

Sul Ross State University
A Member of the Texas State University System
CSAT2315 - Intro to Game Programming, Fall 2014

Instructor: Dr. Rafael Azuaje
Office Location: ACR 107B
Office Telephone: (432) 837 - 8068
Electronic Mail: razuaje@sulross.edu
Office hours: TBA
Class: 10:00 am - 10:50 a.m. MWF BAB 302; Lab: 2:00 - 3:45 p.m. TR

Course Objectives:

This course introduces programming 3D geometry to create images interaction between physical and virtual space. Students will learn how to generate geometry with code, import and control animated models, shader and lighting design, interfacing with hardware and networks, and projection mapping onto physical objects. Emphasis will be placed on the narrative potential of imagining virtual environments and their interaction with physical space to create applications such as games, advertising and other industry based applications. Students will use computer game engines and implement fundamental computer graphics algorithms.

Learning Outcomes

After completion of this course:

Students will be able to describe the history and evolution of computer animations, both hardware and software.

Students will be able to describe and implement 2D graphics and algorithms including line drawing, polygon filling, clipping, and transformations.

Students will be able to explain the concepts of and techniques used in computer animations including viewing transformations, hierarchical modeling, color, lighting and texture mapping.

Students will be exposed to current computer animation research areas.

Students will be describe algorithms and techniques fundamental to 3D computer graphics and explain the relationship between the 2D and 3D versions of such algorithms.

Students will be able to reason about and apply these algorithms and techniques in new situations.

Textbook:

[Game Development with Unity, 2nd Edition](#)

Michelle Menard | Bryan Wagstaff

ISBN-13: 9781305110540

600 Pages | © 2015 | Published

Assignments:

Exercises will be periodically assigned to help support and supplement material found in the textbook.

No make-ups are allowed, unless medical or extreme conditions are considered. Tests, assignments and final exam will be delivered through Blackboard with a date and time limit. No make-ups are allowed, unless medical or extreme conditions are considered.

Grading

Letter grades will be determined using a standard percentage point evaluation as outlined below.

A	90 - 100 points
B	80 - 89 points
C	70 - 79 points
D	60 - 69 points
F	below 60 points

The final grade will be computed on the following weights:

Tests:

Exam 1 ==> 15%

Exam 2 ==> 15%

Exam 3 ==> 15%

Exam 4 ==> 15%

Final Project ==> 20%

Assignments ==> 15%

Participation ==> 5%

Course Policies

Exams, quizzes and assignments: NO MAKE-UPS ARE ALLOWED, unless medical or extreme conditions are present.

Academic dishonesty

You are expected to do your own work on all assignments, exams, quizzes, and projects. Any dishonest work will be penalized with a grade of zero.

Need for assistance

Qualified students with disabilities needing academic or other accommodations to ensure full participation in the programs, services and activities at Sul Ross State University should contact the

Disabilities Services Coordinator, in Counseling and Prevention Services, Ferguson Hall 112, Box C - 117, Alpine, Texas 79832.

Posting of Grades

As soon as assignments, tests and final exam are graded, the grades will be posted in Blackboard.

Activity schedule:

PART 1: IN THE BEGINNING.

1. Preface.
2. Introduction.
3. An Overview of the Unity Engine.
4. Your First Game: Where to Start?

PART 2: ASSEMBLING THE GAME ASSETS.

5. Setting the Stage with Terrain.
6. Building Your Environment: Importing Basic Custom Assets.
7. Creating Characters.

PART 3. BRINGING YOUR PROPS TO LIFE WITH INTERACTIVITY.

8. Scripting in Unity.
9. Writing the Character and State Controller Scripts.

10. Hooking Up the Animations.11. Using Triggers and Creating Environment Interactions.

12. Building Adversaries and AI.

13. Designing the Game's GUI (Graphical User Interface).

PART 4: POLISH AND THE FINISHING TOUCHES.

14. Creating Lighting and Shadows.

15. Using Particle Systems.

16. Adding Audio and Music.

PART 5: PUBLISHING AND DISTRIBUTING BUILDS.

17. Basic Unity Debugging and Optimization.

18. Creating the Final Build.

Program Learning Outcomes

The graduating student will demonstrate that he/she:

- Can apply fundamental concepts of computer science including algorithms and data structures.
- Can identify and apply modern computer systems, data base, and networking
- Displays the ability to implement current programming methodologies.
- Becomes proficient with system design based on object - oriented programming.
- Is able to work as a team in group environments.

Note: The instructor reserves the right to modify this syllabus at any time.