

I 320U, 3D Prototyping

27489

Spring 2024

5:00– 6:30PM, Monday and Wednesday, SZB 4.508

Instructor: Eric Graham

Pronouns: he/him

Email: eric.graham@utexas.edu

Office hours: by appointment

Course Description

This hands-on course is designed to share insight and develop an understanding in the application of UX for physical objects. Students will be introduced to the methodologies and techniques required to properly evaluate physical designs. Students will learn to apply anthropometric data to projects to ensure designs are accessible across user demographics. From predefined constraints, students will create their own low-fidelity physical designs, then develop study protocols to evaluate and iterate upon their projects. Finally, students will present their projects to justify their design decisions and share their design journey from start to finish. This course prepares students for conducting user research on physical experiences through qualitative/quantitative research and iterative design.

Pre-Requisites for the Course

Informatics 310U

Learning Outcomes

1. Ability to rapid prototype physical objects
2. Iterate on existing designs from gathered data
3. Apply anthropometric data as design requirements
4. Conduct user interviews about physical experiences
5. Develop study protocol and questionnaire for research
6. Knowledge and ability to use CAD/Rhino

Course Texts

- Digital media Series: Rhinoceros
- Additional articles and papers to be provided in Canvas
- Refer to Canvas modules for required reading schedule per class session

Required Software and Devices

- Rhino 7 student license(Windows or Mac)
 - https://www.rhino3d.com/en/sales/north-america/United_States/
- See Rhino3D page on system requirements to confirm you have access to a compatible system.
 - <https://www.rhino3d.com/7/system-requirements/>

Classroom expectations

Class attendance: Students should plan to attend class every schedule day, unless instructed otherwise. There are 2 excused absences each student is allowed.

Class participation: Participation grades are based on regular attendance and respectfully engaging in class discussions/activities.

Behavior expectations: Students are expected to, at a minimum, follow the guidelenss and rules for appropriate behavior as outlined in the university code of conduct. However, students are also expected to be cordial to one-another by displaying activilly listenining, not being disruptive other students are speaking, and showing respect by keeping devices closed during student presentations.

Professional Standards: Design critiques can be difficult. Giving and receiving feedback takes courage. Please be courteous during critiques. Any unprofessional behavior displayed during the class will negatively reflect in students final grades.

Grade breakdown

The following table represents how you will demonstrate your learning and how we will assess the degree to which you have done so.

Assignments	Points Possible	Percent of Total Grade
Participation	10	10%
Readings and quizzes	10	10%
Homework	20	20%
Project 1	20	20%
Project 1 presentation	10	10%
Final project	20	20%
Final presentation	10	10%
Extra credit final exam (optional)	+5	+5%

Late Work and Making Up Missed Work

Homework and assignments are due before the start of each class, 5PM, on Canvas. Late assignments are accepted, but will be deducted 10% per day, including Saturday and Sunday. Students should inform me about planned absences, and prepare to turn in assignments early.

Absences

There are 2 excused absences each student may use. Assignments are still expected to be turned in on time, unless student has made prior arrangements with me in advance. If frequent unexcused absences occur, their participation grade, as a whole, will be negatively effected.

Equitable Accommodation

Each student's lowest homework and quiz grade will be dropped.

Extra Credit

There will be an opportunity for extra credit at the end of the semester. Students can attend the schedule final for an in-person written exam.

Grade Breakdown and +/- Grade Policy

+/- grades will be used for the final class grade.

Grade	Cutoff
A	94%
A-	90%
B+	87%
B	84%
B-	80%
C+	77%
C	74%
C-	70%
D+	67%
D	64%
D-	60%
F	<60%

Flagged Courses

Quantitative Reasoning: This course will require students to conduct their own quantitative and qualitative research and synthesize their findings to make informed design decisions.

Statement of Learning Success

Your success in this class is important to me. We all learn differently, and everyone struggles sometimes. You are not, ever, the only one having difficulty! If there are aspects of this course that prevent you from learning or exclude you, please let me know as soon as possible. Together we will develop strategies to meet both your needs and the requirements of the course. I also encourage you to reach out to the student resources available through UT and I am happy to connect you with a person or Center if you would like.

