Date Prepared: 08/10/2020

ROCKFORD UNIVERSITY 1847

CSCI 315-01 Game Applications

COURSE SYLLABUS: Fall 2020

INSTRUCTOR INFORMATION

Instructor: Dr. Donghwoon Kwon

Office Location: Starr 302D
Office Hours: Please make an appointment to have online office hours

Office Phone: 815-226-4056
Office Fax: 815-394-5166

University Email Address: dkwon@rockford.edu

Preferred Form of Communication: Email
Communication Response Time: Within 24 hours

COURSE INFORMATION

Course Description

This course will present the design and the development of gaming and game-related software. Topics include the use of a graphic development kit, coordinate systems, sprites, the game loop, colors and transparency, text manipulation, input devices such as the mouse, joystick and keyboard; animation, sound and music, graphics and video, collision detection, gaming math and physics. Scheduled: Fall, Meets: MNO

Course Objectives

- To learn the basic terminology, concepts, and methods of computer gaming
- To develop skills in the use of computer gaming as a tool
- To build problem-solving skills in terms of game programming

Credit Hours: 4

The *syllabus is subject to change.*

Prerequisite: CSCI 220

Class Type: Lecture & Lab

Class Hours: Tue and Thr 09:00AM – 10:50AM at Starr Science Hall, Room 108C

Textbook(s) Required

- Instructor's own lecture materials will be regularly and electronically provided.

Software Required

- *Microsoft Visual Studio* in the CSCI lab and you can download from https://visualstudio.microsoft.com/vs/express/.
- Unity 5, and you can download from https://unity3d.com/get-unity/download
- If you have a difficulty to download and install software, please contact the instructor.

Optional Texts and/or Materials

- Flash drive recommended

Student Learning Outcomes

Students will be able to

1. Understand the process of developing game applications
2. Build and integrate 3D game techniques into game applications
3. Gain the principles of game design
4. Learn effective communication and collaboration through a group term project

Topical Outline

- Topic 1: Introduction to Computers and Programming
- Topic 2: C and C++ Fundamentals
- Topic 3: Decision Structures and Boolean Logic
- Topic 4: Repetition Structures
- Topic 5: Functions
- Topic 6: Arrays
- Topic 7: Pointer
- Topic 8: Unity interfaces and Unity Game Development
- Topic 9: Input, Animation, and Sound
- Topic 10: Text, Collisions, and the Vulture Trouble Game

COURSE REQUIREMENTS

Instructional Methods

1. Lectures: Important materials from a variety of sources will be covered in class. Students should plan to take careful notes as not all materials can be found in the texts or readings.

2. Labs: Based on lectures, lab exercises will be given to students. Students are required to complete lab exercises, and the discussion is highly encouraged.

3. Assignments: Programming and / or general assignments will be regularly given to students.

4. Quizzes: Occasional announced quizzes will be given to help ensure students keep up with assigned materials.
5. Exams: Two exams will be given, one midterm exam and one final exam. Midterm exam will primarily cover topics from week 1-7, and final exam will be from week 8-the last week of class.
6. Term Project: An individual term project will be given to students. Each student has to develop one C / C++ game and one Unity game, respectively, and present the outcomes at the end of the semester.

GRADING

Final grades in this course will be based on the following scale:

% of Total Points	Grade
87% - 100%	**A**
77% - 86.9 %	**B**
67% - 76.9%	**C**
57% - 66.9%	**D**
Below 57%	**F**

Category	Percentage
Midterm	**10%**
Final Exam	**10%**
Assignments	**20%**
Quizzes	**5%**
Attendance	**5%**
Presentation & Term project	**50%**

COURSE SPECIFIC PROCEDURE / POLICY

1. ***Assignments***: All assignments **MUST** be turned in by the assigned deadlines. All assignments are due at the time specified. Please keep in mind that no late work will be accepted without penalty. If an assignment is turned in after the due date, **20%** of the grade will be forfeited each day. No assignment will be graded if submitted **5 or more days** after it is due. An assignment must be submitted within 5 days of the due date if you want it graded. All assignments must be placed in the appropriate Dropbox on Canvas.

2. ***Examination Makeup Policy***: If a student is absent from an exam during the scheduled time for that exam, the student will automatically receive a grade of 0 for the exam unless:

a. the student notifies the instructor of the absence before 24 hrs of the exam and supplies a written doctor's excuse or any other official documents explaining the absence, or

b. there is an extraordinary situation which the instructor allows as an acceptable excuse (instructor needs to be notified before 24 hrs of the exam). If (a) or (b) applies, arrangements for a makeup exam will be made.

It will be the responsibility of the student to show written documentation supporting the absence, from your team coach, physician, or other relevant authority.

COLLEGE POLICY

1. Attendance: Each student is required to be present at all class lectures and labs. If an unforeseen absence does occur, the student is responsible to get the notes and assignments from another student. If a student has more than 3 absences from class, they may be dropped from the class roster.

This 4-credit course will meet for 100 minutes per session twice a week throughout the semester. A minimum of 2-3 hours of student preparation time outside of class is expected for each credit hour. Thus, please be prepared to devote 12-16 hours per week to this course.

2. Instructor Policy: Students not regularly attending class or not turning in assignments will be given a grade of "**F**" at the end of semester if that student has not dropped the class or been dropped by the instructor.

