Course Syllabus

CS 4204 - Computer Graphics

Fall 2023
In-person course at Torgersen Hall 1020
TR 8AM - 9:15 AM

Course Description

This class will introduce students to the technology and techniques used to display graphical information in 3D, i.e., rendering. Students will gain knowledge about how to manipulate and model objects in 3D, learn the computer graphics pipeline, and implement rendering techniques to transform and shade 3D objects.

Prerequisites

The prerequisites for this class are a grade of C or better in both CS 3114 and CS 3744.

Learning Objectives

Students will:

- Understand the basic 3D rasterization pipeline and have a firm grasp of the conceptual components used in modern rendering APIs
- Understand the mathematical principles behind 3D rendering
- Transfer your knowledge to more advanced graphics topics using industry-preferred tooling

Instructor

Brendan David-John

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(mailto:bmdj@vt.edu)

Office Hours**:**

- Virtual/Zoom office hour: Wednesdays 1PM - 2PM EST
    - Zoom Link: **https://virginiatech.zoom.us/j/81492058784**
      (https://virginiatech.zoom.us/j/81492058784)
- In-person office hour: Thursdays 3:30PM - 4:30PM EST
    - Location: **Torg #1210**
    - appointment (schedule via email)

Textbook
Required: "**Fundamentals of Computer Graphics (Fifth Edition)**

(https://www.amazon.com/Fundamentals-Computer-Graphics-Steve-Marschner/dp/0367505037) ”.
Marschner and Shirley. ISBN: 978-0367505035

The textbook is available online as an eBook through the VT library. ⤷
(https://www.oreilly.com/library/view/3d-user-interfaces/9780134034478/?ar)

Access the book directly **here** ⤷ **(https://virginiatech.on.worldcat.org/oclc/1319837440)** .

Website

All class announcements, policies, schedule changes, lecture notes, etc. will be posted on the class Canvas site. Check it regularly!

Grading

Grading will be based on:

1. *Programming Assignments (50%)*
   The main assessment component of this class will be eight Python assignments based on the course material that span one or two weeks in duration.
2. *Project (20%)*
   In lieu of a final exam, paired or small group projects will extend the 3D renderer developed throughout the course as a project. Potential project options will be listed on the projects page.
3. *Quizzes (20%)*
   Quizzes will be conducted through Canvas to evaluate the understanding of the course content. Each quiz will have a 24-hour window to be completed. While the quizzes are “open book” and course notes or references can be used while completing them, they must consist of individual work and cannot be completed alongside a classmate or tutor.

1. *Participation (10%)*
   Roll-call attendance and class engagement will be taken into account to ensure students are participating in the course. A high level of class engagement can preclude a few unexcused absences. Please consult the professor during office hours if you have questions about your current level of participation.

Attendance

Attendance at all classes and scheduled project meetings will be necessary for students to succeed in this course. Any updates to the schedule or canceled classes will be posted on Canvas, so please check the Schedule regularly.

Honor Code

The Undergraduate Honor Code pledge that each member of the university community agrees to abide by states:

> ❓ Iokie, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”