circuit design, signal processing, and use of various integrated circuits. At the end of the course, you will have the skills and exposure to create small-scale prototypes from scratch, utilizing either the Raspberry Pi architecture, or the Arduino architecture.

**Purpose:** One of the biggest movements in CS/CSE/EE is the Maker movement. Basically, we have somewhat regressed to the hobby state of the 1970s where it was cooler (and sometimes necessary) to build your own computer. It was a time that one of the best toys a young person could get was a huge electronics experiment kit. Now, that passion for experimentation and novelty with electronics has been revived with the availability of cheap, durable, easy to use microprocessor prototyping kits. This has allowed for a completely new crop of digital electronics hobbyists to grow and be creative. The projects that are coming out of this movement are artistic, innovative, and, in some cases, potentially life and society changing. This course will give you an appreciation for this movement, and the tools to do creative, society altering projects on your own.

### Grade Distribution:

Miniprojects/homework - 20%

Merit Badges - 35%

Major Project - 35%

Major Project Presentation - 10%

You will be expected to participate in class by asking questions and answering questions posed by myself and those in class. Rather than a drab lecture, the class sessions will be run in a discussion style environment. Activity and debate are highly encouraged.

**Final Information:** The final in the course will be your project presentations. Details on what this entails will come at a later date, but the presentations will be made during the final period on Tuesday, December 17th at 2pm in Schaefer 253.

**Assignments:** There will be one major project-level assignment and many miniprojects in this course. Due to space and resources, all projects will be done in teams. Most projects will start off as in-class assignments (with an in-class assessment) and then move to a homework. Some projects will not allow this as you will need access to the lab to complete them. Team assignments will be discussed at a later date.

**Merit Badges:** 35 percent of your grade will be based on a series of skill assessments. These skill assessments and their requirements will be posted to the website by the second week of class. You may demonstrate to me the skill assessments as appropriate during designated times in the class period, as well as certain other times as distributed via Google Calendar. In all cases, you will be required to make an appointment and commit to the particular assessment that you will attempt to complete. You may retry the assessment as many times as you'd like, and appointments may only be made up to 2 weeks ahead. I reserve the right to cancel any appointments in cases of fairness to other members of the class. **DO NOT PUT ASSESSMENTS OFF.** Completing 15 assessments is an A, 12 a B, 10 a C, 8 a D, and anything lower will be a prorated F. Completing all assessments will net you a 100. For each assessment you complete, you will receive a merit badge. Merit badges are badges of honor and should be affixed to your lab coat and worn proudly. If you do not comply, you will be harassed and possible point deductions will follow.

**Blackboard Use:** I will be utilizing Blackboard primarily for your grades in this course. Course materials will be provided on the course website.

## Policies

**Lab Safety:** During the first week, we will be going through many lab safety guidelines. You will be quizzed on these, and you will have to sign an agreement in regards to the rules of the lab. Any violation of these rules will cause you to be dismissed from the class for the day, and you will receive a 0 for any activities, quizzes, or other graded material that day. Habitual offenses will cause you to be dismissed from the class for the rest of the term.

**Cell Phones:** Please, turn off or turn to silent any cell phones prior to getting to class. If they go off in class they are distraction not only to myself, but to everyone else in the class as well. Habitual offenders will be excused from the class with a 0 for any quizzes and class participation for that day.

**Computer Use:** Computer use in this lab is for academic use only. If you bring a laptop with you to this class I expect you to be only using it for purposes related to this class. The same goes for the computers in this lab.

**Attendance and Tardiness:** Attendance is highly recommended. Missing a class not only causes you to miss the information disseminated in that lecture, but can cause you to miss important information in regards to assignments and the potential of receiving a 0 for a quiz that day. I start class promptly on the hour and expect the students to be in class at that time. If you have circumstances that can prevent you from being in class on time, please let me know as soon as possible. Habitual offenders will be excused from the class with a 0 for any quizzes and class participation for that day.

**Exams and Quizzes:** There will a single midterm in this class, scheduled at least a week ahead. Every class has the potential of having a quiz to reinforce the ideas from the lecture the previous class. These will not be announced ahead of time. They will be 1-3 question quizzes that can be easily done in 15 minutes either at the start or the end of the class period.

**Assignments:** Assignments and other outside of class work should be done on an individual basis unless otherwise specified in the description of the assignment. Assignments and other outside of class work will not be taken late except under extraordinary and documented circumstances.

**Extra Credit:** I will not be offering any extra credit opportunities in this class.

Communication: The simplest way to get in touch with me is by coming by my office during my office hours or contacting me via email. The easiest way to get in touch with me "after hours" is to send me an email. I habitually check my St. Mary's email account all hours of the day. If you come by my office and the door is open, feel free to stop in to chat. The open door indicates that I'm not working on anything that has to keep my undivided attention at that time so do not feel that you are interrupting me or anything like that. I do make appointments if you have a certain time that you'd like to meet with me. If it fits in my schedule (meaning I'm not teaching class during that time) I will be happy to meet with you.

Academic Honesty: Academic misconduct policies are covered in the Student Code and Student Rights and Responsibilities, Article III. Pay close attention to the definitions of academic misconduct noted in Section 1. This can be found in the Student Handbook.

Disability: If you have any kind of disability that can affect your performance in this class, please let me know privately through email or stopping by my office.

**Schedule:** The schedule for the class will be posted to the class website. The schedule is subject to change (multiple times).

**Closing:** The most important thing in any of my classes is that you are learning and expanding your horizons. If you are having any undue difficulty with your work as it pertains to this class, please contact me as soon as possible. Always remember that professors succeed when you don't need us any longer. I want you to be bouncing ideas off of each other throughout the class and it is my hope that by the end of the semester that you are driving the class session rather than me.