CSC 192 – STEM Incubator: Experimenting with 3D Printing of Dynamic Objects
Spring 2016
Professor Burg

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Office Hours: Monday and Friday, 12-1
Tuesday, 1-2
or by appointment
Classroom for Course: MA 023 (Digital Media Lab)

Course Description:
In this course, students will learn how to model and print 3D objects. The specific software and hardware used in the course will be a 3D modeling program called Sketchup and a 3D printer made by Makerbot, the Replicator 2x. Students will begin by using models created by others. They will then learn how to model their own objects in Sketchup. They will explore interesting 3D objects that can be found on a website called Thingiverse, and they will use their own creativity modify some of these models in an original way. They will see how 3D objects can be made dynamic when they have electronic components integrated into them, like Arduino boards or Raspberry Pis. The final projects will be team projects (2 or 3 students per team) in which student compete to make the most interesting, original, dynamic projects possible.

Grading: Students will receive either a pass or a fail grade.

Course Requirements: In order to pass the course, students must do the following:
- Attend the Wednesday 4-5 class regularly. No unexcused absences.
- Spend at least one additional hour per week outside of class to work on modeling and printing. This hour should be at a regularly scheduled time, when the student is in the Digital Media Lab (MA 024). Group meetings are recommended. (Check your schedules and find a time when you can meet with others each week.)
- Participate actively and positively in the class activities.
- Complete an individual project by midterm.
- Complete a team project by the final.

Individual Projects: By midterm, each student should have printed an object. The student must make an original model of the object in Sketchbook and submit the .stl file for the model in the Assignments folder on Sakai. The object should be given to the instructor before midterm grades are due.

By the last day of class, each team of students should have created an original object with some type of dynamic part – a blinking light, a sound-maker, a display screen, or something like that. The .stl file of the model should be submitted to the Assignments folder on Sakai.

STEM Group Meetings: All Spring 2016 STEM sections will meet together on Wednesday, March 16 and on Wednesday, April 27. At this meeting, students will set up a "demonstration station" to share with others what they have learned and what they have created. Details about how this is to be done will be given later by the instructor.

Competition: In the final class meeting, the final-project teams will show what they created and explain it to the students visiting their "demonstration station." The visiting students will be asked to vote on the best final project. The prize: The sheer glory of winning!
Restrictions Regarding Use of 3D Printer:

- You may use the printer any time, 24/7, as long as you stay with the printer while it is printing to be sure it doesn't get "stuck." If you can't stay the whole time, you need to ask someone else to oversee the printing (e.g., a friend, our Systems Architect, Paul Whitener (MA 242, ext 4012), or your instructor).
- Be careful not to walk off with the printer's SD card.
- Be sure to report any machine malfunctions immediately to Paul Whitener (MA 242, ext 4012).