Teaching Modality

This is an in-person lecture/lab with an emphasis on group projects. While students are working on final projects, class time will be used to collaborate and troubleshoot any problems that students experience.

Communication

Please email me through Canvas or eric.graham@utexas.edu.

Asking for Help

If you need any help, you can contact me at eric.graham@utexas.edu. Office hours are by appointment only, but I can accommodate students schedule. Class hours will also be used to answer any student questions or assist with any class problems.

Course Outline

All instructions, assignments, readings, rubrics and essential information will be on the Canvas website at utexas.instructure.com. Check Canvas regularly. **Changes** to the schedule may be made at my discretion if circumstances require. I will announce any such changes in class and will also communicate them via a Canvas announcement. It is your responsibility to note these changes when announced, and I will do my best to ensure that you are notified of changes with as much advance notice as possible.

Week	Date	Day	Class Topic	Out of Class Activities	Assignments Due
1	01/17	W	Introduction and overview	Review syllabus	
1	22	M	Describing the physical world		
2	24	W	Design constraints	Read chapter 1, HW assignment 1	
2	29	M	Interviewing about physical experiences		HW assignment 1
3	31	W	How many respondents is enough	Read chapter 2, HW assignment 2	
3	5	M	User observation		HW assignment 2
4	7	W	Measuring Success	Read chapter 3, HW assignment 3	
4	12	M	Human Variability		HW assignment 3
5	14	W	Anthropometrics	Read chapter 4, HW assignment 4	
5	19	M	Introduction to Project 1		HW assignment 4
6	21	W	The Role of prototyping	Read chapter 5, HW assignment 5	
6	16	M	In-class working day, create and complete MVP prototype		HW assignment 5
7	28	W	In-class working day, what is a researchable question	Read chapter 6, HW assignment 6	
7	4	M	MVP Prototype Test		HW assignment 6
8	6	W	Working day, apply test results and iterate designs		
8	11	M	Spring Break		
9	13	W	Spring Break		
9	18	M	Project 1 Presentation		Project 1

Week	Date	Day	Class Topic	Out of Class Activities	Assignments Due
10	20	W	Knowing by doing	Read chapter 7, HW assignment 7	
10	25	M	Action research		HW assignment 7
11	27	W	Introduction to final project	Read chapter 8, HW assignment 8	
11	1	M	Starting with physical drawings		HW assignment 8
12	3	W	Physical prototyping	Read chapter 9, HW assignment 9	
12	8	M	Critique of prototypes		HW assignment 9
13	10	W	Synthesizing feedback	Read chapter 10, HW assignment 10	
13	15	M	Developing 3D model		HW assignment 10
14	17	W		Read chapter 11	
14	22	M	In-class working day		
15	24	W	Check-ins/troubleshooting		
15	29	M	In-class working day		
16	1	W	In-class working day		
16	6	M	Final Presentations		Final Presentation
17	TBD	W	Class Final		Final Project

Disability & Access (D&A)

The university is committed to creating an accessible and inclusive learning environment consistent with university policy and federal and state law. Please let me know if you experience any barriers to learning so I can work with you to ensure you have equal opportunity to participate fully in this course. If you are a student with a disability, or think you may have a disability, and need accommodations please contact Disability & Access (D&A). Please refer to the D&A website for more information: <http://diversity.utexas.edu/disability/>. If you are already registered with D&A, please deliver your Accommodation Letter to me as early as possible in the semester so we can discuss your approved accommodations and needs in this course.

Religious Holy Days

By [UT Austin policy](#), you must notify me of your pending absence for a religious holy day as far in advance as possible of the date of observance. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Names and Pronouns

Class rosters are provided to the instructor with the student's legal name, unless they have added a chosen name with the registrar's office. If you have not yet done so, I will gladly honor your request to address you with the name and pronouns that you prefer for me to use for you. It is helpful to advise me of any changes or needs regarding your name and pronouns early in the semester so that I may make appropriate updates to my records and be informed about how to support you in this class.

- For instructions on how to add your pronouns to Canvas, visit [this site](#).
- If you would like to update your chosen name with the registrar's office, you can do so [here](#), and reference [this guide](#).
- For additional guidelines prepared by the Gender and Sexuality Center for changing your name on various campus systems, see the Resources page under UT Resources [here](#).

