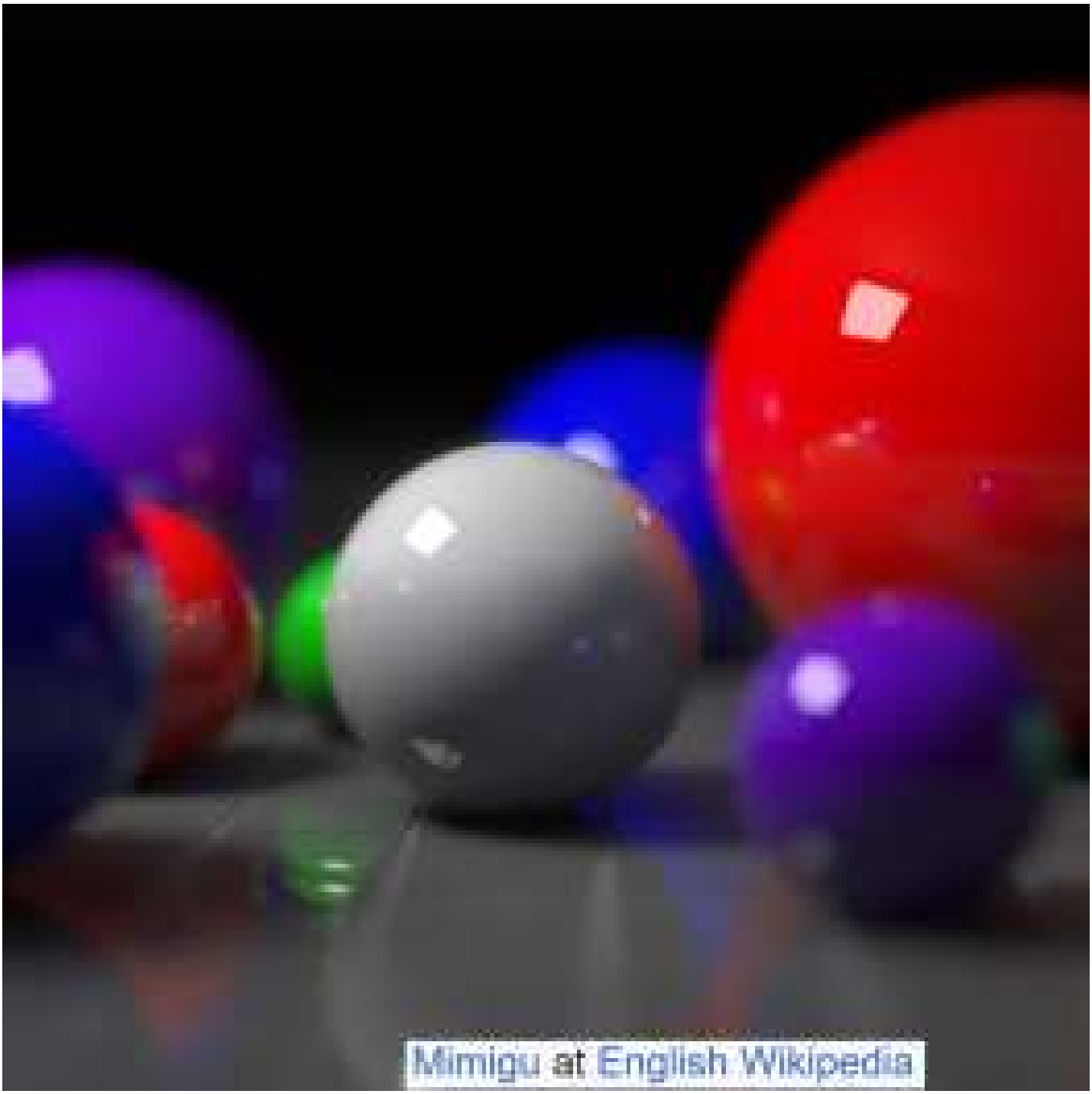
CAP4730 Computational Structures in Computer Graphics Spring 2017



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CATEGORIES

Overview

CAP4730 is an undergraduate course that introduces students to the fundamental concepts, mathematical principles, algorithms and data structures used in computer graphics. Students will gain experience with OpenGL programming and develop an understanding of the graphics pipeline. Topics covered include shading and illumination, sampling and reconstruction, ray tracing, graphics hardware, geometric and viewing transformations, rendering, modeling curves and surfaces and image based methods.

Instructor: Dr. Corey Toler-Franklin, CISE Department, University of Florida

Contact: Office CSE 332 or Lab CSE 319, ctoler@cise.ufl.edu (mailto:ctoler@cise.ufl.edu)

Office Hours: MWF Period 5 (11:45am – 12:35 pm) and by appointment

Location: CSE E121

Time: MWF Period 4 (10:40 am – 11:35 am)

Course Management: Canvas

Website: http://www.corey.toler-franklin.com/course/cap4730-computational-structures-in-computer-graphics-spring-2017/

Prerequisites:

Data Structures and Algorithms. Basic knowledge of algorithms, data structures and discrete math. Central concepts require matrix operations, composition and parametrization of curves and surfaces. Students should be able to program using a high-level language. Familiarity with C or C++ is helpful — otherwise the learning curve is quite steep in the first weeks. Familiarity with OpenGL is not assumed. The mathematical underpinnings and OpenGL practice are emphasized.

Contact instructor if you are not sure you are prepared for the course

Textbooks

Recommended

FUNDAMENTALS OF COMPUTER GRAPHICS

Marschner & Shirley

Fourth edition

ISBN: 1482229390

(Available online)

OPENGL PROGRAMMING GUIDE: THE OFFICIAL GUIDE TO LEARNING OPENGL

DAVE SHREINER, GRAHAM SELLERS, JOHN M. KESSENICH, BILL M. LICEA-KANE

ISBN: 0321773039 Publisher: ADDISON-WESLEY Edition: LATEST

Other Optional References

FOUNDATIONS OF 3D COMPUTER GRAPHICS

STEVEN J. GORTLER

ISBN: 0262017350 Publisher: THE MIT PRESS Edition: FIRST

3D COMPUTER GRAPHICS: A MATHEMATICAL INTRODUCTION WITH OPENGL

SAMUEL R. BUSS

ISBN: 0521821037 Publisher: CAMBRIDGE UNIVERSITY PRESS

Material and Supply Fee: None

Coursework

All assignments are distributed and submitted in Canvas.

30% **Programming Assignments**

20% **Final Programming Project**

20% **Written Homework Assignments**

15% **Exam 1**

15% **Exam 2**

Detailed Syllabus: Posted on Canvas

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ACADEMIC INTEGRITY

The work you submit must be your own. Although it is fine to have some level of discussion with piers on assignments, the work you submit must be your own. You may work in groups of 2 or 3 for the final project but all other work should be done individually. DO NOT POST SOLUTIONS TO PROBLEMS AND PROGRAMMING ASSIGNMENTS ONLINE!

MANDATORY HONESTY STATEMENT:

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

DISABILITIES:

Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

UF Counseling Services:

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include: UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services. Career Resource Center, Reitz Union, 392-1601, career and job search services.

MANDATORY SOFTWARE USE STATEMENT:

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

(mailto:?subject=CAP4730 Computational Structures in Computer Graphics Spring 20:

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