Course Syllabus
Introduction to Virtual Reality – CMP4605
Spring 2022

Instructor: Ms. Susie Cunningham
Email: scunningham@bsu.edu
Office: **Elliott 007**
Classrooms: BU215 & BU219

Office Hours:

Mondays: **Noon – 1:00 p.m. (in Elliott 007)**
4:00 – 5:00 p.m. (BU215)
7:00 p.m. – 9:00 p.m. (Via Zoom)

Tuesdays: **Noon – 1:00 p.m. (in Elliott 007)**
3:00 – 4:00 p.m. (in BU215)

Wednesdays: **Noon – 1:00 p.m. (in Elliott 007)**
4:00 – 5:00 p.m. (BU215)

Fridays: **Noon – 2:00 p.m. (in Elliott 007)**
4:00 – 5:00 p.m. (BU215)

Other times for Office Hours may be arranged by appointment.
Can also email me at any time.

Description: This course will provide an introduction to the study of Virtual Reality. Students will explore the basics of Virtual Reality, 3D graphics, 3D modeling and programming in the world of Virtual Reality using various programming languages and computer software packages.

Text:

Unity
3D Tutorials

Course Methodology:

Course methodology will include **hands-on activities, lectures, outside readings, classroom discussion, watching 3D movies, fieldtrips and projects.**

Student Evaluation:

There will be **10 homework assignments,** and **1 major programming project**.

Method of Grading:

Grades will be based on a point system.

	Points
Homework Assignments	100
Major Programming Project	100
Total Points	**200**

Accumulated totals are then distributed into letter grades as follows:

A	**(93% - 100%)**
A-	**(90% - 92.9%)**
B+	**(88% - 89.9%)**
B	**(83% - 87.9%)**
B-	**(80% - 82.9%)**
C+	**(78% - 79.9%)**
C	**(73% - 77.9%)**
C-	**(70% - 72.9%)**
D*	**(69% and below)**

Classroom Policies:

Homework Assignments: Homework assignments must be **turned in by the due date**. Assignments may be turned in earlier than the due date. **Any late homework** will **result** in a **reduced grade. (25% off for each day late.) Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, and Saturday all count as days. A timeframe for a day constitutes from 12:01 a.m. – Midnight.**

Absence prior to due Date: Missing class (excused or not) prior to a test, or other due dates for homework assignments does not exempt the student from preparing and taking the test and/or submitting the required homework assignment on the due date. Exceptions may be granted in advance of class time and must be discussed with the instructor.

Tardiness: Students arriving more than 5 minutes late to class are marked tardy. Students arriving 20+ minutes late will be marked absent. **A student sleeping in class will be counted as an absence.**

Academic Dishonesty: (Refer to the Indiana Academy Handbook.)
In the event, a student turns in a computer program for a homework assignment or test that was not originally written by the student, the homework or test will fall under the category of plagiarism. This will be considered a **serious offense**. Students will be allowed to ask for help from other students if they are working on a preannounce group project or the student needs assistance finding a syntax error or minor errors.

If a student does use code in a programming homework assignment or project that was obtained from the Internet, another programming source, or writing code that is similar in nature, the student **must put in a comment in the computer program with the source of where the code was obtained, otherwise this will be considered under the category of plagiarism.**

Furthermore, if a student writes a computer program for another student, the student "knowingly permitting one's work to be submitted by another person as if it were the submitter's original work" will also be penalized.

Penalties will be assessed in accordance to the Indiana Academy Handbook.

Communication:

The best way to communicate with me is through email at **scunningham@bsu.edu**. My phone dings when I receive an email and I can answer back via email through my phone. Generally, I do answer back almost immediately during work hours (unless I am teaching a course or on my way to class). I will always respond back within 24 hours. (This does include the weekends.) Generally, I am more available late at night. Office hours will be posted

Diversity and Inclusion:

Ball State University aspires to be a university that attracts and retains a diverse faculty, staff, and student body. We are committed to ensuring that all members of the community are welcome, through valuing the various experiences and worldviews represented at Ball State and among those we serve. We promote a culture of respect and civil discourse as expressed in our Beneficence Pledge and through university resources found at http://cms.bsu.edu/campuslife/multiculturalcenter.