3. In case of an emergency or extenuating circumstances, such as illness, family crisis, contact me or have someone on your behalf contact me immediately; emergencies will be handled on a case-by-case basis. Email is best method for contacting me.

COVID-19 Guidelines

All members of this course will adhere to the following guidelines:

- Monitor for the symptoms of COVID-19 through daily symptom and temperature checks, following-up with medical attention as necessary and contacting Lang Wellness.
- Maintain appropriate social distancing (6 feet) within the classroom and inside public spaces of buildings.
- Leave class immediately and do not congregate within classrooms or hallways.
- Stay home if ill or after exposure to someone who is ill or has tested positive for COVID-19.
- Wear appropriate mask while in class.
- Work to mitigate the spread of germs on frequently touched surfaces and objects by following instructor guidelines to keep the classroom clean.
- Keep up to date on latest COVID-19 information at https://www.rockford.edu/portal/departments/marketing-communications/covid-19/
- Also, for more comprehensive instructions related to COVID-19 please see the following links:
  - https://www.rockford.edu/wp-content/uploads/2020/08/Rockford-University-Expectations-August-2020.pdf
  - https://www.rockford.edu/wp-content/uploads/2020/08/RU-Student-Guidance-on-COVID-19-decision-tree-3-August-2020.pdf

HONOR CODE

In this course the policies and procedures concerning the Rockford University Academic Honor Code including definitions of cheating and plagiarism as they appear on the appropriate pages of the current Rockford University Handbook will be Applicable.

PLAGIARISM POLICY

1. Plagiarism: To plagiarize is to present someone else's ideas or work as your own. Credit (citation) should be given to the source in the following instances: (1) when you directly quote someone else; (2) when you use someone else's ideas or opinions (unless they are common knowledge); (3) when you use

someone else's examples; (4) when you cite statistics or other facts compiled by someone else; (5) when you present evidence or testimony taken from someone else's argument (Berke, Jacqueline. Twenty Questions for the Writer. 4th Ed. New York: Harcourt, Brace, Jovanovich, 1985).

If a student plagiarizes, that student will receive an **"F"** for the assignment. A second occurrence of plagiarism will result in expulsion from the course.

2. Copy: Copying parts or whole of assignments, quizzes and exams is just as serious as any other type of plagiarism. Any indication of copying, cheating and/or plagiarism on an exam/assignment/project will be an automatic 0 (zero) for the exam/assignment/project for all students involved.

ADA STATEMENT

Students with Disabilities: If you believe you are eligible to receive any type of academic accommodation, through such federal laws as the ADA, please contact the Lang Center for Health, Wellness, Counseling and Disabilities Services, 815-226-4083. The Lang staff manages disability services for Rockford University.

ACADEMIC CONCERN WITH THIS COURSE

A student who questions the justice of a final grade must first seek an explanation from the course instructor. If dissatisfied with the explanation offered, the student may appeal the grade. Additional information regarding grade appeals can be found in the Academic Catalog.

ELECTRONIC DEVICES POLICY

Electronic devices may be used in the classroom as long as they are being used for academic purposes as approved by instructor and/or are an approved accommodation for a documented disability.

DISCLAIMER

- Due dates, assignments, etc. are subject to change as directed by your instructor during the course of the semester.
- If you have questions about Computer Science, computer careers, etc. please email Dr. Donghwoon Kwon at dkwon@rockford.edu

COURSE OUTLINE / CALENDAR

Week	Lectures	Topics
1 (8/19 - 8/23)	Lecture 1	Course introduction and syllabus discussion Introduction to Unity
2 (8/24 – 8/30)	Lecture 2	Making the rolling ball game C / C++ input, output, etc.
	Assignment #1: Make your own rolling ball game Due date: By 11:59PM, 9/6/2020	

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3 (8/31 – 9/6)	Lecture 3	Unity stage and character C / C++ loop statements
	Assignment #2: Make your own stage Due date: By 11:59PM, 9/13/2020	
4 (9/7 – 9/13)	Lecture 4	Character Movements
5 (9/14 – 9/20)	Lecture 5	Unity game UI C / C++ conditional statements
	Assignment #3: Unity game UI Due date: By 11:59PM, 9/27/2020	
6 (9/21 – 9/27)	Lecture 5	Unity defense game
	Assignment #4: Upgrade the defense game Due date: By 11:59PM, 10/4/2020	
7 (9/28 – 10/4)	Lecture 6	Make the baseball game
	Assignment #5: C / C++ baseball game Due date: By 11:59PM, 10/11/2020	
8 (10/5 – 10/11)	Lecture 7	Midterm review session, ***Midterm***
9 (10/12-10/18)	Lecture 8	Unity running game
	Assignment #6: Upgrade the running game Due date: By 11:59PM, 10/25/2020	
10 (10/19 – 10/25)	Lecture 9	C / C++ pointer Unity 2D game
	Assignment #7: C / C++ pointer program and Unity 2D game Due date: By 11:59PM, 11/1/2020	
11 (10/26 – 11/1)	Term project is given. Students have to develop a website individually for the next 3 weeks.	
12 (11/2 – 11/8)	***Term Project***	
13 (11/9-11/15)	***Term Project***	
14 (11/16-11/22)	***Term Project***	
15 (11/23-11/29)	**Term Project Presentation, *Thanksgiving break*, and *the last day of the semester***	
	Due date for the Term Project: by 11:59PM, 11/29/2020	
16 (11/30-12/6)	***Final Exam***	

Date Prepared: August 10, 2020

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