**(CSCI 431 VA) Computer Graphics (Summer 2023)**

Fort Hays State University  
College of Science, Technology and Mathematics

Department of Computer Science

Professor Dr. Hong Biao Zeng

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| **1. COURSE INFORMATION** |

* Course Credit Hours: Three credit hours
* Course Prerequisites: CSCI 251
* Meeting of Class:

Unlike a traditional classroom, in this course, you, as a student, are responsible to develop your own learning by successfully finishing the designed on-­‐line materials within the designed timeline. The instructor will guide you throughout the semester and provide you the academic support that you need.

There are online virtual (office hour) meetings ***by appointment*** between 6:00 p.m. to 7:00 p.m. central time on MTWT and 9:30 a.m. to 10:20 a.m. central time on MTWTF. The students can join the meeting room via Zoom link

https://fhsu.zoom.us/j/4216640576?pwd=U0w0Rk9JZjEwRGEzaVJuWjNleG5QQT09

with password ***advisee***. Please notice that if you have not made an appointment, then either I am not in the room or I am helping other students. In either case, you may not be admitted to the meeting room.

Students from the same class may have the appointment at the same time in case that the students will ask about the same questions. For instance, they all plan to ask the questions about Practice Exam Three.

The meeting materials may be recorded (if it is necessary) for students to allow a later review.

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| **2. INSTRUCTOR INFORMATION** |

* Instructor: Dr. Hong Biao Zeng, Professor
* Office Location: RH 362
* Office Hours:

9:30 a.m. – 10:30 a.m. MTWT and 6:00 p.m. – 7:00 p.m. MTWT by appointment.

The zoom meeting link is

<https://fhsu.zoom.us/j/4216640576?pwd=U0w0Rk9JZjEwRGEzaVJuWjNleG5QQT09>

with password ***advisee***. Although students can request an immediate meeting by calling my office (785-628-5811) during these office hour time slots, however, a one day ahead appointment is strongly recommended.

* Email Address: hzeng@fhsu.edu
* Phone Number: 785-628-5811
* Fax Number: 785-628-5816

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| **3. TEXTBOOK AND COURSE MATERIALS** |

* Required Textbook (An E-text book).

The registration link for this ebook is located in Syllabus and Rubric folder on blackboard.

Title:

Interactive Computer Graphics – A top-down approach with WebGL, 8th edition

Author: Edward Angle, Dave Shreiner

Publisher: Pearson

**ISBN: 9780135258262**

**ISBN10: 013525826X**

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| **4.** **COURSE DESCRIPTION** |

Raster graphics algorithms, transformations, orthographic & perspective projection, hidden surface elimination, surface shading, the graphics pipeline, and color models. Application development utilizing a graphics API. Prerequisite(s): CSCI 251.

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| **5.** **COURSE OUTCOMES** |

Upon a successful completion of this course, the students will be able to

* utilizes graphics algorithms to perform transformations and create projections.
* employs techniques to remove hidden surfaces and shade visible surfaces.
* demonstrates knowledge of the terminology and concepts of a graphics pipeline and color models.
* develops graphics applications utilizing a graphics API (Application Programmer’s Interface).

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| **6.** **TEACHING, LEARNING METHODS, & COURSE STRUCTURE** |

* Delivery Method
  + Read textbook
  + Watch the video notes from the instructor.
  + Participate the class
  + Do Review on blackboard
  + Do Programming Project
  + Participate discussion on Piazza.
* Instructional Approach

All materials will be divided into Three Units. Each Unit will cover three modules. One exam will be given at the end of each Unit. Students should study the materials of each module in following steps

* + Read the Project instruction for the module and get general ideas about the concepts that are covered in the module
  + Read the module chapter of the textbook before come to class
  + Watch video notes to help understanding
  + Begin to do the project/reviews after finish half of the module text.
  + Finish and turn in the project.
  + After finish all modules in a unit, finish and turn in the Review. Note: the students shall start to do Review at beginning of the Unit. Do NOT wait to last minutes to do it since there will be NO time.
* Course Structure

The course is structured into nine Modules total three Units. It is student’s responsibility to finish each module within its timeline. The detailed structure and timeline is listed in Course Schedule section below.

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| **7.** **COURSE SCHEDULE** |

*This schedule is tentative and might change during the semester depending on how the course evolves. Students will be notified of the changes through announcements at the Blackboard course site. If time is mentioned in the course, it refers to the Central Time Zone.* All project/Concept Quiz/Exams are due on indicated date by **11:59 p.m**. Final Exam is due on Friday of final week by 11:59 p.m.

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| **Modules/Exams** | **Topics** | **Reading/Explore** | **Assignment** |
| Module 1  Week 1 (Fri) | Graphics Systems and Models | Chapter 1  Start Review 1 | Project 1, homework 1  Due on Week 1 Fri |
| Module 2  Week 1 – 2 (Wed) | Graphics Programming | Chapter 2  Continue Review 1 | Project 2, Homework 2  Due on Week 2 Wed |
| Module 3  Week 2 – 3 (Mon) | Interaction and Animation | Chapter 3  Continue Review 1 | Project 3, homework 3  Due on Week 3 Mon |
| Exam One  Week 3 | Cover Module 1-3  Review Guide | Finish Review 1.  Due Week 3 Tue. | Exam One Due Week 3 Thu |
| Module 4  Week 4 (Mon) | Geometric Objects and Transformation | Chapter 4  Start Review 2 | Project 4, homework 4  Due on Week 4 Mon |
| Module 5  Week 4 (Sat) | Viewing | Chapter 5  Continue Review 2 | Project 5, homework 5  Due on Week 4 Sat |
| Module 6  Week 5 (Thu) | Lighting and Shading | Chapter 6  Continue Review 2 | Project 6, homework 6  Due on Week 5 Thu |
| Exam Two  Week 5-6 (Mon) | Cover Module 4-6  Review Guide | Finish Review 2  Due Week 5 Fri | Exam Two Due Week 6 Mon |
| Module 7  Week 6 (Thu) | Texture Mapping | Chapter 7  Start Review 3 | Project 7, homework 7  Due on Week 6 Thu |
| Module 8  Week 6 – 7(Tue) | Working with Framebuffer | Chapter 8  Continue Review 3 | Project 8, homework 8  Due on Week 7 Tue |
| Module 9  Week 7 – 8(Sun) | Modeling and hierarchy | Chapter 9  Continue Review 3 | Project 9, homework 9  Due on Week 8 Sun |
| Exam Three  Week 8 | Cover Module 7 – 9  Review Guide | Finish Review 3  Due on Week 8 Mon | Exam Three Due Week 8 Wed |
| Final Exam | Due on Week 8 Fri (July 28, 2023) | | |

