Syllabus

### Course Description:

#### ECSE-4750 Computer Graphics

Introduction to Interactive Computer Graphics, with an emphasis on applications programming. Objects and viewers, and the synthetic camera model. Graphics architectures, the graphics pipeline, clipping, rasterization, and programmable shaders. Input and interaction. Geometric objects, homogeneous coordinates, and transformations. Viewing, hidden surface removal, frame and depth buffers, compositing, and anti-aliasing. Shading, light and materials, texture mapping, ray tracing, and radiosity. Intellectual property concerns. Extensive programming with the OpenGL API. Prerequisite: ECSE-2610 Computer Components & Operations, or ''CSCI-2500 Computer Organization, or equivalent. Fall term annually. 3 credit hours''

**CRN:** 65175

### Why take this course:

The massive data sets being produced by cheap sensors are useless unless they can be understood by people. Complicated machines are useless unless they can be easily controlled. This course will help you do both. The key is graphics and visualization. We don't just teach useful platform-independent tools. We also teach the underlying math and algorithms used by all tools so that you can design better tools.

### Why not to take this course:

Since you're spending a lot of money to take this course, you need to know some keys to success (or the alternative). Here are some indications that other courses might be a better fit.

1. You don't like programming.
2. You don't like documenting your programs.
3. You don't like math.
4. You don't like reading.

### Prerequisites:

1. This is a senior CSYS course, and assumes a moderate computer maturity, represented in the catalog by either listed prereq. If you don't have either specific course, talk to me.
2. You also must know some high level language, such as C++, sufficient to learn Javascript. One of many good online tutorials is [W3Schools JavaScript Tutorial](http://www.w3schools.com/js/).
3. Computer Graphics also assumes that you know, or be able to learn, some basic linear algebra, up to the level of what an eigenvalue is.

## Instructors:

Thomas Citriniti, MS RPI ‘97

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| Office | Online hours by appointment, please schedule with me. |
| Phone | +1 (518) 387-9866 |
| Email | mailto: citrit2@gmail.com |
| Web | http:// |
| Office hours | After each lecture, usually as long as anyone wants to talk. Also by appointment. |
| Informal meetings | We can meet as needed. |
| Preferred communication medium | Email. |

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| Date | Description |
| Sept 1 | No Class, Tom is in India. |
| Sept 8 | Intro and computer graphics 101. |
| Sept 15 |  |
| Sept 22 |  |
| Sept 29 |  |
| Oct 6 |  |
| Oct 13 | No class, Monday Schedule |
| Oct 20 | Mid-term |
| Oct 27 |  |
| Nov 3 |  |
| Nov 10 |  |
| nov 17 |  |
| Nov 24 |  |
| Dec 1 |  |
| Dec 8 | Final Projects |

Grading: