

Elizabethtown College
CS170 GAME DESIGN and VIRTUAL REALITY
 Fall 2023

An introduction to the design, development, and overall production of computer games. Introduction to virtual and augmented reality in computer games and other applications. No programming experience is required, however special project opportunities will be available for those with programming experience. 4 Credits, Fall semester, odd-numbered years *Prerequisite(s): None.

MEETING TIMES (4 credits for this type of course means for 4 contact hours = 200 minutes)

12:30-1:50pm **WEDNESDAY** and **FRIDAY**; and **MONDAYS** when announced, and special times for a Field trip or Guest Speaker when announced

PROFESSOR

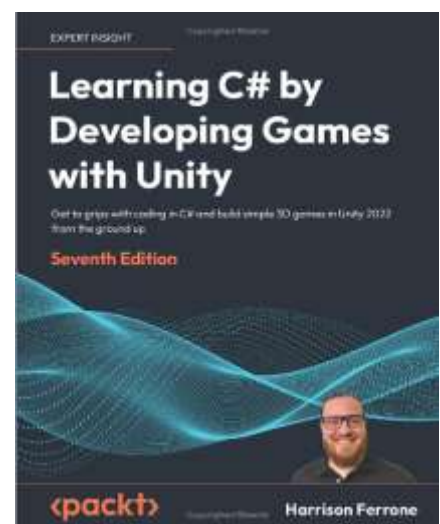
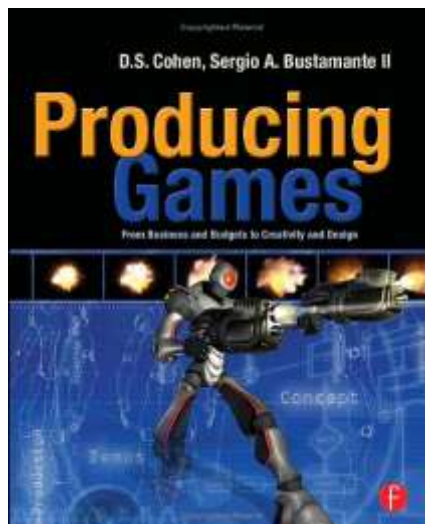
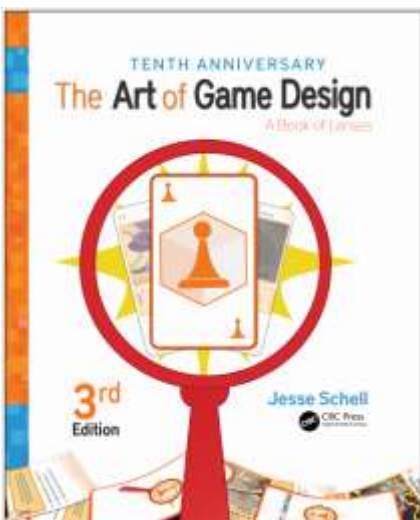
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	Monday	Tuesday	Wednesday	Thursday	Friday
10:30	10:30-11:00 OFFICE				
11:00	11-12:20 FYS100 in E273	11-12:20	11-11:50	11-12:20	11-12:20 FYS100 in E273
11:30	Organic Architecture & Frank Lloyd Wright		FYS Peer Mentor		Organic Architecture & Frank Lloyd Wright
12:00			OFFICE		
12:30	12:30-1:50 CS170 in E273	12:30-1:50	12:30-1:50 CS170 in E273	12:30-1:50	12:30-1:50 CS170 in E273
1:00	WHEN ANNOUNCED	MEETING PERIOD	Computer Game Design and Virtual Reality		Computer Game Design and Virtual Reality
1:30					
2:00	2-3:20 EGR434 in E273	2-3:20	2-3:20 EGR434 in E273	2:00-3:20	1:50-3:10
2:30	Robotics and Machine Intelligence		Robotics and Machine Intelligence		OFFICE
3:00	OFFICE	3:30-4:50	3:30-4:50	3:30-4:50	3:30-4:50
3:30		MEETING PERIOD		MEETING PERIOD	
4:00	4-5:40 EGR495 in E273				
4:30	Architecture Design Studio I				
5:00					
5:30					

EGR401 Senior Projects at Arranged Times

COURSE TEXTS

- [1] **REQUIRED:** Jesse Schell, *"The Art of Game Design: A Book of Lenses, Third Edition"* (Paperback), A K Peters/CRC Press, August 27, 2019. ISBN 978-1138632059
- [2] **REFERENCE:** D S. Cohen and Sergio A. Bustamante II, *"Producing Games: From Business and Budgets to Creativity and Design"*, 1st Edition, Oct 12, 2009. ISBN: 978-0240810706
- [3] **REQUIRED:** Harrison Ferrone, *"Learning C# by Developing Games with Unity: Get to grips with coding in C# and build simple 3D games in Unity 2022 from the ground up 7th Edition"*, Packt Publishing; 7th ed. edition (November 29, 2022). ISBN: 978-1837636877



