ID 3031 Syllabus

Health Design Studio F2026

M/W 12:30 pm – 4:15 pm, Location: Junior Design Studio; #261

4.0 Credit Hours

Instructor Information

Instructor:	Contact Info:	Office Hours & Location:
Herb Velazquez	hvelazquez6@gatech.edu	Room 366a by appointment M/W Via Teams by appointment T/Th

https://outlook.office365.com/owa/calendar/BookMeetingwithHVelazquez@gtvault.onmicrosoft.com/bookings/

General Information

Description: The application of systematic design methods to projects focused on health-related product development. System level application of the design process to advanced multidisciplinary problems focused on the development of new and/or improved products, systems, and technologies to improve health and health-related behaviors with an emphasis on human centered design, integration of research, universal design process, prototyping, testing, and presentation of ideas.

Course Format

All studio design courses use a lecture / lab format. Specifically, we will meet in studio on Monday's for lectures and reviews. Wednesday classes will be primarily workdays, conducted individually or in small groups. All students are expected to attend classes in person and on time. Instructional methods for teaching the course include:

- *Demonstrations, Lectures and in-class discussions*
- *Individual and or Group Projects*
- *Presentation and project reviews*
- *Workshop sessions*
- * *Online progress reviews and discussions with relevant professionals*

Course Goals and Learning Outcomes

Upon completion of the course, students are expected to demonstrate knowledge, skill and abilities in the following areas:

User and Market Needs:

- Identify the target users of a product or system and consider the needs of target market
- Demonstrate a detailed understanding of each step in the design process
- Facility for conceptual thinking
- Externalize ideas iteratively as part of design process
- Develop a final design that addresses the user needs and project criteria

Management:

- Manage all project activities through to successful completion
- Manage time to meet specific deliverables dictated by the stage of the design process
- Take initiative to work independently or work collaboratively within a team.

Skills:

- Ability to incorporate research in making informed and innovative design decisions.
- Facility to use a variety of techniques to communicate persuasively – sketches, illustrations, photographs, prototypes, video, etc..
- Demonstrate a standard of quality & attention to detail in models and presentations.

Writing:

- Ability to express proposals and concepts in writing.
- Ability to explain their design thinking; how and why decisions were made…

Presentation:

- Ability to present work in a professional* manner (visual and verbal).
- Ability to articulate ideas in verbal presentations.

Scope of Work

The scope of these projects will involve background research leading to problem definition, identification of target population & a relevant set of design objectives/criteria. Using these design objectives, each student or team will develop concepts for a product or system that satisfies the design criteria. Based on instructor/sponsor feedback from these initial concept proposals, the concepts will be subsequently refined, and one system level solution will be presented in a final design presentation. Depending on the nature of the problem undertaken, final deliverables may include detailed process documentation, CAD models, prototypes, animations/videos, data from usability testing, etc.

- *The course is intended to be interactive. Take charge of your own learning and think of your instructor as your facilitator. Questions not asked are questions not answered. So please ASK!*
- *Studio attendance and involvement are mandatory and key to your success in this course. Working in the studio is essential to receiving feedback from instructor and peers. It also builds a professional community of practice. Make the studio space YOUR space and a nice working environment.*
- *Feedback will be direct and honest, aimed at your process and product – it should not be taken personally. Please do not hesitate to talk in depth with the instructor about clarification or explanation.*
- *Students are required to document every aspect in the process. Documentation includes, but is not limited to, scanning 2d work and taking photographs of 3d work. Students are responsible for backing-up their computer files. "Lost" files are not a sufficient excuse for missing work.*
- *There may be some last-minute updates or revisions to the project schedule or exercises. Students need to check Canvas and Canvas email accounts on a daily basis to stay informed.*

Course Requirements & Grading

Reviews

This studio will incorporate three types of reviews: individual desk critiques, informal class reviews and formal reviews. The various critique types are intended to be learning experiences. They should generate thinking and should help you to assume an active role on behalf of your own critical education. Ideally, after participating, you will have new issues to consider in your work. The insight gained from each review experience is intended to have a cumulative effect; the design of subsequent work should be at least partly influenced and improved as a result of the criticism received on previous design efforts.

You will be asked to prepare an oral and graphic presentation for all critiques. In addition, you should be

ready to discuss the issues raised by your work and the work of your colleagues. Not all work will be discussed during critiques. Typically, a sample of works that exemplify the major issues of the project are examined and reviewed. You are expected to recognize and utilize comments that are applicable to your own work even if not the focus of discussion.

All students are expected to attend each presentation (of all team results) unless otherwise cleared by your studio instructor.

Presentation Deliverables

- *Public presentations told as a compelling story that define WHY the project was important and share supporting data, sources, and provide an overview of your problem statement and proposed solution, validation, details and final product rendering, illustrations and/or photos demonstrating the product's function(s), use(s) context of use, technical specifications and unique characteristics.*
- *Process Book outlining research, concept development and final design development. This is NOT a scrapbook but rather is a record of the process each team undertook in developing their final solutions. It is essential to communicate your thinking and decision making within these process books; All key design decisions should be documented and thoroughly explained. There is no minimum page count for process books, but it typically requires a number of pages to adequately document each portion of a design phase and detail your thinking and decision making.*
- *Presentation of a Launchpad poster and short project video.*

Grading:

Grades are a means to communicate our evaluation of your work and progress. Work will be graded with a letter grade and will be assigned a point value corresponding to the proportion of time & effort that the schedule allocates to an individual project. Specific criteria will be discussed for each project.

Sample Design Phase Grade Sheet	**Expectations Not Met**							**Meets Some Expectations**		**Exceeds Expectations**	
	F or D							**C or B**		**B or A**	
User/Market Needs / innovation opportunity defined?	0	2	4	6	8	10	12	14	16	18	20
Design Brief / inspirational objective, measurable criteria?	0	2	4	6	8	10	12	14	16	18	20
Concepts / problem reframed, innovation?	0	2	4	6	8	10	12	14	16	18	20
Tested/Refined/ concept validated & refined?	0	2	4	6	8	10	12	14	16	18	20
Presentation / professional deliverables for innovation?	0	2	4	6	8	10	12	14	16	18	20
DEDUCTIONS (given for late and incomplete work)											
TOTAL POSSIBLE 100 points											

Your final grade will be assigned as a letter grade according to the following scale:

A	*90-100%*	*Exceptional work*
B	*80-89%*	*Above average work*
C	*70-79%*	*Average work*
D	*60-69%*	*Below average work*

Individual Project deliverables will be weighted towards figuring your final grades.

Grades should be interpreted as follows:
A = 4 Exceptional work. Exceeds criteria. All phase deliverables were completed and presented in a **Professional*** compelling manner. Clear understanding of concepts and materials. Exhibits insights indicating that the experiences from one project to the next are cumulative and transferable. Constructively challenges and criticizes design issues brought forth during the semester. Demonstrates enthusiasm and intensity for learning. Develops capability to be constructively self- critical. Assumes responsibility for intellectual development of self and encourages intellectual development of colleagues. Clearly communicates ideas and progress to the faculty team. This grade indicates clear capability to perform well at the next level.

B = 3 Above average work. Meets all criteria. At least eighty percent of phase deliverables were fully completed and presented in a **Professional*** compelling manner. Good understanding of concepts and materials. Reasonable carry-over from previous projects. Constructively challenges design issues brought forth during the semester. Communicates ideas and progress to the faculty team. This grade indicates a reasonable prediction of competent performance at the next level.

C = 2 Average work. Meets minimum requirements. Gaps in phase deliverables and gaps in Professional* presentation. Indicates some difficulty in understanding concepts and materials or in transferring experience from one project to the next. Exhibits need for improvement in critical thinking skills. Has some difficulty communicating ideas and progress to the faculty team. This grade indicates a prediction of mediocre to poor performance at the next level.

D = 1 Below average work. Major gaps in phase deliverables. Does not meet minimum requirements. Indicates serious difficulties in understanding concepts and materials, and/or in the transfer of information. Seldom communicates ideas and progress to the faculty team. Probable indication of poor attendance and lack of motivation.

F = 0 Late, incomplete, or work not submitted. Absent for more than 4 studio sessions. Absent at project introductions/reviews/critiques. Lacked timely communication of ideas and progress to the faculty team.

* What "Professionally" means:

Drawings: All drawings should have a title block that includes: course #, project name, date, student name, drawing number, for example. Drawings should be submitted on correct paper size such as 11" x 17", drawing should use multiple weight lines, such as thin and thick lines, use color and call outs. All text must be neat and legible from 10 feet.

Models: Sketch models can be made from any materials but should be carefully constructed to properly represent intent. 1:1 Reference models and Appearance models should be constructed accurately to 100% scale with the correct materials and each externally visible part having been fabricated and finished separately prior to assembly. Functional models can be made from any materials and components required to demonstrate functionality. All models must retain their integrity during the presentations without having parts fall off or wet paint so that their purpose may be demonstrated without failures.

Slides: All slides are formatted with consistent use of a grid, coherent and compelling images on 90%+ of the slides, data with sources used to support market opportunity, all pages are numbered and have project title block, slide presentation must communicate a compelling story bringing the innovative solution to life. All text must be legible from 15 feet.

Process Book: All pages are formatted with consistent use of a grid, coherent and compelling images on 90%+ of the pages, data with sources used to support market opportunity, all pages are numbered and have project title block, the process book must be presented physically and communicate a compelling story bringing the innovative solution to life.

