

EE 4702-1: GPU Programming

Where/When/Who

Room 1212 P.F. Taylor Hall

MWF 9:30–10:20 Fall 2026

<https://www.ece.lsu.edu/koppel/gpup/>

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Office Hours: Monday–Friday: 14:00–15:00.

Prerequisites

By Course: CSC 3102.

By Topic: Programming in C++.

Topics

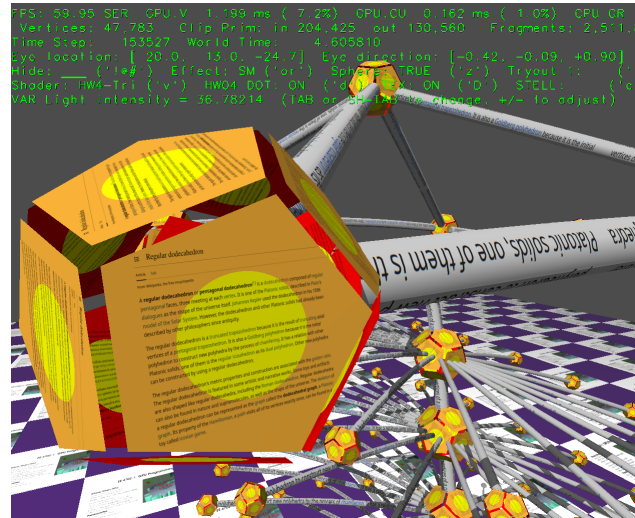
- Introduction
 - Graphics software/hardware organization.
 - Physical simulation quick overview.
- Basics of 3D Computer Graphics
 - Coordinates, vectors, lines, planes, intercepts, transforms, etc.
 - Primitives and scene representation.
- GPU Organization and Shader Programming
 - Hardware abstraction for 3D graphics by the Vulkan API.
 - Rendering pipeline, programmable shaders, and OpenGL Shading Language.
 - Shader programming for rasterization, ray-tracing, and non-graphical computations.

Text To be determined.

Grading 40% Midterm Exam • 40% Final Exam • 20% Homework and Projects. Final exam weight may be increased for students doing better on the final than on the midterm. Late assignment penalty: 10% per day late deducted. Missed-midterm-exam policy: at instructor's discretion either a makeup exam, use final exam grade for midterm grade (*i.e.*, 80% final exam weight), or use of zero for midterm grade. Daily attendance: optional, however students are responsible for all material, instructions, and notices presented in class.

A.I. Students may use AI, including LLMs such as Claude and ChatGPT, to assist in learning how to solve homework assignments. This includes asking about course material, clarifying the questions in an assignment, developing approaches to solve the problems, and helping with compiler or execution errors in solution code. After using AI and traditional resources (references, knowledgeable friends, etc.) to learn how to solve an assignment students are expected to then complete the assignment (maybe after several tries) without these resources. **Test questions will be written for students who learned how to solve the homework assignments unassisted.**

A.D.A. Louisiana State University is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Any student with a documented disability needing academic adjustments is requested to speak with Disability Services and the instructor, as early in the semester as possible. All discussions will remain confidential. Please contact Disability Services in 115 Johnston Hall, 225-578-5919 or at <https://www.lsu.edu/disability>.



2025 Homework 5

