

## COURSE DESCRIPTION

Department and Course Number	<b>CS 470 (formerly CS 477)</b>	Course Coordinator	<b>Sloan</b>
Course Title	<b>Computer Graphics</b>	Total Credits	<b>3</b>

### Current Catalog Description

*Graphics architectures, geometric transforms, 3-D, object models, shading, intensity, hidden elements, color, advanced topics.*

### Textbook

*Computer Graphics: Principles and Practice in C, 2<sup>nd</sup> ed., by Steven K. Feiner, James D. Foley, John F. Hughes, and Andries van Dam, Prentice-Hall, 1996.*

References *None*

### Course Goals

*Introduce students to Computer Graphics. Prepare them for advanced courses or specialized research in Computer Graphics.*

### Prerequisites by Topic

*Algorithms and Data Structures  
Calculus I*

### Major Topics Covered in the Course

*Generic Computer Graphics hardware, Drawing lines, Co-ordinate systems, clipping, 2D transformations, Windows/Viewports, 3D transformations, Homogeneous Coordinates, Perspective, Parametric Cubic Curves (Hermite, Bezier, B-Spline), Parametric Cubic Surfaces (Hermite, Bezier, B-Spline), Color, Input Devices, Raster Hardware, Scan Conversion, Aliasing, Hidden Surface Elimination, Shading, Constructive Solid Geometry, Ray Tracing*

Laboratory projects (specify number of weeks on each)

*5 programming assignments - 1-2 weeks each  
1 major project - 5-10 weeks*

## Estimate CSAB Category Content

	CORE	ADVANCED		CORE	ADVANCED
Data Structures	_____	_____	Computer Organization and Architecture	_____	<u>2</u> _____
Algorithms			Concepts of Programming Languages	_____	_____
Software Design	_____	<u>20</u> _____			

## Oral and Written Communications

*Every student is required to submit at least 1 written report (not including exams, tests, quizzes, or commented programs) of typically 10 pages and to make 1 oral presentation of typically 20 minutes duration. Include only material that is graded for grammar, spelling, style, and so forth, as well as for technical content, completeness, and accuracy.*

## Social and Ethical Issues

*None*

## Theoretical Content

*None*

## Problem Analysis

*Programming assignments and final projects.*

## Solution Design

*Programming assignments and final projects.*