Syllabus for CSC – CPE 471: Introduction to Computer Graphics

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General: Welcome to computer graphics. This course will teach you the fundamentals for writing your own computer graphics applications. **This course requires substantial math and programming skills.**   Experience with C or C++ will be essential and experience with linear algebra will be helpful. We will be using OpenGL and GLUT for graphics APIs, along with C or C++ to create computer graphics applications throughout the quarter. We will also be using GLSL. We will start the quarter working on linux (but it is fine for you to develop under other operating systems).

Assignments:
- 2 mid-term exams (20% of final grade – 10% each)
- ~12 Lab exercises (12% of final grade)
- 4 substantial programming assignments (10% each of final grade)
    - GLUT, OpenGL & C++ applications
- One larger final programming project (25% of final grade)
    - of your choice (again using GLUT, OpenGL and C++)
    - project must be approved by the instructor (details to follow)
- Participation (3% of final grade)
    - attend class/ talk in class or office hours interaction

Deadlines will be typically Tuesday <u>before</u> class but they will vary. Please see the program description for final details. **There is a strict late policy for all assignments** – if your program is late you will lose:
- -20% within first 24 hours after deadline
- -40% within 48 hours
- -100% after 48 hours

However, you get 2 *free* days for the entire quarter which can be applied to the four programming assignments only. You do not need to explain why you are using the days – these two late days will be automatically applied to any late assignments. *After your two late days have been used up, the late penalties apply.*

Required Text: Chapters will be provided from a forthcoming book

Cheating: Although I encourage you to have lively discussions with one another, **all work you hand in must be your own work**. If your program or parts of your program are plagiarized from another student or unapproved source, you will fail the course and a letter will be put in your file with Cal Poly Judicial Affairs.

The following schedule for the lectures and assignments <u>may change</u>

Week 1	1/3/12	Introduction – the graphics pipeline	
	1/5/12	2D Coordinate systems (points + vectors)	
	Read		
Week 2	1/10/12	Vector math	
	Read		
	1/12/12	Vector math + geometric transforms I	
	Read		
Week 3	1/17/12	MONDAY CLASSES – NO CLASS	**Program 1 due**
	Read		
	1/19/12	Geometric transforms II	
	Read		
Week 4	1/24/12	Geometric transforms & virtual trackball	
	Read		
	1/26/12	Lines, vectors, planes & meshes & hierarchical models	**Program 2 due**
	Read		
Week 5	1/31/12	Viewing transforms and Camera I	
	Read		
	2/2/12	Viewing transforms and Camera II	
Week 6	2/7/12	review	
	Read		
	2/9/12	**Midterm 1**	**Program 3 due**
	Read		
Week 7	2/14/12	Lighting and Shading I	
	Read		
	2/16/12	Lighting and Shading II	
	Read		**Final proj. proposals due**
Week 8	2/21/12	Texture mapping	**Program 4 due**
	Read		
	2/23/12	Scan conversion and line drawing	**Final project check-in**
Week 9	2/28/12	Scan conversion, line drawing & polygon	
	Read		
	3/1/12	review	**Final project check-in**
Week 10	3/6/12	*guest lecture	
	Read		
	3/8/12	**Midterm**	
Final	3/13/12	**Tuesday 4:10-7:00pm**	**Final Projects demo**