Presentation: The live presentation content is rehearsed, speaker has all presentation content ready without fumbling around and without technical issues, shares story with confident voice and loud enough for all in audience to hear, slides are not read, presentation is completed within allotted time frame.

Requests for grade changes must be submitted in writing within one week of receiving the grade. Clearly state reasons for grade reconsideration.

*Important: A grade of "D" or lower will require the student to repeat the course. Students who receive two consecutive "C" grades in studio courses will be required to repeat the last studio course and attain a B grade or higher to proceed.

Incompletes (I), as a final grade, are assigned when a student has not completed some part of the course for reasons deemed satisfactory by the instructor. They are given only under extenuating circumstances and only when the work for the semester is substantially complete. An example of extenuating circumstances is an accident or illness backed up by a doctor's excuse. If the student's record is so poor as to preclude passing, the instructor will assign the grade of "F" (Note: registering and repeating a course in which a (I) grade has been assigned will not remove the outstanding (I) grade).

Projects, including all required deliverables, that are not completed at the scheduled presentation date AND time will be subject to a lowered grade and may not be accepted, depending on why the work was late. Note that technical problems, such as printing difficulties, do not count as an acceptable excuse – they can be avoided by working in a timely manner and having presentation material ready the night before the presentation. It is solely the responsibility of the student to keep the instructor informed of any circumstances relating to late or incomplete work - including written medically excused absences.

All assigned work must be submitted at the beginning of class on the due date.

Extra Credit Opportunities:

It is not anticipated that there will be any extra credit offered.

Course Materials:
There is not a required material/equipment list for this studio but each student is expected to be equipped with basic design tools including pens, markers, drawing tools, Xacto knife & blades etc. as well as paper, foamcore, hot melt gluegun etc. Depending on the nature of your projects, additional prototype materials most likely will be required including purchase of 3D printed parts, off-shelf components etc. It is suggested that each student should anticipate spending approximately $300 in out-of-pocket expenses over the course of the semester.

Course Text:

There is no formal textbook for this class. Students are encouraged to read the following:

- Velazquez, H. *"Design Thinking Toolbox, Design Students Innovation Handbook"* (2024) [on reserve in the GT Library]
- Li, W. "Design Empathy and Contextual Awareness" (2025) Laurence King.
- Henry Dreyfuss Associates. (2002). *The Measure of Man and Woman: Human Factors in Design*. Alvin R. Tilley (Ed.). New York: Whitney Library of Design. [on reserve in the GT Library]
- Ashby, M. & Johnson, K. (2014). *Materials and design: The Art and Science of Material Selection in Product Design*. Third Edition. Boston: Butterworth-Heinemann.
- Baxter, M. (1995). *Product design: Practical methods for the Systematic Development of New Products*. London: Chapman & Hall.
- Benyus, J. M. (1997). *Biomimicry: Innovation Inspired by Nature*. New York: HarperCollinsPublishers, Inc.
- Boradkar, P. (2010). Designing things: *A Critical Introduction to the Culture of Objects*. Oxford: Berg Publishers.

- Elam, K. (2001). *Geometry of Design: Studies in Proportion and Composition*. New York: Princeton Architectural Press.
- Elam, K. (2004). *Grid Systems: Principles of Organizing Type*. New York: Princeton Architectural Press. Gorman, C. R. (2003).
- Lidwell, W., Holden, K., Butler, J. (2023). *"Universal Principles of Design", revised and updated: 424 pages, 200 laws, guidelines, and considerations that are important to successful design*. Beverly, MA: Rockport Publishers.
- McDonough, W. & Braungart, M. (2002). *Cradle to Cradle: Remaking the Way We Make Things*. New York: North Point Press.
- Moggridge, B. (2007). *Designing Interactions*. Cambridge: M.I.T. Press. Norman, D. A. (1990). The design of everyday things. New York: Doubleday.
- Ulrich, K. T. & Eppinger, S. D. (2008). *Product Design and Development*, Fourth Edition. New York: McGraw-Hill.Additional Materials/Resources

Course Expectations & Guidelines

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech's Academic Honor Code, please visit http://www.catalog.gatech.edu/policies/honor-code/ or http://www.catalog.gatech.edu/rules/18/.

Any student suspected of cheating or plagiarizing on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Attendance and/or Participation

Georgia Tech Institute of Technology's policy on student absences can be reviewed at http://www.catalog.gatech.edu/rules/4/

Attendance - Students are expected to attend on time and participate during each class session. Attendance for all instruction, scheduled presentations or in-class work time is required. If you know that you will miss a class due to an excused absence, please advise your instructor as soon as possible and at least 24 hours in advance so that you can get all assignments and keep current with the class work.

