

EECS 366 / EECS 466

Computer Graphics

Instructor:

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Lecture: Monday-Wednesday 12:30-1:45

Office Hours: (tentative) Monday 2-4 (or by appointment)

Course Web Page:

<http://vorlon.cwru.edu/~mcc14/GraphicsSpring2005/>

Course Outline:

Lectures	Topic
1	Introduction
2	Raster concepts: scan conversion of points, lines and filled polygons
1	Anti-aliasing
3	Homogeneous coordinates, transformations, perspective projection
1	2D and 4D line and polygon clipping algorithms
2	Hidden surface removal algorithms
1	Introduction to shading concepts, local versus global illumination models, BRDF
2	Local shading models
2	Global shading I: Ray tracing
1	Global shading II: Radiosity method
1	Texture mapping
1	Anti-aliasing revisited
2	Environment mapping, bump mapping, geometric shadow algorithms
1	Volume rendering
1	Splines and geometric modeling
2	Physics based modeling

Grading (tentative):

EECS366: 45% Homeworks, 20% Midterm, 35% Final

EECS466: 30% Homeworks, 10% Midterm, 20% Final, 40% Project

Textbook

Computer Graphics, C Version (3rd Edition)

Donald Hearn, M. Pauline Baker

Prentice Hall; ISBN: 0130153907

Recommended Reading and Other References

1. **3D Computer Graphics** (*3rd Edition*)
by Alan H. Watt
Addison-Wesley Pub Co; ISBN: 0201398559
2. **Computer Graphics: Principles and Practice in C** (*2nd Edition*)
James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes
Addison-Wesley Pub Co; ISBN: 0201848406
3. **Interactive Computer Graphics: A Top-Down Approach with OpenGL** (*3rd Edition*)
Edward Angel
Addison-Wesley Publishing; ISBN: 0201773430
4. **Real-Time Rendering** (*2nd Edition*)
Tomas Akenine-Moller, Eric Haines
A K Peters Ltd; ISBN: 1568811829
5. **Advanced Animation and Rendering Techniques: Theory and Practice**
Alan H. Watt, Mark Watt
Addison-Wesley Pub Co; ISBN: 0201544121
6. **OpenGL(R) Reference Manual: The Official Reference Document to OpenGL, Version 1.4** (*4th Edition*)
Dave Shreiner (Editor), OpenGL Architecture Review Board
Addison-Wesley Pub Co; ISBN: 032117383X
7. **OpenGL(R) Programming Guide: The Official Guide to Learning OpenGL, Version 1.4** (*4th Edition*)
Dave Shreiner, Mason Woo, Jackie Neider, Tom Davis, OpenGL Architecture Review Board
Addison-Wesley Pub Co; ISBN: 0321173481
8. **OpenGL(R) Shading Language**
Randi J. Rost
Addison-Wesley Pub Co; ISBN: 0321197895
9. **Computer Graphics using Open GL** (2nd edition)
F.S. Hill, Jr.
ISBN 0-02-354856-8