LEARNING OUTCOMES

1. Computer Game Design
2. Computer Game Production Overview
3. Computer Game Development (Programming) Overview
4. Virtual and Augmented Reality

GRADES

- 5% Attendance and participation
71% Assignments
24% Final Exam / Project

Course Grade:

(60-62)=D-, (63-67)=D, (68-69)=D+, (70-72)=C-, (73-77)=C, (78-79)=C+, (80-82)=B-, (83-87)=B, (88-89)=B+, (90-92)=A-, (93-100)=A
(with any fractional part rounded to the nearest integer)

ATTENDANCE

Class participation is part of your course grade. Also, exams may cover some material that is only presented in lectures.

ACADEMIC HONESTY

ELIZABETHTOWN COLLEGE PLEDGE OF INTEGRITY: **"Elizabethtown College is a community engaged in a living and learning experience, the foundation of which is mutual trust and respect. Therefore, we will strive to behave toward one another with respect for the rights of others, and we promise to represent as our work only that which is indeed our own, refraining from all forms of lying, plagiarizing, and cheating."**

See the 2016-17 Elizabethtown College Catalog, "Standards of Academic Integrity" http://catalog.etown.edu/content.php?catoid=10&navoid=507#Academic_Judicial_System or Academic Integrity at Elizabethtown College, 11th ed. <https://www.etown.edu/offices/dean-of-students/files/academic-integrity-handbook.pdf>

ARTIFICIAL INTELLIGENCE USE

"In this course, students shall give credit to AI tools whenever used, even if only to generate ideas rather than usable text or illustrations. When using AI tools on assignments, add an appendix showing (a) the entire exchange, highlighting the most relevant sections; (b) a description of precisely which AI tools were used (e.g. ChatGPT private subscription version or DALL-E free version), (c) an explanation of how the AI tools were used (e.g. to generate ideas, turns of phrase, elements of text, long stretches of text, lines of argument, pieces of evidence, maps of the conceptual territory, illustrations of key concepts, etc.); (d) an account of why AI tools were used (e.g. to save time, to surmount writer's block, to stimulate thinking, to handle mounting stress, to clarify prose, to translate text, to experiment for fun, etc.). Students shall not use AI tools during in-class examinations, or assignments unless explicitly permitted and instructed. Overall, AI tools should be used wisely and reflectively with an aim to deepen understanding of subject matter."

Source: <https://ctl.utexas.edu/chatgpt-and-generative-ai-tools-sample-syllabus-policy-statements>

SCHOOL CLOSURE / CLASS CANCELLATION

Additional work assigned to cover any class cancellation.

DISABILITY SERVICES, RELIGIOUS OBSERVANCES, and COVID

https://elizabethtown-my.sharepoint.com/w:/g/personal/ouimetc_etown.edu/EFZ-QooKt_VPjgwsWJz230wB3R6CIHsPvE0xqWCpr-UA?e=4%3acZzjpW&at=9

DISABILITY SERVICES: Elizabethtown College welcomes otherwise qualified students with disabilities and is committed to providing access for all students to courses, programs, services, and activities. If you have a documented disability such as a learning disability or chronic illness or a new circumstance such as a concussion and would like to request accommodations, please contact the Director of Disability Services by phone (717-361-1227) or e-mail (daviesl@etown.edu). The Office of Disability Services can provide resources to you and facilitate communication with faculty about reasonable accommodations. After meeting with the Office of Disability Services, please set up an appointment to meet with me, the instructor, to discuss the accommodations as they pertain to my class.

RELIGIOUS OBSERVANCES: The College is eager to facilitate individual religious beliefs and practices whenever possible while retaining course student learning outcomes. It is your responsibility to meet with the class instructor in advance to request arrangements related to your religious observances that may conflict with this class, and to make appropriate plans to make up any missed work.

COVID-RELATED EXPECTATIONS: All students are expected to adhere to the established community expectations around safety, including: daily digital health reporting, physical distancing, proper wearing of facial coverings within buildings and classrooms and when within six feet of individuals outdoors, frequent handwashing, and participation in cleaning and sanitizing protocols as requested. You will be turned away from class if you do not have a face covering. Students diagnosed with a health condition that precludes mask wearing can contact Lynne Davies in Disability Services (daviesl@etown.edu) to request remote learning as a reasonable accommodation. **If you are exhibiting any symptoms of COVID or fail to pass the daily health screen, do not come to class.** Failure to adhere to the established community expectations around safety will result in notification of Campus Security and the application of the student conduct process for failure to comply, endangering the well-being of others, and/or disorderly conduct. The student code of conduct applies also to participation in all virtual activities, including Zoom sessions and discussion boards.

