

# Course Policy

## Instructor

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## Course Description

A project-based course involving basic concepts, theories and algorithms associated with producing 2D and 3D images. Topics include graphics primitives, modeling, viewing, illumination, shading, texture, and event-driven programming using a graphics API.

## Learning Objectives

**Upon completing this course, students should be able to:**

1. Understand mathematical concepts behind 2D and 3D graphics
2. Design and implement 2D/3D models using OpenGL in Python.
3. Build **interactive** 2D/3D environments for simulation.

## Textbooks

### **Required Texts:**

This course has no required books, although there are multiple texts that may be of interest if you wish to delve deeper into the topics.

### **Recommended Texts:**

Computer Graphics Through OpenGL from Theory to Experiments, 2nd Edition, Sumanta Guha, CRC Press, 2015

Ray Tracing from the Ground Up, Kevin Suffern, A K Peters Ltd, 2007

### **Optional Texts:**

Numerical Methods in Engineering with Python, 2nd Edition, Jan Kiusalaas, Cambridge University Press, 2010

OpenGL Data Visualization Cookbook, Raymond C.H.Lo and William C.Y.Lo, Packt Publishing, 2015

OpenGL Development Cookbook, Muhammad Mobeen Movania, Packt Publishing, 2013

Python Graphics for Games 3: Working in 3 Dimensions, Mike Ohlson de Fine, 2015

Python Playground, M. Venkitachalam, No Starch Press, 2016

3D Math Primer for Graphics and Game Development, 2nd Edition, Fletcher Dunn & Ian Parberry, CRC Press, 2011

# Prerequisites

IC312 Data Structures.

## Extra Instruction (EI)

EI is available and **encouraged**. Since this course continually builds upon material previously presented, it is crucial that you seek EI as soon as you have problems understanding a topic. However, you must come prepared with specific questions or areas to be discussed (i.e. have read the assigned readings).

Practice problems are provided at the bottom of nearly every lecture in the calendar, please take the time to attempt these, especially if you are having issues, most will have solutions available by clicking on the **Q** icon on the menu bar at the top of the screen.

## Grading

	6wk	12wk	Final
Labs	50%	50%	50%
Projects (Rubik's Cube and Side Scrolling Game)			25%
Exams	50%	50%	25%

**Note:** Sleeping in class or working on other courses during class is unwise, points from your 6wk, 12wk, or Final will be taken for offenders.

## Projects

There will be two **individual** projects which are to be completed entirely by the student making the submission. Projects are designed to reinforce the material while making the students think about the problem and design a unique solution.

## Exams

If for some reason a make-up exam will be required, inform the instructor at least 1 week in advance. All exams are comprehensive. All exams will be closed books, closed notes. Students will be allowed to bring individually prepared **handwritten, not computer generated or photocopied** double-sided "study sheets" with anything written on them (1

sheet for the 6-week exam, 2 sheets for the 12-week exam, and 3 sheets for final). Study sheets will be collected at the exam and will **not** be returned at any point. Use of any electronic devices is not permitted during the exams.

## Late Assignments

Unless otherwise specified, all lab assignments are due at 2359 on Wednesdays. **Late assignments will not be accepted** as answers will be automatically posted to the web page at 0001 the following day. Attempts to submit a late assignment will be automatically rejected by the submission system and you will receive a score of 0 on that assignment. **In the event that you are excused from an assignment due to medical reasons, the grade for that assignment will be the average of your existing lab grades. Multiple missing assignments is grounds for significant grade reductions in this course.** Anyone missing more than 2 assignments (3+) can not achieve a grade higher than a B in the course, someone missing more than 4 assignments can not achieve a grade higher than a C, more than 5 assignments the highest grade possible will be a D in this course. Note that achieving these grades will be numerically difficult as well, but this portion of the policy is in place to ensure that there are consequences for missing assignments.

Late Assignments	Max Grade in Course
3-4	B
5	C
6 or more	D

## Honor

**You are expected to follow the guidance given in:**

Honor Concept of the Brigade of Midshipmen, USNAINST 1610.3F (or newer)

Policies Concerning Graded Academic Work, USNAINST 1531.53 (or newer)

Policy Concerning Programming Projects, COMPSCIDEPTINST 1531.1C (or newer)

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