

INF385T : QUANTIFYING USER EXPERIENCE
Syllabus – Fall 2021

Instructor: Dr. Jacek Gwizdka

Office: Online (Zoom)

Office Hours: By appointment

Email: jacekg@utexas.edu (always include **QUX** in the email's subject)

Note: direct email is by far the best way to contact your instructor and TA

TA: Li Shi

Email: lilylashi@utexas.edu

(all course-related email should be sent to the TA and cc-ed to the course instructor)

Class meetings: Thursdays 12:30pm-3:30pm in UTA 1.520 online

Canvas @ UT: <https://utexas.instructure.com/>

Course schedule: a separate one-page document on Canvas (look under Canvas Syllabus)

Course announcements and email list: through Canvas

COURSE DESCRIPTION

The course offers a practical introduction and guide for using statistics to solve quantitative problems in user research. Many designers and user researchers view usability and user research as qualitative activities, which do not use formulas and numbers. However, usability practitioners and user researchers are increasingly expected to quantify the benefits of their efforts. The impact of good and bad designs can be quantified in terms of user performance, task completion rates and times, perceived user satisfaction. The course will address questions frequently faced by user researchers, such as, how to compare usability of products for A/B testing and competitive analysis, how to measure the interactive user behavior and attitudes of users, how to estimate the number of users needed for usability testing. The course will introduce students to a foundation for statistical theories and the best practices needed to apply them. It will cover descriptive statistics, confidence intervals, standardized usability questionnaires, one- and two-sample tests (t-tests), Chi-square, correlation, regression, and analysis of variance (ANOVA). It will also address how to effectively communicate the quantitative results.

No statistical background is required. For math background, high-school algebra, or college level algebra will be needed. Examples, homework etc. will be done by hand calculations and some by using Excel and/or "R" scripting language.

CLASS STRUCTURE

Each week will have roughly these course components: reading assigned chapters, synchronous class meeting, assignment or project work. The synchronous class meeting time will be split between content-based lectures, discussions, activities to demonstrate techniques and to practice the skills being presented. The part of the class time used for lectures will be devoted to highlighting course materials, questions, and discussion. The composition of individual class

meetings will differ somewhat throughout the semester. After the class meeting, students will work on (mostly) weekly assignments and, later in the semester, on a small two-part project. The Zoom class activities will be divided into several chunks with one longer break and typically a couple shorter breaks.

PEDAGOGICAL OBJECTIVES

The objective of this course is for students to learn fundamentals of quantitative user research: descriptive and inferential statistics as applicable to usability data. At the end of this course you will be able to:

- summarize data and compute margins of error;
- determine if there is a statistically significant difference, either in comparison to a benchmark or between groups;
- find the appropriate sample size for a usability study;
- investigate relationships among variables;
- apply all of these methods to typical data from usability tests.

BOOKS

The main textbook: **SL:** Sauro, J. & Lewis, J. R. (2016). *Quantifying the User Experience: Practical Statistics for User Research Book*. 2nd Edition. <https://www.sciencedirect.com.ezproxy.lib.utexas.edu/book/9780128023082/quantifying-the-user-experience>

Additional textbook: CS: Spatz, C. (2019). *Exploring statistics: Tales of distributions*. (Selected chapters: 1-4, 6-8). <https://exploringstatistics.com/>

Optional: LS: Lewis, J. R., & Sauro, J. (2016). *Excel and R Companion to the Second Edition of "Quantifying the User Experience: Practical Statistics for User Research."* MeasuringU Press. (the book will be made available for you in PDF; please do **not** share with others).

CLASS LECTURE SLIDES AND OTHER HANDOUTS

For your reference, class lecture slides will be posted on Canvas. You have my permission to save and print a copy for your personal use. Assignment and project descriptions are also posted on Canvas. The files posted on Canvas will be either linked to Canvas Modules/Syllabus/Calendar or available directly in the Files section. *Important:* No materials used in this may be shared online or in-person with anyone outside of the class unless you have my explicit, written permission. Please also consult section "Sharing of Course Materials is Prohibited" at the end of the syllabus.

