Course Syllabus

Course Information

Course Number & Section	CS 6334.001 / ATEC 6382.001
Course Title	Virtual Reality
Term	Fall 2016
Days & Times	Tues & Thurs 2:30pm - 3:45pm
Location	ECSN 2.120

Professor Contact Information

Professor	Ryan P. McMahan, Ph.D.
Office Phone	972-883-6610
Email Address	rymcmaha@utdallas.edu
Office Location	ATC 1.602
Office Hours	Tues & Thurs 4:00pm - 5:00pm

Course Pre-requisites, Co-requisites, and/or Other Restrictions

CS 5343 Algorithm Analysis and Data Structures for CS 6334; None for ATEC 6382

Course Description

Theory and practice of virtual reality (VR). Provides in-depth overview of VR, including input devices, output devices, 3D navigation techniques, 3D selection and manipulation techniques, system control techniques, interaction fidelity, scenario fidelity, display fidelity, design guidelines, and evaluation methods.

Student Learning Objectives/Outcomes

- Ability to develop 3D virtual environments.
- Ability to describe and develop 3D navigation techniques.
- Ability to describe and develop 3D selection and manipulation techniques.
- Ability to describe system control techniques.
- Ability to develop immersive virtual reality applications.
- Ability to recognize and describe the components of system fidelity.

Required Textbooks and Materials

Required Texts

Bowman, D., Kruijff, E., LaViola, J., and Poupyrev, I. 3D User Interfaces: Theory and Practice. Addison-Wesley, 2005.

Required Materials

None

Suggested Course Materials

Suggested Readings/Texts

None

Suggested Materials

None

Assignments & Academic Calendar
Topics, Reading Assignments, Due Dates, Exam Dates

Week	Tuesday	Thursday	Assignments
1	08/23 Course Overview	08/25 **Online Quiz #1: Ch. 3 & 4** Output and Input Devices	
2	08/30 VR Development Tools	09/01 **Online Quiz #2: Ch. 5** 3D Manipulation	
3	09/06 **Online Quiz #3: Ch. 6 & 7** 3D Travel	09/08 Development Examples	**HW #1: 3D Modeling** Due Sunday (09/11)
4	09/13 **Online Quiz #4: Ch. 8 & 9** System Control	09/15 System Fidelity	
5	09/20 VR Applications	09/22 Learning with VR	
6	09/27 Project Pitch Ideation	09/29 Project Pitch Development	**HW #2: 3D Interactions** Due Sunday (10/02) **Project Pitch** Due Sunday (10/02)
7	10/04 **Project Pitches**	10/06 **Project Pitches**	
8	10/11 Team Introductions	10/13 Project Design	
9	10/18 **Online Quiz #5: Ch. 11** Evaluation of VR	10/20 Project Prototyping	
10	10/25 **Online Quiz #6: Ch. 12** Mixed Reality	10/27 Project Prototyping	
11	11/01 Project Prototyping	11/03 Project Prototyping	**Preliminary Prototype** Due Sunday (11/06)
12	11/08 **Preliminary Prototypes**	11/10 **Preliminary Prototypes**	
13	11/15 Project Redesign	11/17 Project Prototyping	
14	11/22: Fall Break	11/24: Fall Break	
15	11/29 Final Review	12/01 The Future of VR	
16	12/06 **Final Exam**	12/08: Reading Day	**Final Prototype** Due Thursday (12/08) **Final Prototypes** Final exam period (TBD)

Grading Policy

Credit Distribution of Assignments and Exams

- 15 % Online Quizzes
  - 2.5% Online Quiz #1: Chapters 3 & 4 (due Thursday, Aug. 25; before class)
  - 2.5% Online Quiz #2: Chapter 5 (due Thursday, Sep. 1; before class)
  - 2.5% Online Quiz #3: Chapters 6 & 7 (due Tuesday, Sep. 6; before class)
  - 2.5% Online Quiz #4: Chapters 8 & 9 (due Tuesday, Sep. 13; before class)
  - 2.5% Online Quiz #5: Chapter 11 (due Tuesday, Oct. 18; before class)
  - 2.5% Online Quiz #6: Chapter 12 (due Tuesday, Oct. 25; before class)
- 25% Homework
  - 10% Homework #1: 3D Modeling (due Sunday, Sep. 11)
  - 15% Homework #2: 3D Interactions (due Sunday, Oct. 2)
- 45% Team Project
  - 10% Project Pitch (due Sunday, Oct. 2; presented in class)
  - 15% Preliminary Prototype (due Sunday, Nov. 6; presented in class)
  - 20% Final Prototype (due Thursday, Dec. 8; presented in final exam period)
- 15 % Exam
  - 15% Final Exam (in class Tuesday, Dec. 6)

Grading Scale

- A 93 or above
- A- 90-93
- B+ 87-90
- B 83-87
- B- 80-83
- C+ 77-80
- C 70-77
- F 70 or below

Course Policies

Class Attendance

Required. Per the Professor's policy, every unexcused absence will result in a 3-point deduction from the student's final grade. Students can make up unexcused absences by participating as human subjects in research studies approved by the UT Dallas Institutional Review Board. For every hour of participation, one unexcused absence will be forgiven and the associated point deduction will be undone.

Per the Computer Science Department policy, three consecutive absences will result in a letter grade deduction, and four consecutive absences will result in an F. This policy will supersede the Professor's policy (e.g., three consecutive unexcused absences will only result in a letter grade deduction and not a 9-point final grade deduction on top).

Make-up exams

Will not be offered.

Extra Credit

Extra credit will not be offered unless otherwise noted in an assignment.

Late Work

Late work will not be accepted unless otherwise noted in an assignment.

Classroom Citizenship

The instructor expects students to take active part in classroom participation. Failure to do so may count as an unexcused absence despite being physically present.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.