Accommodations:

If you need course adaptations or accommodations because of a disability, please contact me as soon as possible. Ball State's Disability Services office coordinates services for students with disabilities; documentation of a disability needs to be on file in that office before any accommodations can be provided. Disability Services can be contacted at 765-285-5293 or dsd@bsu.edu.

Canvas Accessibility:

Canvas provides a user experience that is easy, simple, and intuitive. Special attention has been paid to making Canvas screen-readable. The Rich Content Editor encourages users to create accessible content pages (i.e. text formatting is accomplished using styles). Canvas is designed to allow limited customization of colors and schemes to be accessible for all users. The National Federation of the Blind granted Canvas the Gold Level Web Certification in 2010.

Find more information by visiting the Canvas Voluntary Product Accessibility Template (VPAT) . https://community.canvaslms.com/t5/Accessibility/Accessibility-within-Canvas/ba-p/261501

Indiana Academy Mask Policy:

The Indiana Academy will follow Ball State University's mask policy. Effective July 1, 2020, all people on campus—including faculty, staff, students, vendors, contractors, suppliers, and visitors—should wear face masks (covering nose and mouth) while inside campus buildings. For information please refer to the following BSU Web Site: https://www.bsu.edu/about/administrativeoffices/emergency-preparedness/pandemicfluprep/coronavirus

Requirements:

The Indiana Academy will follow Ball State University's mask policy. Effective July 1, 2020, all people on campus—including faculty, staff, students, vendors, contractors, suppliers, and visitors—should wear face masks (covering nose and mouth) while inside campus buildings. Face masks are specifically required in the following situations:

- When in the presence of others (indoors or outdoors) and physical distancing is difficult to maintain, such as in hallways, elevators, stairs, public spaces, and common areas;

- When in a classroom or laboratory;

- When using campus transportation (such as a shuttle bus);

- When multiple individuals are in a University vehicle. Students, faculty, and staff are encouraged to bring their own mask. Masks will be provided to anyone who is unable to bring a mask or their mask is damaged.

Non-compliance:

If a student declines to wear a face mask as required, the student will be referred to the Director of Academic Affairs or the Director of Residential Affairs. If the situation occurs in a classroom or other academic setting, it is considered a classroom management issue, and the teacher will remind the student of the requirement and give the student a chance to comply with it prior to referring the matter to the Director of Academic Affairs or the

Director of Residential Affairs. Wearing masks is crucial to preventing the spread of COVID-19 to others.

Class Participation: Unless instructed otherwise, students need to be working on items relating to the classroom homework/topic during the class time.

Indiana Academy Unexcused Absence Policy

It is the policy of the Indiana Academy that any absence from class is unexcused, except for illness, death in the family, college or school-related activities, and extenuating circumstances. When a student is absent from a class, the instructor reports the student absence to the Faculty Attendance Coordinator in the Office of Academic Affairs. Unless the absence is excused by a school official, it is considered unexcused. The decision as to whether an absence is excused is not determined by the instructor.

The student is expected to attend every class. The student is allowed one unexcused absence without penalty. Each additional unexcused absence will be penalized as follows: Unexcused absence (1) = 1-point subtraction from final grade. Unexcused absence (2) = 3-point subtraction from final grade. Unexcused absence (3) = 5-point subtraction from final grade. (For example, if you have an 89 final average with (3) unexcused absences your final grade will be 84). Four (4) or more unexcused absences will lead to academic and residential consequences beyond the scope of this class determined by the Office of Academic Affairs (i.e., residential groundings, parent/principal conference, and/or detention).

Any minor assignment/test/project/presentation missed due to an unexcused absence will be handled according to the late work policy of this class. A student will be given an opportunity to retake any missed assignment/test/project/presentation worth more than 20% of the final grade but will be docked a full letter grade as a result.