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| **8.** **ASSESSMENT METHODS AND GRADING SCALE** |

* EXAM REVIEW (6%)

There are three Unit Exam Reviews on blackboard. The students do the Reviews on Blackboard. The students can save the work and return to continue as long as the students submit the Review before the deadline. Once the deadline passes, the Review link will be closed. Therefore, no late Review is acceptable.

* EXAMS (30%)

There will three unit-exams. Each exam covers three modules. All exams are on Blackboard and must be taken with ***Honorlock*** online proctoring system.

All exams are located in Exam folder on Blackboard. Once the exam starts, the students need to finish the exam in 90 minutes. After 90 minutes, the exam will be automatically submitted.

The students need to take and submit the exam before deadline. Once the deadline passes, the exam link will be closed. Therefore, no late exam is acceptable.

The exam questions will cover the same concepts that are demonstrated in Exam Review, homework, and projects.

* HOMEWORK (18%)

There are nine homework. Each homework has different number of questions. Students need to turn in their homework on time via link on blackboard. NO late homework is acceptable.

* PROJECTS (30%)

There are nine projects. Students need to turn in their projects on time via Blackboard. NO late projects are acceptable.

* FINAL (16%)

There will be a comprehensive final exam given at the last week of the semester. Final exam is **mandatory**. Whoever misses the final will automatically fail the course. The final exam follows the same procedures as unit exams.

* Grade Cut:

90% or above: A; 80% to 89%: B; 70% to 79%: C; 60% to 69%: D; 59% or below: U

All grade cut are sharp. There will be NO curve for any individual.

Please notice that the **weighted average** will be used for course assessment. Your course percentage will be calculated using the following formula:

Where YRT for Your Reviews Total Points; YET for Your Exams Total Points; YHT for Your Homework Total Points; YPT stands for Your Project Total Points; and YF for Your Final Exam Points

Please **DO NOT** simply using your course total points to divide by 2000 to get your course percentage since the points on different categories are weighted differently. Please refer the following table for unit points, total unit points, and weight for each assessment category.

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| **Assessment Categories** | **Unit Points** | **Total Category Points** | **Weight** |
| *3 Exam Reviews* | 30 | 30 × 3 = 90 | 6% |
| *9 Homework* | Vary | 610 | 18% |
| *9 Projects* | 100 | 100 × 9 = 900 | 30% |
| *Three Exams* | 100 | 100 × 3 = 300 | 30% |
| *1 Final Exam* | 100 | 100 × 1 =100 | 16% |
| *Total Points* |  | 2000 | 100% |

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| **9.** **STUDENT HELP RESOURCES** |

Students have access to academic services, technical support and student services at Fort Hays State University. You can find the resources on Blackboard under Helpful Resources folder

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| **10.** **COURSE POLICIES** |

* Class Attendance

Students need do Reviews, Projects, and Exams on time. Anyone who misses one review, or one project, or one exam will be reported to TigerIQ, , which is the FHSU student retention system.

* Assignment Due Date

There no late Review, Project, or Exam is acceptable except with permission from instructor due to the emergency. In case there is an emergency which needs to be accommodated, the student must first send the instructor an e-mail notification before the due date, then submit the evidence within two days.

* Procedures for all Assignment Submission
  + The online Review is finished and submitted on Blackboard. The Review link will be closed once the due date passes. Late Review assignments are not acceptable.
  + The projects need to be finished using required programming language. The students need to turn in project file by uploading it to Blackboard via project assignment link. The project file must be well documented. The author’s name must be included. The project link will be closed once the due date passes. Late projects are not acceptable.
  + Three Exams and Final Exam are finished and submitted on Blackboard.
* Exam Make-ups

Exam make-ups are possible if the student provides appropriate information for being unable to take the Exam on time. The instructor reserves the right to ask for the evidence and documentation.

* Review/Project Due Dates

All the due dates are posted in course calendar. The instructor may (may not) announces it in class to remind the students about the due date. However, it is the students’ full responsibility to ensure that all required materials are turned in on time.

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| **11.** **UNIVERSITY POLICIES** |

All university policies are located in University Policies folder on Blackboard. The Title IX is particularly important, so it is stated here

FHSU is committed to fostering a safe and productive learning environment. Title IX makes it clear that violence and harassment based on sex, gender, and gender identity are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. This includes all types of gender and relationship violence, sexual harassment, sexual misconduct, domestic and dating violence, and stalking. If you wish to report an incident or have questions about school policies and procedures regarding Title IX issues, please contact Amy Schaffer, University Compliance Officer and the FHSU Title IX Coordinator, at alschaffer@fhsu.edu or (785) 628-4175. The Compliance Officer can help connect you to campus and outside resources, discuss all of your reporting options, and assist with any concerns you may have.