

CMSC 335 Computer Graphics Syllabus

Spring 2018

Course Information

Instructor Information

Instructor: Jory Denny
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Office: Jepson 226
Office Hours: M 1:00pm-4:00pm; T 3:00pm-5:00pm; Other times by appointment

Brief Teaching Philosophy: I believe in learning real world skills and attempting to solve challenging real world problems. However, I do not believe in ruining someone's grade because they did not succeed 100%.

Section Information

CMSC 335-01

Lecture:	TR	10:30am-11:45am	Carol Weinstein Int. Center 229
Lab:	W	9:00am-9:50am	Jepson G22
Final:	T May 1	2:00pm-5:00pm	Carol Weinstein Int. Center 229

Requirements

Prerequisite: MATH 245 Linear Algebra
CMSC 222 Discrete Structures for Computing
CMSC 301 Computer Organization

Textbook

Required: *Computer Graphics with Open GL*, Donald Hearn, M. Pauline Baker, and Warren R. Carithers, Pearson, Fourth Edition, 2011.

Recommended: *OpenGL Programming Guide: The Official Guide to Learning OpenGL, Version 4.5 with SPIR-V*, John Kessenich, Graham Sellers, and Dave Shreiner, Addison-Wesley, 9th Edition, 2016.

Course Website

<http://www.mathcs.richmond.edu/~jdenny/Courses/335>

Course Outcomes

After taking this course a student will be:

- Exposed to a survey of basic computer graphics algorithms for (including but not limited to):
 - Basic graphics pipeline
 - Drawing primitives (lines, polygons)
 - 2D and 3D geometric and viewing transformations
 - Animation
 - Visible-surface detection
 - Illumination and surface rendering
 - Texturing and surface detailing
 - Color
 - Global illumination
 - Modern graphics pipeline
 - Physically-based modeling
- Able to program a basic graphics engine using classical Open GL methodologies that uses the aforementioned computer graphics concepts.

Course Content and Schedule

During the semester we will discuss the following topics:

Week	Topic	Reading
1- 2	Basics of computer graphics	Ch 1-6
3- 6	2D and 3D geometric and viewing transforms	Ch 7-10
7	Animation	Ch 11-12
8- 9	Visible-surface detection	Ch 16
9-13	Illumination, surface rendering, texturing, and surface detailing	Ch 17-19, 21
13-14	Modern and advanced computer graphics	Ch 22, 23

Note: Schedule is subject to change.

Assignments and Grading

All assignments will be announced in class and details will be posted on the course web page. If you miss class for any reason, it is *your* responsibility to find out what you missed.

Your grade will be based on three components:

1. **Quizzes** — **15%** — There will be in-class quizzes over reading material for the course.
2. **Programming Assignments** — **75%** — There will be five out-of-class programming assignments. These will be turned in as a soft copy and presented in class.
3. **Culture Assignment** — **10%** — Each student is to complete one culture assignment this semester. This is to give the student the opportunity to explore extra topics and interests.

Final grades will be assigned according to the following scale:

Final Grade	Percentage (x)
A ⁺	$96.5\% \leq x$
A	$92.5\% \leq x < 96.5\%$
A ⁻	$89.5\% \leq x < 92.5\%$
B ⁺	$86.5\% \leq x < 89.5\%$
B	$82.5\% \leq x < 86.5\%$
B ⁻	$79.5\% \leq x < 82.5\%$
C ⁺	$76.5\% \leq x < 79.5\%$
C	$72.5\% \leq x < 76.5\%$
C ⁻	$69.5\% \leq x < 72.5\%$
D ⁺	$66.5\% \leq x < 69.5\%$
D	$62.5\% \leq x < 66.5\%$
D ⁻	$59.5\% \leq x < 62.5\%$
F	$x < 59.5\%$

Note: The number of hours per week put in the course is not part of the grading equation.

In other words, an A is about content mastery, not about working hard. A B is about content understanding.

A C is generally earned when content is misunderstood. So you can work really hard and still receive a C.

So, if you complete the basic requirements of the assignments you will receive a B. If you go above and beyond with each project you will get an A.

Policies

Course Conduct

The student will be respectful to the instructor, lab assistants, and other students. Misconduct will not be tolerated. This includes, but is not limited to, excessive phone usage, napping, rude commentary, etc.

Attendance and Late/Missed Assignments

Attendance at all lecture and lab sessions is advised.

No late assignments will be accepted unless permission from the instructor is sought *in advance*, when possible. Exceptions are typically only given for medical reasons. “Late” is defined as one second past the start of the class period. Printer errors are not a valid excuse.

There will be no makeup options for quizzes or exams. Depending on the circumstance, either a 0 will be given, or the next quiz/exam will count twice. Discuss with the instructor accordingly.

Academic Integrity

All students are expected to be in accordance with the student honor code. <http://studentdevelopment.richmond.edu/student-handbook/honor/the-honor-code.html>. Note, cheating, lying, plagiarism, academic theft, etc. are not tolerated. If you know another student is breaking the code it is your responsibility to report them to me and the university.

Collaboration and Using Resources

For the assignments in this class, white-board/verbal discussion of concepts with others is allowed and encouraged, however the writeup must be in your own words.

Plagiarism is strictly forbidden. Reference every source you use, whether it is a person, a book, a paper, a solution set, a web page, etc. Do not cite the instructor or the course textbook, those are assumed.

Specifically to cite sources – in the assignment body (code or paper) cite sources in APA format, e.g., the specific stack overflow post. In source code this information can be placed in a comment line/block. For homework and culture assignments, use proper quotation and cite sources at the end in a bibliography section.

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal antidiscrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact the appropriate university coordinator, <http://disability.richmond.edu>.