Interactive Modeling and Animation I

CAP 3032   Class Number: 29513

Credits: 3

Class Periods: M,W,F | Period 3 (9:35 AM - 10:25 AM)

Location: MW CSE E231, F TUR L005

Academic Term: Spring 2023

Instructor: Rong Zhang

- Office location: CSE E526
- E-mail address: rzhang@cise.ufl.edu
- Phone number: 352-294-6680
- Office hours: M period 4 & 5 (10:40am– 12:35pm) or by appointment

Peer Mentors:

- Weinstein, Joshua I
- Timmons, Nicolas

Course Description

Introduction to programming and data structures for interactive two-dimensional multimedia applications. Representing form and transforms in two dimensions, capturing user actions and driving application behavior interactively. Graphical interfaces, image processing, automata and basic artificial intelligence.

Course Pre-Requisites / Co-Requisites

Pre-requisites: MAC 1147 Precalculus: Algebra and Trigonometry, or equivalent

Course Objectives

At the end of the semester, students are expected to be able to

- Understand the foundations of computing
- Write/Execute programs written in processing
- Create two dimensional animations
- Handle objects interaction
- Implement input and event listeners

Materials and Supply Fees

N/A

Required Software

• the Processing Language and Environment – free software that can be downloaded from processing.org

Recommended Materials

• Title: **Learning Processing: A Beginner's Guide to Programming Images, Animation, and Interaction** ○ Author: Daniel Shiffman
    ○ Publication date and edition: Morgan Kaufmann, August 20, 2015, 2nd Edition ○ ISBN number: 0123944430
• Title: **Processing: A Programming Handbook for Visual Designers and Artists** ○ Author: Casey Reas and Ben Fry
    ○ Publication date and edition: The MIT Press, December 19, 2014, 2nd Edition ○ ISBN number: 026202828X

Course Schedule

Week 1:	Introduction to digital image
Week 2:	2D Shapes, Color
Week 3:	Curve, change coordinate system
Week 4:	Adding Dynamics / Quiz 1
Week 5:	Variable, Conditions
Week 6:	Repetitive pattern, Array / Quiz 2
Week 7:	Function, Object Oriented Programming
Week 8:	Game of Tic Tac Toe, Image / Quiz 3
Week 9:	Edge Detection
Week 10:	Motion, Collision / Quiz 4
Week 11:	Mathematics, Cellular Automata
Week 12:	Sound, Debugging and Libraries / Quiz 5
Week 13:	Algorithm, Tetris Example
Week 14:	Game Type and Design / Quiz 6
Week 15:	Game Type and Design, Review

* There might be a shift in topics depending on the backgrounds or interests of the students.

Attendance Policy, Class Expectations, and Make-Up Policy

Class attendance is required. If for some reason you have to miss a class, you are responsible for getting class notes from a classmate. Make sure to submit your completed work before the due date to avoid a penalty if an assignment is due. Cell phones should be turned off or set to vibrate. Excused absences must be consistent with university policies in the undergraduate catalog (https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx) and require appropriate documentation.

You may discuss assignments with other students. But you must implement it by yourself. If your work is proven to be copied from another student, 0 points will be given to both students.

Late assignments will be accepted with a penalty of deduction of 20% of the maximum point value every 12 hours, for up to 2 days.

There will be 6 20-minute quizzes given during lectures. No notes, books, or other assistance will be allowed during the quizzes. There will be no makeup quizzes. The lowest quiz score will be dropped from your final grade. **The dates for quizzes are: 1/27, 2/10, 2/24, 3/24, 4/7, 4/21**

Evaluation of Grades

Assignment	Total Points	Percentage of Final Grade
Homework Sets (8)	varies	45%
Quizzes (6)	20 each	25%
Final project	100	30%
Total		100%

Grading Policy

Grade	Range	
A	100 %	to 94.0%
A-	< 94.0 %	to 90.0%
B+	< 90.0 %	to 87.0%
B	< 87.0 %	to 84.0%
B-	< 84.0 %	to 80.0%
C+	< 80.0 %	to 77.0%
C	< 77.0 %	to 74.0%
C-	< 74.0 %	to 70.0%
D+	< 70.0 %	to 67.0%
D	< 67.0 %	to 64.0%
D-	< 64.0 %	to 60.0%
E	< 60.0 %	to 0.0%

More information on UF grading policy may be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Students Requiring Accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting https://disability.ufl.edu/students/get-started/ . It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluation

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/ . Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/ . Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/publicresults/ .

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code (https://sccr.dso.ufl.edu/process/student-conductcode/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Commitment to a Safe and Inclusive Learning Environment

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Jennifer Nappo, Director of Human Resources, 352-392-0904, jpennacc@ufl.edu
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, nishida@eng.ufl.edu

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: https://registrar.ufl.edu/ferpa.html

Campus Resources:

Health and Wellness **U**

Matter, We Care:

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.
Counseling and Wellness Center: https://counseling.ufl.edu , and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Discrimination, Harassment, Assault, or Violence

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance** , located at Yon Hall Room 427, 1908 Stadium Road, (352) 2731094, title-ix@ufl.edu

Sexual Assault Recovery Services (SARS) Student

Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/ .

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learningsupport@ufl.edu. https://lss.at.ufl.edu/help.shtml . Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling; https://career.ufl.edu .
Library Support, http://cms.uflib.ufl.edu/ask . Various ways to receive assistance with respect to using the libraries or finding resources. Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. https://teachingcenter.ufl.edu/ .

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers. https://writing.ufl.edu/writing-studio/ .
Student Complaints Campus: https://sccr.dso.ufl.edu/policies/student-honor-codestudent-conduct-code/ ;https://care.dso.ufl.edu

On-Line Students Complaints: http://www.distance.ufl.edu/student-complaint-process