

DIG3779 Introduction to Virtual Reality Development

Fall 2024 | MWF 10:40am – 11:30am | Rubini Lab

Instructor: Jackson Anderson

Email: Jackson@Innovation.fsu.edu

Office: Shores 128

Course Location: Rubini Lab at the Innovation Hub

Course Website: Canvas

Office Hours: T/TH 10:00am - 11:00am or by appointment.

Pre-reqs: none

Credits: 3

Course Description

This course provides an introduction in developing interactive experiences for virtual reality. This course will familiarize students with a variety of methods, concepts, and strategies for creating immersive experiences. Students will also become familiar with industry leading tools and through hands-on experience learn how to research and resolve issues that arise during development.

Course Learning Objectives

After the completion of this course, students will be able to:

- Define immersive media and its strengths and limitations as a tool for creating new forms of experiences.
- Design and create environments for virtual reality through the use of available assets with emphasis towards exploration and interaction as the primary focus of engagement.
- Identify, research, and solve problems and challenges that arise during development on industry leading platforms.

- Utilize industry standard tools and practices for developing and maintaining digital projects.
- Explore various professions and roles that are involved in 3D development, the distinct skill sets they possess, and how diverse teams create unique and innovative projects.

Course Materials and Resources

There are no materials or textbooks to purchase for this course. All readings for the course are resources and documentation for the tools and development strategies learned in the course. Examples of such resources that will be referenced in the course are:

- <https://github.com/git-guides>
- <https://learn.unity.com/course/create-with-vr>

FSU Canvas (<https://canvas.fsu.edu>) is where all class interactions occur: announcements, assignment submissions, digital resources, and student grades.

COURSE ASSIGNMENTS:

Assignments

Students will complete several individual assignments during the semester. Full details of the individual assignments will be posted on the Assignments page of the course website and linked to from the appropriate module as they are brought up in class.

Development Projects

Students will be tasked with the creation of 2 projects over the course of the semester. The first project will be for students to design and create a room explorable in virtual reality. This will involve finding assets, implementing them, and utilizing various

development techniques learned over the semester. The second project is the Exploration and Interaction project where students will be tasked with designing a project that hinges on exploration and interactivity. Students will have a wide range of freedom in creating a project that fits these goals and will build on the strategies and tools learned in class to create a new experience.

Attendance and Participation:

This class will cover a wide range of technical subjects that build on each other. Attendance and participation is critical to ensure understanding of the material. For each unexcused absence after the second, students will lose 2% from their final course grade.

Students can participate in a variety of ways such as asking questions during class and staying on task during work days. Students can also earn participation points by performing additional research on class topics and discussing their findings into their assignments. Tentative participation grades will be posted during week 5 and week 10 of class.

Grading

Grade distribution:

- Assignments - 35%
- Development Projects - 45%
- Attendance and Participation - 20%

Total - 100%

Final Grade Calculation

Name:	Range:	
A	100 %	to 93.0%
A-	< 93.0 %	to 90.0%
B+	< 90.0 %	to 87.0%
B	< 87.0 %	to 83.0%
B-	< 83.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 73.0%
C-	< 73.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 63.0%
D-	< 63.0 %	to 60.0%
F	< 60.0 %	to 0.0%

Late Assignment and Make Up Policy

- A 20% penalty per day is applied to assignments submitted late.
- Students can make up to 50% of points lost on an assignment by resubmitting with corrections. Students cannot make up points lost due to late submissions.

Course Agenda

Topic	Assignment
Week 1: Introduction to Virtual Reality	Intro to VR Demo

Week 2: Essentials of Development	Version Control
Week 3: Introduction to 3D Engines	3D Sample Project
Week 4: Anatomy of an Object	Broken Asset Challenge
Week 5: Developing for VR	
Week 6: Create a Room Project	Create a Room Project
Week 7: VR Interactions	VR Interactions
Week 8: Audio Implementation	Bug Fixes
Week 9: Interactive Design	Design Document
Week 10: Exploration and Interaction Project Research and Planning	Exploration and Interaction Project
Week 11: Exploration and Interaction Project Construction	
Week 12: Exploration and Interaction Project Construction	

Week 13: Exploration and
Interaction Project Construction

Week 14: Exploration and
Interaction Project Completion

Week 15: The Future of State of VR
Development

Create a Room Project

Liberal Studies Assignment: Students independently will be tasked with designing and creating a bedroom that is explorable as an immersive environment. Students will utilize development and design practices established throughout the course to create this digital space. Included will also be a short video of the student exploring the space in a virtual reality headset.

