Abstract

Computational Thinking and Logical Processes to approach technical problems with creative solutions. Applying creative coding techniques to Games, Viz, Projection & Lighting, and Music & Sound using languages and tools including Processing, Touchdesigner, Unity, and C#.

Assessment

Challenges 1 - 7 are graded pass/fail for 3- 5 points each, Projects 1-3 are graded out of 15 points. The remaining 15 points of the final grade is based on professionalism and attendance.

One-Week Processing Challenges (3-5 points each)

- Challenge 1: Colors, Shapes & Random (build a "Thing") (4 points)
- Challenge 2: Variables, Loops, If-Else (update "Thing" with variables) (4 points)
- Challenge 3: Functions, Objects, Datatypes (make "Thing" object/class) (5 points)
- Challenge 4: Arrays, Algorithms, Debugging (create "Thing" interaction) (4 points)
- Challenge 5: Algorithms (3 points)
- Challenge 6: Libraries (5 Points)
- Challenge 7: Audio (5 Points)

Review Quiz (10 points)

Two-Week Projects (15 points each)

- Project 1 (Project 1): Processing Final, complete game, audio experience, or interactive story
- Project 2 (Project 2): Touchdesigner for Projection & Lighting
- Project 3 (Project 3): Unity / C# for Games & Viz

Required Equipment

All students MUST have access to a portable computer, either Mac or PC. All software used in this class is available for free.

Textbook

Learning Processing by Daniel Shiffman (optional but helpful)

Units of Study

- **Foundations**
  - o Logical Processes
  - o Programming Basics
- **Application**
  - o Solving problems with code
- **Systems**
  - o Games & Viz, Projection & Lighting, Music & Sound
  - o Processing libraries
  - o Other creative coding tools for:

Overview of Schedule

Please be aware that on occasion the order and timing of the course schedule may need to be altered to accommodate UT closures, instructor illness, student needs/interests, and design program workshop opportunities and lectures. Any significant alterations to the schedule will be announced via Canvas.

Calendar

Week		Book & Tutorials
1	Course Intro	
	Processing Basics	
	Understanding Code	
2	Demo 1: Shapes, Colors, and Animation	Chapters 1 - 3
	LAB - Building Things with Primitives	

Challenge 1 Due

3	Demo 2: Variables, Loops, If-Else	Chapters 4 - 6
	LAB - Building Things with Variables	

Challenge 2 Due

4	Demo 3: Functions, Objects, Data Types	Chapters 7 - 8
	LAB - Make our Thing into Object	

Challenge 3 Due

5	Demo 4: Arrays, Algorithms, Debugging	Chapter 9
	LAB - Interactions & Algorithms	

Challenge 4 Due

6	Demo 5: Libraries	Chapters 10 - 12
	LAB - Add Libraries to Project	

Challenge 5 Due

7	Demo 6: Images, Sprites, Video	Chapters 13 - 14
	Lab - Animation and Video	

Challenge 6 Due

8	Demo 7: Audio Tools and Application	
	LAB - Audio Tools	

Challenge 7 Due

9	Demo: OpenProcessing	Bonus: 5pts Extra Credit for submitting the game to OpenProcessing.org

	Review Quiz	
	LAB - Processing Final Challenge 8 Due (Processing Final)	
10	Processing Final Showcase	
	Lecture: CC for Projection & Lighting	
	LAB - Touchdesigner	
	Demo 8: Touchdesigner	
11	Discussion: Projection & Lighting	Video Tutorials created by PLAI Faculty (Michael M)
	LAB - Touchdesigner	
	Lecture: CC for Projection & Lighting	
12	Demo 10: Unity	Video Tutorials created by PLAI Faculty (Michael M)
	LAB - Touchdesigner Final & Unity	
	Challenge 9 Due	
13	Demo 11: Unity / C#	Video Tutorials created by Game / Viz Faculty (MJ)
	Discussion: Game Design & Viz	
	LAB - Unity	
	Demo 12: Unity / C#	
14	Lecture: CC for Games & Viz	Video Tutorials created by Game / Viz Faculty (MJ)
	LAB - Unity	
	Challenge 10 Due	
15	Unity Final Showcase	
	LAB - Portfolio Updates	

Process

We will work through demonstrations and a number of technical and creative challenges to learn about multimedia and interactive system programming.

Grades

7 Challenges: 3% to 5% each

Review Quiz: 10%

3 Projects: 15% each.

Attendance and Professionalism: 15%

Bonus: 5%

Final grades will be determined on the basis of the following rubric. Please note: to ensure

fairness, all numbers are absolute, and will not be rounded up or down at any stage. Thus a B- will

be inclusive of all scores of 80.000 through 83.999. The University does not recognize the grade

of A+.