Tentative Class Activity and Assignments
Introduction to Virtual Reality – Visual Programming

Week of January 3, 2022:
An introduction to virtual reality will be presented. Topics will include, what is VR, what VR is not, and basic hardware. An in-depth discussion of VR hardware, human interaction, and stereo components will be presented. Will have philosophical discussions of how VR will event future with medicine, teaching, etc.

A discussion on how people and animals view items in 3D will be presented. Students will work with projects using red/blue glasses.

HW #1 (5 pts.) will be due on January 5, 2022. Students will create a 3D picture which will be viewed using 3D glasses.

Students will watch a 3D movie about the Universe.

Week of January 10, 2022:
Download the 3D programming language Scratch and Unity.

Learn the basics of the Scratch programming language.

HW #2 (10 pts.) – Based on homework requirements, create a small game in Scratch. Due on January 14, 2022.

Week of January 17, 2022:
January 17th – Martin Luther King, Jr. Day (No class)
Students will watch an older 3D movie, "Spy Kids in 3D", an IMAX version of the Grand Canyon, and Dinosaurs.
Students will watch various portions of cartoon 3D movies, such as "Polar Express" and "Pirates".
Students will learn how 3D movies are made.

HW #3 (10 pts.) will be due on January 20, 2022. Students will complete a worksheet of questions regarding their opinions of what makes a good 3D movie and what does not, doing a compare and contrast of 3D effects.

Weeks of January 24 and January 31 2022:
Learn basics of Unity.

HW #4 (10 pts.) – Create a small Unity world based on homework requirements. Due on February 2, 2022. **Students will create a Virtual World using Unity with terrain and putting in objects.**

Week of February 7, 2022:
February 7th – Extended Weekend (No class on Monday)
Students will try out **Oculus Rift and Vive** technology.

Week of February 14, 2022:
Students will present major programming project design to teacher.
HW #5 (10 pts.) will be due on February 16, 2022. Major project design.
Students will learn more advanced features using Unity.

Weeks of February 21 and February 28, 2022:
Students will learn more advanced features using Unity and will continue working on their major projects.
Students will need to present the work that has progressed on the major programming project.
Field trip relating to how computer images are displayed at BSU Planetarium.
Field trip to BSU Sociology department. (If possible due to Covid.)

HW #6 (10 pts.) will be due on March 2, 2022. Students will create a simulated environment for their major project. Show evidence that major project has been started.

<u>Week of March 7, 2022:</u>
SPRING BREAK!!

<u>Weeks of March 14, 21 and 28, 2022:</u>
Students will continue working on Unity projects. They will also research new topics in the area of Virtual Reality and will present findings to class.
HW #7 (10 pts.) will be due by March 18, 2022. Students will research and report to the class their findings about current topics in the area of Virtual Reality.
HW #8 (10 pts.) will be due by March 25, 2022. Students will research and report to the class their findings about people who have influenced the area of Virtual Reality.

<u>Weeks of April 4, and April 11, 2022:</u>
Students will begin to complete work on the major project and will integrate it into the **Oculus Rift.**
HW #9 (10 pts.) - Projects must be converted by by April 11th, 2022!!!!!!! to either the Oculus or Vive technology.
A sneak preview of the major project will be shown to the class.

<u>Week of April 18th, 2022:</u>
April 15th – 18th: Extended weekend

Based on feedback from students, students will make necessary changes to major project.

Students will view a 3D movie designed for a movie theater.

Fieldtrip to IUPUI Virtual Reality Theater or IMAX Theater based on Covid regulations. (If field trips are a possibility.) Or an alternate trip may be provided.
HW #10 (10 pts.) – Provide feedback and answer questions to compare and contrast movies seen in class to a professional 3D movie in a large screen movie theater.

<u>Week of April 25, 2022:</u>
Students will complete major projects.

<u>Week of May 2nd, 2022:</u>
May 2nd – The final version of the MAJOR PROJECT will be due! (100 points)
Students will present their **MAJOR PROJECTS to the class.**