CSCI 441 - Computer Graphics
Fall 2015
Syllabus

Instructor:

Jeffrey Paone
Office: 280C Brown Hall
Phone:
Email: jpaone@mines.edu
Office Hours: Tuesday 1-3, Thursday 10-12, or by appointment

Lectures:

Mondays & Wednesdays 1:00 PM – 1:50 PM
Alderson Hall 140

Labs:

Fridays 1:00 PM – 1:50 PM
Marquez Hall 022

Textbooks:

1) Interactive Computer Graphics: A Top-Down Approach with Shader
    Based OpenGL, 6th ed., Edward Angel, Dave Shreiner, 2011.
2) OpenGL: A Primer, 3rd ed., Edward Angel, 2007.

Other resources will be posted on the website.

Website:

http://eecs.mines.edu/Courses/csci441/

Assignments:
- There will be seven **individual** programming assignments throughout the semester. Due dates will be specified and are firm. Individual programming assignments **must** represent individual student work.
- If your program requires input from a data file or the user, please include sample data files or input with the submission.
- All programs (homework assignments, programs, projects, labs) must be submitted in electronic form through BlackBoard.
- Every submission must include a README file which describes how to build and run the assignment. Any other information that is required to run the program should be included here as well.
- Your goal should be to make it easy for us to see how great you did. If we make a couple of good faith attempts but fail to get your program running, we will try once to contact you to help us. If we still cannot get your work to compile, it will receive a zero grade.

Late Policy:

- All assignments and projects are due at the date and time specified on the item handout.
- Items received less than 24 hours past the due date will receive a 50% grade reduction.
- Items not turned in or received more than 24 hours past the due date will receive a grade of zero.

Projects:

- There will be two course projects, to be completed in teams of two or three. The first will be a midterm project due shortly before Fall Break. The second will be a final project due during the last week of class.
- In addition to the programming project, each team will give a brief in-class presentation showcasing their project.
- All code and files required for the projects must be submitted to one of the team member's dropbox. A text file must be placed in the other members' dropbox stating who their partners were and where the files are located.

Labs:

- Each week there will be a laboratory session that will cover the new techniques discussed in lecture each week. The lab assignments will be due by the end of the day each following Monday.
- The lab assignments are intended to be done during the class time and should not require much time after the lab session.
- The assignments will build off of the labs so use the labs as a starting point for your assignments.
- Initially, labs will be individual assignments. As the semester progresses, it will be possible to work together on labs. Refer to each lab specific assignment for the corresponding collaboration policy.

Exams:

- There will be two exams during the semester. The exams will divide the semester into approximate thirds.
- Make-up exams will be allowed only in accordance with University policy. Make-up exams resulting from illness require notification (email is fine) the day of the exam and a doctor's note when well. Make-up exams due to legitimate travel require advance notice and instructor's approval.

Piazza

- Be polite. This also applies to assignment clarifications (e.g. writing "This requirement makes no sense" may not be the best phrasing. Try

something like: "I'm not clear what requirement X means. Should I do [x] or [y]?")

- A Piazza post is not a text message; use complete sentences and correct spelling, punctuation, and grammar.
- When asking a question, do not post large blocks of code. A single line of code, to clarify your question, may be appropriate. Before posting, ask yourself: would this be giving most of the answer to another student? Thinking about how to phrase the question may help you solve the problem.
- Achievement Unlocked! You are doing a rather thorough reading of the syllabus. Email the professor with the subject line "I See All" to earn the Eye of Sauron achievement.
- When answering a question, do not post the exact code from your homework solution. Possible exception would be something that takes one line and is primarily a syntax question. E.g., to a question like "How do I set the color of my rectangle" you might answer with something like "You need to set the color before drawing. If g is a Graphics object, you can do g.setColor(Color.CYAN);".
- Using pseudocode is an **excellent** way to answer questions.

Grading:

The final course grade will be computed from the following course percentage breakdown:

- 35% Homework Assignments
- 10% Midterm Project
- 15% Final Project
- 10% Exam I
- 10% Exam II
- 10% Participation & Hero Level
- 10% Labs

There will be multiple opportunities for extra credit throughout the course, including extra credit sections on various homework assignments and projects, extra credit questions on the midterm exam, and potentially an extra credit assignment.