A = 94-100

A- = 90-93

B+ = 87-89

B = 84-86

B- = 80-83

C+ = 77-79

C = 74-76

C- = 70-73

D+ = 67-69

D = 64-66

D- = 60-63

F = 0-60

Class Attendance Policy

As detailed above, attending class during the scheduled meeting times earns professionalism credit. Credit is NOT earned for arriving late, leaving early, or failing to attend class meetings. If attending a scheduled class meeting is not possible, students are expected to promptly notify the instructor of extenuating circumstances.

Q Drop Policy

The State of Texas has enacted a law that limits the number of course drops for academic reasons to six (6). As stated in Senate Bill 1231:"Beginning with the fall 2007 academic term, an institution of higher education may not permit an undergraduate student a total of more than six dropped courses, including any course a transfer student has dropped at another institution of higher education, unless the student shows good cause for dropping more than that number."

University Attendance Policy: Religious Holy Days

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, I will give you an opportunity to complete the missed work within a reasonable time after the absence.

Services for Students with Disabilities (SSD)

The University of Texas at Austin provides upon request appropriate academic accommodations for qualified students with disabilities. For more information, contact Services for Students with Disabilities (512-471-6259, ssd@austin.utexas.edu, http://ddce.utexas.edu/disability/, or videophone 512-471-6644). Please provide documentation of your needs during the first week of class, if possible, so that I can make the necessary accommodations promptly.

Academic Integrity

The University's Honor Code states that "As a student of The University of Texas at Austin, I shall abide by the core values of the University and uphold academic integrity." You are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- acknowledge the contributions of other sources to your scholastic efforts;
- complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them;
- follow instructions for assignments and exams, and observe the standards of your academic discipline;
- and avoid engaging in any form of academic dishonesty on behalf of yourself or another student.

(adapted from http://deanofstudents.utexas.edu/sjs/acint_student.php (Links to an external site.))

Academic Dishonesty

In promoting a high standard of academic integrity, the University broadly defines academic dishonesty as including any act designed to give an unfair or undeserved academic advantage, such as:

- Cheating
- Plagiarism
- Unauthorized Collaboration / Collusion
- Falsifying Academic Records
- Misrepresenting Facts (e.g., providing false information to postpone an exam, obtain an extended deadline for an assignment, or even gain an unearned financial benefit)
- Multiple submissions (submitting essentially the same written assignment for two courses without authorization to do so)
- Any other acts (or attempted acts) that violate the basic standard of academic integrity

(adapted from http://deanofstudents.utexas.edu/sjs/acadint_whatis.php)

Students who violate University rules on academic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and/or dismissal from the University.

(from http://deanofstudents.utexas.edu/sjs/acint_faculty_syllabus.php (Links to an external site.))

Plagiarism

"Plagiarism" includes, but is not limited to, the appropriation of, buying, receiving as a gift, or obtaining by any means material that is attributable in whole or in part to another source, including words, ideas, illustrations, structure, computer code, and other expression or media,

and presenting that material as one's own academic work being offered for credit or in conjunction with a program course requirement (from Sec. 11-402, http://catalog.utexas.edu/general-information/appendices/appendix-c/student-discipline-and-conduct/).

Behavior Concerns Advice Line (BCAL)

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit http://www.utexas.edu/safety/bcal.

Emergency Evacuation Policy

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation: • Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building. • If you require assistance to evacuate, inform me in writing during the first week of class. • In the event of an evacuation, follow my instructions or those of class instructors. Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.

Student Support Services

There are numerous free and/or low-cost support services available to students at UT. They include (but are not limited to) the following:

Fine Arts Career Services (512-232-7333, utexas.edu/finearts/careers) provides a full range

of services and resources to support students and alumni.

The Undergraduate Writing Center

(512-471-6222, uwc.utexas.edu) helps students with every phase of writing assignments for

their courses.

The Sanger Learning Center (512-471-3614, utexas.edu/ugs/slc) provides study skills,

time-management, and note-taking courses.

University Health Services (512-471-4955, healthyhorns.utexas.edu) provides medical and health promotion services for currently enrolled students and some non-students who are

officially enrolled in certain University programs.

The Counseling and Mental Health Center (512-471-3515, cmhc.utexas.edu) helps students with their personal concerns so that they can meet the daily challenges of student life.

UT Electronic Mail Notification Policy

Electronic mail (e-mail) is a mechanism for official University and instructor communication to students. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University- and course-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week.

It is the responsibility of every student to keep the University and instructor informed of changes in his or her official e-mail address (do so at https://utdirect.utexas.edu/utdirect/bio/address_change.WBX). Consequently, e-mail returned to the University with "User Unknown" is not an acceptable excuse for missed communication. Similarly, undeliverable messages returned because of a full inbox or use of a spam filter will be considered delivered without further action required of the University or instructor.

(see http://www.utexas.edu/cio/policies/university-electronic-mail-student-notification-policy (Links to an external site.))