MENTAL HEALTH & COUNSELING RESOURCES

Counseling Services provides a broad range of counseling and mental health support services that facilitate our students' personal, social, and academic development. Our licensed mental health professionals provide short-term individual counseling, group counseling, crisis intervention, and consultation to currently enrolled students for no additional charge. Counseling services are provided in a confidential and diversity-affirming environment to help students address a variety of mental health, situational, and developmental concerns. Our office is located in the Baugher Student Center, Suite 216. Appointments can be made in person or by calling 717-361-1405. Urgent walk-in services are also available. To access our after-hours crisis services, please call the 24/7 Campus Security number of 717-361-1111. For more information, please visit www.etown.edu/offices/counseling

COURSE OUTLINE

Brief **History** of Game Design & Virtual Reality [PDF](#) [PPTX](#)

DESIGN Chapter 1: The **DESIGNER** [PDF](#) [PPTX](#)

DESIGN Chapter 2: The designer creates an **EXPERIENCE** [PDF](#) [PPTX](#)

DESIGN Chapter 3: The experience takes place in a **VENUE** [PDF](#) [PPTX](#)

DESIGN Chapter 4: The experience rises out of the **GAME** [PDF](#) [PPTX](#)

DESIGN Chapter 5: The game consists of **ELEMENTS** [PDF](#) [PPTX](#)

DESIGN Chapter 6: The elements support a **THEME** [PDF](#) [PPTX](#)

DESIGN Chapter 7: The game begins with an **IDEA** [PDF](#) [PPTX](#)

DESIGN Chapter 8: The game improves through **ITERATION** [PDF](#) [PPTX](#)

DESIGN Chapter 9: The game is made for a **PLAYER** [PDF](#) [PPTX](#)

DESIGN Chapter 10: The experiences in the player's **MIND** [PDF](#) [PPTX](#)

DESIGN Chapter 11: The players mind is driven by the player's **MOTIVATION** [PDF](#) [PPTX](#)

DESIGN Chapter 33: Games **TRANSFORM PLAYERS** [PDF](#) [PPTX](#)

DESIGN Chapter 12: Some elements of **GAME MECHANICS** [PDF](#) [PPTX](#)

DESIGN Chapter 13: Game mechanics must be in a **BALANCE** [PDF](#) [PPTX](#)

DESIGN Chapter 14: Game mechanics support **PUZZLES** [PDF](#) [PPTX](#)

UNITY Chapter 1: Creating a **UNITY PROJECT** [PDF](#) [PPTX](#)

Lighting Design [PDF](#) [PPTX](#) [YOUTUBE](#) [ARCHITECTURE PAGE](#)

Crowdsourced Architecture and Environmental Design [PAPER TALK](#)

Perspective Drawing [PDF](#) [PPTX](#) [YOUTUBE](#) [ARCHITECTURE PAGE](#)

UNITY Chapter 2: Editing **SCENES** and **GAME OBJECTS** [PDF](#) [PPTX](#)

DESIGN Chapter 15: Players play games through an **interface** [PDF](#) [PPTX](#)

DESIGN Chapter 16: Experiences can be judged by their **interest curves** [PDF](#) [PPTX](#)

DESIGN Chapter 17: One kind of experience is the **STORY** [PDF](#) [PPTX](#)

DESIGN Chapter 18: Story and game structures merged with **INDIRECT CONTROL** [PDF](#) [PPTX](#)

DESIGN Chapter 19: Stories and games take place in **WORLDS** [PDF](#) [PPTX](#)

DESIGN Chapter 20: Worlds contain **CHARACTERS** [PDF](#) [PPTX](#)

DESIGN Chapter 21: Worlds contain **SPACES** [PDF](#) [PPTX](#)

Architecture Design Theory [PDF](#) [PPTX](#) [YOUTUBE](#) [ARCHITECTURE PAGE](#)

UNITY Chapter 3: **GRAYBOXING** with **TERRAIN** and **PROBUILDER** [PDF](#) [PPTX](#)

UNITY Chapter 4: Importing and integrating **ASSETS** [PDF](#) [PPTX](#)

UNITY Chapter 5: Introduction to **C# PROGRAMMING** and **VISUAL SCRIPTING** [PDF](#) [PPTX](#)

UNITY Chapter 6: Implementing **MOVEMENT** [PDF](#) [PPTX](#)

