

<b>Dept Number</b>	<b>CS 485</b>	<b>Course Title</b>	<b>Computer Graphics</b>							
<b>Semester Hours</b>	<b>3</b>	<b>Course Coordinator</b>	<b>Michael Wainer</b>							
<b>Catalog Description</b>	Principles and techniques of computer graphics. Interactive graphics software development using a modern graphics standard. Topics include: primitives, transforms, clipping, modeling, viewing, rendering, texture, animation and ray tracing. A group project is an integral part of this course.									
<b>Textbooks</b>										
Complete Guide to Blender by Blain, AKPET, 2012. ISBN: 9781466517035.										
<b>References</b>										
References to OpenGL, JOGL and documentation for other graphics packages used in projects.										
<b>Course Learning Outcomes</b>										
<ul style="list-style-type: none"> <li>• To learn the principles of modern computer graphics.</li> <li>• To be able to design and implement computer graphics models and applications.</li> </ul>										
<b>Assessment of the Contribution to Program Outcomes</b>										
<b>Outcome →</b>	1	2	3	4	5	6	7	8	9	10
<b>Assessed →</b>	X	X	X	X	X	X				
<b>Prerequisites by Topic</b>										
306 with a grade of <i>C</i> or better; Mathematics 150 and 221 are recommended.										

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<b>Major Topics Covered in the Course</b>		
<ol style="list-style-type: none"> <li>1. Introduction: applications, basic concepts, overview {3 classes}</li> <li>2. Graphics programming and the OpenGL API, primitives, attributes {4 classes}</li> <li>3. Graphics devices: CRTs, random scan and raster scan, input devices, etc {3 classes}</li> <li>4. Interactive input methods: input devices (logical and physical), handling user events and interactions {3 classes}</li> <li>5. 2-D Graphics: transformations, matrix representations, composite transformations {4 classes}</li> <li>6. Graphics client/server; display lists; hierarchical modeling {3 classes}</li> <li>7. 3-D Graphics: primitives, transforms, hidden surface removal {4 classes}</li> <li>8. Clipping and viewpoints, clipping algorithms {3 classes}</li> <li>9. 3-D Viewing and projections {4 classes}</li> <li>10. Object representations, CSG, sweeps etc {3 classes}</li> <li>11. Lighting, texture, ray tracing, anti-aliasing, animation {6 classes}</li> </ol>		
<b>Major Lab Assignments and Projects</b>		
<p>Labs covering:</p> <ul style="list-style-type: none"> <li>2D graphics and interaction</li> <li>3D object modeling and viewing</li> <li>3D animation (development as a team is required)</li> </ul>		
<b>Assessment Plan for the Course</b>		