Counseling and Mental Health Center (CMHC)

Students who are struggling for any reason and who believe that it might impact their performance in the course are urged to reach out to Bryce Moffett if they feel comfortable. This will allow her to provide any resources or accommodations that she can. If immediate mental health assistance is needed, call the Counseling and Mental Health Center (CMHC) at 512-471-3515 or you may also contact Bryce Moffett, LCSW (iSchool CARE counselor) at 512-232-4449. Bryce's office is located in FAC18S and she holds drop in Office Hours on Wednesday from 2-3pm. For urgent mental health concerns, please contact the CMHC 24/7 Crisis Line at 512-471-2255.

Honor Code

The University of Texas at Austin strives to create a dynamic and engaging community of teaching and learning where students feel intellectually challenged; build knowledge and skills; and develop critical thinking, creativity, and intellectual curiosity. As a part of this community, it is important to engage in assignments, exams, and other work for your classes with openness, integrity, and a willingness to make mistakes and learn from them. The UT Austin honor code champions these principles:

I pledge, as a member of the University of Texas community, to do my work honestly, respectfully, and through the intentional pursuit of learning and scholarship.

The honor code affirmation includes three additional principles that elaborate on the core theme:

- I pledge to be honest about what I create and to acknowledge what I use that belongs to others.
- I pledge to value the process of learning in addition to the outcome, while celebrating and learning from mistakes.
- This code encompasses all of the academic and scholarly endeavors of the university community.

The honor code is more than a set of rules, it reflects the values that are foundational to your academic community. By affirming and embracing the honor code, you are both upholding the integrity of your work and contributing to a campus culture of trust and respect.

Academic Integrity Expectations

Students who violate University rules on academic misconduct are subject to the student conduct process. A student found responsible for academic misconduct may be assigned both a status sanction and a grade impact for the course. The grade impact could range from a zero on the assignment in question up to a failing grade in the course. A status sanction can range from a written warning, probation, deferred suspension and/or dismissal from the University. To learn more about academic integrity standards, tips for avoiding a potential academic misconduct violation, and the overall conduct process, please visit the Student Conduct and Academic Integrity website at: <http://deanofstudents.utexas.edu/conduct>.

Confidentiality Of Class Recordings

Class recordings are reserved only for students in this class for educational purposes and are protected under FERPA. The recordings should not be shared outside the class in any form. Violation of this restriction by a student could lead to Student Misconduct proceedings.

Getting Help with Technology

Students needing help with technology in this course should contact the [ITS Service Desk](#).

Content Warning

Our classroom provides an open space for the critical and orderly exchange of ideas through discussion. Some readings and other content in this course will include topics and comments that some students may find offensive and/or traumatizing. I'll aim to forewarn students about potentially disturbing content and I ask all students to help to create an atmosphere of mutual respect and sensitivity.

Sharing of Course Materials is Prohibited

No materials used in this class, including, but not limited to, lecture hand-outs, videos, assessments (quizzes, exams, papers, projects, homework assignments), in-class materials, review sheets, and additional problem sets, may be shared online or with anyone outside of the class without explicit, my written permission. Unauthorized sharing of materials may facilitate cheating. The University is aware of the sites used for sharing materials, and any materials found online that are associated with you, or any suspected unauthorized sharing of materials, will be reported to [Student Conduct and Academic Integrity](#) in the Office of the Dean of Students. These reports can result in initiation of the student conduct process and include charge(s) for academic misconduct, potentially resulting in sanctions, including a grade impact.

Artificial Intelligence

The creation of artificial intelligence tools for widespread use is an exciting innovation. These tools have both appropriate and inappropriate uses in classwork. The use of artificial intelligence tools (such as ChatGPT) in this class:

- ...is strictly prohibited. This includes using AI to generate ideas, outline an approach, answer questions, solve problems, or create original language. All work in this course must be your own or created in group work, where allowed.
- ...shall be permitted on a limited basis. You will be informed as to the assignments for which AI may be utilized. You are also welcome to seek my prior-approval to use AI writing tools on any assignment. In either instance, AI writing tools should be used with caution and proper citation, as the use of AI should be properly attributed. Using AI writing tools without my permission or authorization, or failing to properly cite AI even where permitted, shall constitute a violation of UT Austin's Institutional Rules on academic integrity.
- ...is permitted for students who wish to use them, provided the content generated by AI is properly cited.

