# OpenGL Projects in Xcode (Mac OSX)

**If not already installed, from the Developer Disk, install Xcode**

**Create a new Project after starting Xcode**

1. Go to File menu and select New Project
2. In the New Project Assistant window, select Cocoa Application as the project type (near the middle of the list)
3. Choose a name for the project and a location to place the project folder

**Add in Necessary Frameworks**

1. Click plus (+) in Linked Frameworks and Libraries area in he middle.
2. Hold down the command (apple) key and in the Frameworks folder select these two frameworks: GLUT.framework OpenGL.framework
3. Click Add

**Adding In Your Source Files**

1. In the "Supporting files" folder, delete main.m by selecting main.m and clicking the delete key (choose "Remove References Only" in the dialog box that appears)
2. Right-click (control-click) on the "Supporting files" folder and choose Add Files to "*the name of your project*"
3. Browse to your source file(s), select them, and click Add

☐ Alternatively, you can create a new source file by choosing New File from the File menu, selecting "C++ File," naming the file, and then editing it .

In your source file(s) you will need the following includes:

#include <GLUT/glut.h>

**Compiling and Running the Project**

1. Click on the Run button (circle with an arrow-triangle on the top left)
2. Alternatively, you can go to the Project menu and choose Build and then Run
3. From time to time you may wish to clean out the active target. Do this go to the Project menu and choose Clean

**Things to Remember**

☐ Make sure your main function is "int main()" and not "void main()"
☐ Make sure "return 0" is at the end of the main function

**Courtesy of Angela B. Shiflet, Ph.D**.

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**Lawrence, Imperial College, adds the following by email to Sumanta (December, 2016):**

As the installation instruction suggests, I linked to OpenGL and GLUT framework. The command I use is clang++ -framework OpenGL -framework GLUT square.cpp.

This command doesn't compile, it says glew missing... So I installed glew separately, and compiled again, it still doesn't work. (It said _glutInitContextProfile and _glutInitContextVersion are missing). So I installed freeglut, and link to it, finally it worked. The compile command I'm using is clang++ -framework OpenGL -framework GLUT -lglew -lglut square.cpp.

Note I have to link to both GLUT libraries, if I don't link to freeglut, code doesn't compile (undefined reference as stated above). If I don't link to GLUT, I got this error (lazy symbol binding failed: Symbol not found: _clock_gettime), which seems freeglut is using something not on Mac.