

CS/SE 3GC3 – Computer Graphics

Final Project

Proposals due: Tuesday October 31,
12:00 noon

Proposal Submission: By email to gwsdzto@mcmaster.ca subject line must be exactly: **3GC3 project proposal**

Project due date: TBA, early December 2017. This will be announced shortly.

The project is worth 25% of your final grade.

The project requires implementation of an OpenGL-based graphics program, in teams of up to four students. This should be of significantly greater complexity than the tutorials and assignments. You will first provide a brief proposal to the instructor (see below). You should use feedback from your proposals to ensure that your project is of appropriate complexity, i.e., neither too hard, nor too easy.

Some example projects you could try might be games, 3D applications (e.g., simple CAD or 3D modeling systems), or desktop VR (cardboard 3D glasses are available if you want to try stereo 3D). Be creative, but also be realistic about picking a project that you can complete in the remainder of this course. You won't be making the next World of Warcraft, but 3D versions of old arcade games are certainly possible (but please aim a little higher than Pong).

Proposal – 5% of project grade, due October 31, 12:00 noon

Write a brief one or two paragraph proposal for your project. You don't need to know all the details yet, but just give an idea of what you want to do. This will enable the instructor to guide you toward an appropriate course project, i.e., if your proposed project sounds too hard or too easy. Submit your proposal as a Word, text, or PDF document by email to the instructor. Include the names of your team members in the document.

Implementation – 95% of project grade

The core functionality of the project will be primarily determined by your proposal. Most projects are games, or 3D environment simulations. As such, it is expected that these will involve basic geometric rendering and transformations (i.e., drawing stuff in the correct position/orientation in space). This includes basic game functionality, physics, and so on, as appropriate. This will account for 50% of the implementation grade.

The remaining 40% of the implementation grade will be for adding additional advanced graphics features. Each addition is worth an amount shown in brackets (maximum 40%). Possible features include:

- lighting [5%]
- textures [10%]
- alpha blending [5%]
- particle systems (using your particle assignment) [5%]
- animated characters (based on tutorials) [5%]
- picking (click on a 3D object in the scene to select it) [10%]
- non-geometric primitives (bitmaps, pixel maps) [10%]
 - e.g., bill-boarding
 - e.g., draw a user interface around the main game screen area
- advanced camera control (e.g., quaternion-based camera) [10%]
- shaders [10%]
- your own idea here [5 – 10% depending on complexity, ask in advance if unsure]

Note that some of these features may require some independent research, as they were not discussed in class. You should include documentation with your project, indicating which of these you implemented.

Project implementation submission:

Projects should be submitted to SVN trunk in the project folder by the date specified above. You should include your source code. You should include a document detailing instructions on how to run and compile your program, including a listing of the program commands. This document should also detail which features you implemented from the list above. You may use Doxygen for code documentation. Please follow standard compiling procedure using make and g++ as outlined in course.