Warning - Your class grade will be reduced by one letter grade if you have more than 3 unexcused absences. Your class grade will be reduced by an additional letter grade for each additional unexcused absence.

Late Arrival - Students are expected to arrive on time for class. Students are expected to arrive on time to class. Any student arriving from 5-15 minutes late will be as an unexcused late arrival. Students arriving more than 15 minutes late will be considered absent. Three,3, unexcused late arrivals will be counted as 1 unexcused absence. If late, it is the student's responsibility to personally check in with the instructor upon arrival at class to ensure proper recording of attendance. Failure to check in with an instructor upon late arrival may result in being marked absent.

Excused Absences – medical notes need to go through the dean of students. If you have an excused medical absence it is your responsibility to contact your instructor within 24 hours of the scheduled class time and you must turn in your medical documentation to the Dean's office and they will notify me of your absence. If you don't feel well or know that you are sick, please do not come to class out of courtesy to others. Simply notify the instructor of your situation and bring documentation of your illness when you are able to return to class.

Unexcused Absences – any absence that does not follow the Excused Absence guideline.

Participation - Students are expected to attend and participate during each class session. Participation means being actively involved in the activity of the class.

Student Use of Mobile Devices in the Classroom- Students are expected to be considerate of others in their use of mobile phones and laptops within the classroom. Phones should be silenced at all times. Students should not text or check Facebook etc. during class time to avoid distracting others and to maximize learning.

Campus Resources for Students

There are many great resources around campus that can help you if you are having a difficult time with this or any other course. Please search this page for help. Click here or go to:
http://ctl.gatech.edu/sites/default/files/documents/campus_resources_students.pdf

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Artificial Intelligence (AI) Policy

Within this class, you are welcome to use AI foundation models (ChatGPT, GPT, DALL-E, Stable Diffusion, Midjourney, Vizcom, GitHub Copilot, and any other AI) in a totally unrestricted fashion, for any purpose, at no penalty. However, you should note that all large language models still tend to make up incorrect facts and fake citations, code generation models have a tendency to produce inaccurate outputs, and image generation models can occasionally come up with highly offensive products. You will be responsible for any inaccurate, biased, offensive, or otherwise unethical content you submit regardless of whether it originally comes from you or a foundation model. If you use an AI foundation model, its contribution must be acknowledged in the work handed in; you will be penalized for using a foundation model without acknowledgement. The university's policy on plagiarism still applies to any uncited or improperly cited use of work by other human beings, or submission of work by other human beings as your own. Having said all these disclaimers, the use of AI foundation models is encouraged, as it may make it possible for you to submit assignments with higher quality, in less time.

College of Design Faculty Statement on Diversity, Equity, and Inclusion

The College of Design (COD) community of faculty, staff, and students aspires to create and nurture an environment that is supportive of all backgrounds where different views and ideas are respected and encouraged. In all our pursuits, we commit to justice, diversity, equity, and inclusion with regard to race, national origin, language, age, sexual orientation, gender, religion, and ability. Moreover, we will encourage intellectual inquiry and respectful exchange that cements our dedication to these principles.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services at (404)894-2563 or http://disabilityservices.gatech.edu/, as soon as possible, to make an appointment to discuss your special needs and to obtain an accommodations letter. Please feel free to e-mail me as soon as possible in order to set up a time to discuss your learning needs. Accommodations begin when the letter is received by your instructor. If you need accommodation, please register at the beginning of the semester or as soon as your disability begins.

Student-Faculty Expectations Agreement

At Georgia Tech we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. See http://www.catalog.gatech.edu/rules/22/ for an articulation of some basic expectation that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals

of Georgia Tech while in this class.

Student Use of Mobile Devices in the Classroom

The use of mobile phones and computers is allowed for this course but should be kept to a minimum. DO NOT TAKE CALLS while in class. You can use devices to take notes, or to record, but make sure that all sound is OFF. Emergency calls can be taken if you leave the room. Also, please keep in mind that when we have speakers, it is polite to remain attentive. Please take notes, but do not check your social media or work on other projects.

The Bottom Line

Communication is key. Your studio class should be a top priority in your education this semester and I expect you each to work hard. I also know that not every semester is perfect. You never need to share personal information, but the sooner I know what kind of limitations, scheduling issues, or other problems are happening, the more I can help things move forward. I can't guarantee that it leads to an A, but my job is to help guide you and your work to the best outcome possible given your individual projects and situations.

Contacting the Instructor for an Appointment

If you would like to arrange a meeting or appointment, please speak with the instructor after class or contact the instructor via email. Please allow 24 hours for a response.

*****This syllabus may be subject to change during the course of the semester. If changes are made, the syllabus will be updated online and you will be informed of the changes.**