If you are considering the use of AI writing tools but are unsure if you are allowed or the extent to which they may be utilized appropriately, please ask.”

Land Acknowledgment

I would like to acknowledge that we are meeting on the Indigenous lands of Turtle Island, the ancestral name for what now is called North America. Moreover, I would like to acknowledge the Alabama-Coushatta, Caddo, Carrizo/Comecrudo, Coahuiltecan, Comanche, Kickapoo, Lipan Apache, Tonkawa and Ysleta Del Sur Pueblo, and all the American Indian and Indigenous Peoples and communities who have been or have become a part of these lands and territories in Texas.

Carrying of Handguns on Campus

Students in this class should be aware of the following university policies related to Texas' Open Carry Law:

- Students in this class who hold a license to carry are asked to [review the university policy regarding campus carry](#).
- Individuals who hold a license to carry are eligible to carry a concealed handgun on campus, including in most outdoor areas, buildings and spaces that are accessible to the public, and in classrooms.
- It is the responsibility of concealed-carry license holders to carry their handguns on or about their person at all times while on campus. Open carry is NOT permitted, meaning that a license holder may not carry a partially or wholly visible handgun on campus premises or on any university driveway, street, sidewalk or walkway, parking lot, parking garage, or other parking area.
- Per my right, I prohibit carrying of handguns in my personal office. Note that this information will also be conveyed to all students verbally during the first week of class. This written notice is intended to reinforce the verbal notification, and is not a “legally effective” means of notification in its own right.

Campus Safety

The following are recommendations regarding emergency evacuation from the [Office of Emergency Management](#), 512-232-2114:

- Students should sign up for Campus Emergency Text Alerts at the page linked above.
- Occupants of buildings on The University of Texas at Austin campus must evacuate buildings when a fire alarm is activated. Alarm activation or announcement requires exiting and assembling outside.
- Familiarize yourself with all exit doors of each classroom and building you may occupy. Remember that the nearest exit door may not be the one you used when entering the building.
- Students requiring assistance in evacuation shall inform their instructor in writing during the first week of class.
- In the event of an evacuation, follow the instruction of faculty or class instructors. Do not re-enter a building unless given instructions by the following: Austin Fire Department, The University of Texas at Austin Police Department, or Fire Prevention Services office.
- For more information, please visit the [Office of Emergency Management](#).

Title IX Disclosure

Beginning January 1, 2020, Texas Education Code, Section 51.252 (formerly known as Senate Bill 212) requires all employees of Texas universities, including faculty, to report to the [Title IX Office](#) any information regarding incidents of sexual harassment, sexual assault, dating violence, or stalking that is disclosed to them. Texas law requires that all employees who witness or receive information about incidents of this type (including, but not limited to, written forms, applications, one-on-one conversations, class assignments, class discussions, or third-party reports) must report it to the Title IX Coordinator. Before talking with me, or with any faculty or staff member about a Title IX-related incident, please remember that I will be required to report this information.

Although graduate teaching and research assistants are not subject to Texas Education Code, Section 51.252, they are [mandatory reporters](#) under federal Title IX regulations and are required to report [a wide range of behaviors we refer to as sexual misconduct](#), including the types of misconduct covered under Texas Education Code, Section 51.252. Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex – including pregnancy and parental status – in educational programs and activities. The Title IX Office has developed supportive ways and compiled campus resources to support all impacted by a Title IX matter.

If you would like to speak with a case manager, who can provide support, resources, or academic accommodations, in the Title IX Office, please email: supportandresources@austin.utexas.edu. Case managers can also provide support, resources, and accommodations for pregnant, nursing, and parenting students.

For more information about reporting options and resources, please visit: <https://titleix.utexas.edu>, contact the Title IX Office via email at: titleix@austin.utexas.edu, or call 512-471-0419.

University Resources

For a list of university resources that may be helpful to you as you engage with and navigate your courses and the university, see the [University Resources Students Canvas page](#).