Final grades will be determined using a *straight scale*. The straight scale assigns letter grades as follows:

- [93, 100]   --   A
- [90, 93)   --   A-
- [87, 90)   --   B+
- [83, 87)   --   B
- [80, 83)   --   B-
- [77, 80)   --   C+
- [73, 77)   --   C

- [70, 73)   --   C-
- [63, 70)   --   D
- [0, 63)   --   F

Participation:
- A portion of the student's grade will be comprised of in-class and online participation.
- After the first week of class, students are expected to participate by making regular forum posts, either asking a question or responding to an existing topic. From time to time, there may be specific discussion topics.
- Regular course attendance is mandatory. If attendance is low, the instructor reserves the right to administer pop quizzes for credit, to be determined.
- During the course, you will create a hero and bring this hero to life. As the course progresses, your hero will become more powerful and level up. In order to level up, your hero will need to earn experience points (XP). There are many ways to earn XP. See the next section on how to earn XP.

Achievement System
- As you complete assignments and labs you will earn XP for your hero. Each assignment will have a number of achievements you can earn by adding various features to your program. Some of these achievements will be hinted at for you to discover, others will be explained as extra credit, and a last set will be hidden for you find on you own. Earning an achievement will also award your hero with XP.
- What if I miss an achievement for on an assignment? If after submitting an assignment you find out you did not earn an achievement, then you will be permitted to go back and attempt to earn the achievement. Each student will be allowed **ONE RESUBMISSION** of the assignment at any point in the semester. This resubmission **will not be regraded**, i.e. your grade for the assignment will not be recomputed or altered. However, if you satisfy the requirements for an achievement then you will earn the achievement and the associated XP.
- At the end of the semester, the instructor will award up to 500 bonus XP for exemplary attendance, participation in class, etc.   If you participate regularly and come to class, this could be enough to get you up a level and over the hump to the next letter grade.
- XP required to level up:

Level	XP
0	0
1	250
2	500
3	750

4	1000
5	1250
6	1500
7	2000
8	2500
9	3000
10	4000
11	4500
12	5000
13	5500
14	6000
15	6500

- Hopefully you noticed that your hero can reach Level 15, which will earn you 15 participation points. Since participation counts for 10% of your overall grade, this is your opportunity to earn extra credit throughout the semester (a max of 5 bonus points to your semester grade).

Discrepancies:
- If you have any questions regarding how any assignment, project, or exam is graded and you think you deserve more points than you received, you must see the instructor within **one week** of the day the item was returned to class. No claims, justifiable or not, will be considered after this deadline.
- Any assignment returned to the instructor is subject to total re-grading.

Computing:
- This class will involve extensive use of OpenGL and GLUT. You may use any platform to develop your program. We will provide Makefiles to aid with the compilation on most systems.
- In general, OpenGL / GLUT code that compiles and executes correctly will perform correctly on any other machine on which it compiles. However, certain elements of OpenGL and GLSL are less-standardized. **For this reason, it is important that you test your code on the lab machines in Marquez Hall 022 prior to submitting.** This will become more important in the second half of the semester when we cover more advanced techniques and shader programming. If we have trouble getting any of your GLSL code to run properly we will contact you once for assistance.

Collaboration Policy for Programming Projects in CS Courses
The following policy exists for all CS courses in the EECS department. This policy is a minimum standard; your instructor may decide to augment this policy.
- If the project is an individual effort project, you are not allowed to give code you have developed to another student or use code provided by

another student. If the project is a group project, you are only allowed to share code with your group members.

- You are encouraged to discuss programming projects with other students in the class, as long as the following rules are followed:
    - You view another student's code only for the purpose of offering/receiving debugging assistance. Students can only give advice on what problems to look for; they cannot debug your code for you. All changes to your code must be made by you.
    - Your discussion is subject to the empty hands policy, which means you leave the discussion without any record [electronic, mechanical, or otherwise] of the discussion.
- Any material from any outside source such as books, projects, and in particular, from the Web, should be properly referenced and should only be used if specifically allowed for the assignment.
- To prevent unintended sharing, any code stored in a hosted repository (e.g. on github) must be private. For group projects, your team members may, of course, be collaborators.
- If you are aware of students violating this policy, you are encouraged to inform the professor of the course. Violating this policy will be treated as an academic misconduct for all students involved. See the Student Handbook for details on academic dishonesty.

Academic Code of Honor:
- All students are expected to follow the University's Academic Code of Honor.
- A student or assigned team working on a program may discuss high-level ideas with other students or teams. However, at time of submission all work submitted **must be his/her/their own work**.
- Use of the Internet as a reference is allowed but directly copying code or other information is **cheating**. It is cheating to copy, allow another person to copy, all or part of an exam or a project, or to fake program output. It is also a violation of the Code of Honor to observe and then fail to report academic dishonesty. *You* are responsible for the security of your own work.
- We will provide, as part of the course, functional code examples for most of the topics covered. While you are encouraged to examine these examples, your submissions must represent a good-faith effort to complete the assignment. Merely copying and pasting code from the examples will result in a failing grade. Furthermore, relying too heavily on the given examples will fail to prepare you for the much more open-ended midterm and final projects.