Exploration and Interaction Project

Liberal Studies Assignment: Students will be tasked with designing and creating an immersive reality environment that hinges on exploration and interaction. Students will have the creative freedom to establish design goals and themes with consideration given to how the space encourages interactions and exploration. Students will utilize every skill and practice learned in the class to develop this project. Students will also be tasked with using an additional skill not learned in class to add to their project. Examples of possible skills are provided below but other skills that could benefit the development of the project are possible. Accompanying the submission, students will also provide documentation of the development process as well as a recording of themselves exploring the space through a virtual reality headset.

Possible skills may include:

- Programing
- 3D Modeling
- Music

Course Policies

University Attendance Policy:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy:

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University."

(Florida State University Academic Honor Policy, found at

<http://fda.fsu.edu/Academics/Academic-Honor-Policy>)

Academic Success:

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dept. of Student Support and Transitions office to learn more.

Americans with Disabilities Act:

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodation for all persons with disabilities in a manner that is consistent with the academic standards of the course while empowering the student to meet the integral requirements of the course.

Students with disabilities needing academic accommodation should: (1) register with and provide documentation to the Office of Accessibility Services; and (2) request a letter from the Office of Accessibility Services to be sent to the instructor indicating the need for accommodation and what type; and (3) meet (in person, via phone, email, skype, zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations.

Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided. This syllabus and other class materials are available in an alternative format upon request. For the latest version of this statement and more information about services available to FSU students with disabilities, contact the:

Office of Accessibility Services

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

oas@fsu.edu

<https://dsst.fsu.edu/oas>

Confidential Campus Resources

Various Centers and programs are available to assist students with navigating stressors that might impact academic success. These include the following:

Victim Advocate Program

University Center A,

Room 4100, (850) 644-7161, Available 24/7/365,

Office Hours: M-F 8-5

<https://dsst.fsu.edu/vap>

Counseling and Psychological Services (CAPS)

Florida State University Counseling and Psychological Services (CAPS) primary mission is to address psychological needs and personal concerns, which may interfere with students' academic progress, social development, and emotional well0being. The following in-person and virtual (tele-mental health) services are available to all enrolled students residing in the state of Florida:

1. Individual therapy
2. Group therapy
3. Crisis Intervention
4. Psychoeducational and outreach programming
5. After hours crisis-hotline
6. Access to community provides for specialized treatment

Call 850-644-TALK (8255) for more information on how to initiate services

Counseling and Psychological Services

250 Askew Student Life Center

942 Learning Way

(850) 644-TALK (8255)

Walk-in and Appointment Hours:

M-F 8 am – 4 pm

<https://counseling.fsu.edu/>

Services at UHS are available to all enrolled students residing in Florida:

The mission of University Health Services (UHS) is to promote and improve the overall health and well-being of FSU students. UHS provides a coordinated continuum of care through prevention, intervention, and treatment. Services include general medical care, priority care, gynecological services, physicals, allergy injection clinic, immunizations, diagnostic imaging, physical therapy, and a medical response unit. The Center for Health Advocacy and Wellness (CHAW) assists students in their academic success through individual, group, and population-based health and wellness initiatives. Topics include wellness, alcohol and other drugs, hazing prevention, nutrition and body image, sexual health, and power based personal violence prevention. For more information, go to uhs.fsu.edu.

University Health Services

Health and Wellness Center

960 Learning Way

Tallahassee, FL 32306

Hours: M-F 8 am - 4 pm

(850) 644-6230

<https://uhs.fsu.edu/>

Free Tutoring from FSU:

On-campus tutoring and writing assistance is available for many courses at Florida State University. For more information, visit the Academic Center for Excellence (ACE) Tutoring Services' comprehensive list of on-campus tutoring options at <http://ace.fsu.edu/tutoring> or contact tutor@fsu.edu. High-quality tutoring is available by appointment and on a walk-in basis. These services are offered by tutors trained to

encourage the highest level of individual academic success while upholding personal academic integrity.

Syllabus Change Policy:

Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.