Midterm Format – CS-537 Interactive Computer Graphics

Spring 2021, Dr. Chloe LeGendre

- You will have 3 hours to complete the midterm exam in Canvas once you begin.
- For flexibility, there will be a two-day window where you can take this 3-hour exam:
    - **From: Thursday March 18, 11:59 PM (midnight)**
    - **To: Saturday March 20, 11:59 PM (midnight)**
    - It must be completed by **Saturday March 20, 11:59 PM (midnight)**
- If you have pre-arranged accommodations for extended time, you should see a longer amount of time available to you before you begin. Otherwise, you should e-mail the instructor (clegendr@stevens.edu).
- Your answers will be in one of two formats: "text edit boxes" where you can type your answers, and file uploads where appropriate. For file uploads, upload cell phone photos of your written answers, or screenshots if you prefer to type your answers.
- **Show your work where noted.** This helps us award partial credit. **Correct answers without shown work will not receive full credit.**
- The exam is "**open book** / **open note**," which means that you may consult the **course notes** and **your textbook** while taking the exam.
- You may also use a **calculator** or browser-based calculator if you would like.
- However, you may **not** browse the internet or search for solutions, and you may not discuss answers with your peers. You are expected to abide by the Academic Integrity policy outlined in the syllabus.
- You may use the following materials during the midterm exam. Any materials that are not mentioned in the list below are not permitted.

Material	Permitted?
Handwritten Notes (any)	Yes
Typed Notes (any)	Yes
Our course textbook (Angel)	Yes
Course slides and notes	Yes
General internet use	**No**
Peer collaboration	**No**

Midterm Materials – What is covered

- Covers all course content from Week 01 - Week 06.
- Week 07 content is NOT included.
- You will **NOT** be asked to write your own code that compiles.
- You may be asked to read bits of code and evaluate them or describe what they do. You **can** consult the course code examples and your assignments during the midterm.

Focus Areas

Although anything covered up to and including Week 06 may be included, I suggest you pay attention particularly to the following topics:

- 2D and 3D transformations (Week 5)
    - If given a 3D point, you should be able to:
        - Translate the point along x, y, and z directions using matrix transformations (see 2D/3D Transformations, slide 8)
        - Rotate the point by an arbitrary amount of degrees around the x, y, or z axis (see 2D/3D Transformations, slides 10/11)
        - Rotate the point about a fixed point that is not the origin (see 2D/3D Transformations, slide 18)
    - In each of the above cases, you should be able to form the appropriate homogenous transformation matrix and then calculate the matrix-vector multiplication yourself by hand. You can use a calculator for trigonometric functions if needed.
- Data storage for mesh geometry (Week 3)
    - You should be able to derive yourself from scratch the number of bytes per vertex for different mesh representations. Examples are on the slides (see Primitives and Attributes, slides 13-20), but you won't be asked to copy these directly. There will be some differences.
- You should know what data is required to send to the GPU when using gl.DrawElements vs. gl.DrawArrays (the difference between how we rendered vertices in Assignment 1 compared with Assignment 2).

Grading

The midterm will be graded on a curve. I'll try to have grades back within 2 weeks.

Good luck!