



COEN 4830 – Introduction to Computer Graphics

Fred J. Frigo, Ph.D.

Fall 2025

Course Description:

Introduction to computer graphics algorithm design and implementation; includes considerable actual computer graphics experience. Topics include point-plotting and line-drawing techniques, two-dimensional curve fitting, two-and three-dimensional graphics, clipping, windowing, hidden line removal, modeling, input-output devices, and other topics as future trends dictate.

Course Learning Outcomes:

We will examine topics related to computer graphics using simple examples to gain a deeper understanding of the ideas and concepts of this course in such areas as: pixel data, colormaps, volume rendering, animation, dithering, image formats, video formats, compression, metadata, and use of graphics for web pages. Example source code in C/C++, OpenGL, CUDA, & MATLAB will be shared from the class GitHub repository, and students will have access to the necessary hardware and software for implementation.

Location & Schedule:

Class meets on Mondays & Wednesdays: 5:00pm-6:15pm

In person – EHALL 423 – or live stream available via Microsoft Teams.

Grading:

Homework and Projects: 60%

Mid-term exam: 20%

Final exam: 20%

Recommended Text:

Steve Marschner, Peter Shirley, *Fundamentals of Computer Graphics 5th Edition*, CRC Press, 2021.

ISBN-13: 978-0367505035

ISBN-10: 0367505037

Other Notes:

Students are required to comply with all policies outlined in the Undergraduate Bulletin, including the Marquette University Honor Code and Honor Policy. Attendance is required. Excessive unexcused absences may result in grade of 'WA' or 'WF'. Class notes and lecture recordings will be shared on D2L. Assignments will be given at least 2 weeks prior to the due date.

Office Hours:

By appointment: using Microsoft Teams or in-person Haggerty Hall – Room 235

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