HOMEWORK

There will be weekly assignments and a small project. All due dates are on Canvas. It's your job to know when you should be working on assignments and when they are due. Ask when in doubt.

Submitting written homework and project assignments

You must prepare your assignments using a word processor and submit it by uploading to Canvas by the due date/time. Please always use appropriate three- or four-letter file extensions in submitted filename (e.g., .docx for Word files, .pdf for Adobe portable document format).

Assignments usually may not be submitted via email to either the professor or the TA. All documents which you are submitting should include on the front page of your submission your name (spelled in the same way as in the course roster), course number/name, instructor's name, semester and the date of submission. For group work, please additionally include on the front page all group member names, your project group number, and your project short name (or title). **If you don't include all the required information your submission will be returned ungraded.**

GRADING

Online discussions assignments on Canvas (most weeks)	10%
Participation in class activities	8%
(Mostly) Weekly assignments (seven weeks), each 6%	42%
Project (group work)	40%
Project 1: Descriptive stats for data provided from A/B user study	10%
Project 2: Compare UIs: t-Tests for data provided from A/B user study	15%
Project 3: Analyze factors: ANOVA for data provided from A/B user stud	15%

GRADING SCALE

- 96 or above (A superior)
- 90-95 (A- distinguished)
- 87-89 (B+ good)
- 84-86 (B satisfactory)
- 80-83 (B- barely satisfactory)
- unsatisfactory: 77-79 (C+), 74-76 (C), 70-73 (C-).

Note: Final grading does not happen just by calculations. I take into account many factors, and so your "Canvas points/%" are only a rough indication of the final grade. Ask when in doubt.

SMALL PROJECT

You will work with data provided from an "A/B" lab user study on a small three-part project. In this within-subject study participants performed four tasks using two user interfaces. Data includes user characteristics, time on task, click counts, counts and duration of eye fixations. The three parts of the project will include 1) calculating descriptive statistics, 2) comparing two user-interfaces, and 3) assessing significance of factors.

UNIVERSITY AND COURSE POLICIES

Due dates and times for handing in homework and project assignments

All homework and project assignments must be turned in at the beginning of class on the due date. You should think of all due dates for assignments, especially project assignments, as firm. The tight schedule of deliverables throughout the whole semester makes it nearly impossible to extend due dates. Any assignment that you do not hand in on time may be penalized in grading. If you are not able to complete an assignment by the due date, it would be best for you to hand in as much of it as you have done. It will help if you notify us about special circumstances that will adversely affect completion of an assignment.

Attendance

You will not be graded directly on attendance. You are adults in a graduate-level course and are *expected* to be present for all course-related activities. Beyond the occasional need to be absent from class for a good reason, please consider that much of the learning for the course occurs in class. You cannot participate in this learning if you are not present.

You are required to turn on camera for online class meetings. If your internet connection is slow and does not allow for video streaming, please let the course instructor and TA know ahead of time.

If you are absent or unable to participate on the day that your team meets, you are responsible for providing your team with the necessary information to compensate for your absence. It is crucial to keep in communication with your team members; you are responsible for letting both us and your team know if you cannot make it to a class.

Excused Absence: The only absences that will be considered excused are for religious holy days or extenuating circumstances due to an emergency. If you plan to miss class due to observance of a religious holy day, please let us know at least two weeks in advance. For religious holy days that fall within the first two weeks of the semester, the notice should be given on the first day of the semester. You will not be penalized for this absence, although you will still be responsible for any work you will miss on that day if applicable. Check with us for details or arrangements.

If you have to be absent, use your resources wisely. Ask your team and other classmates to get a run-down and notes on any lessons you miss. If you find there are topics that we covered while you were gone that raise questions, you may come by during office hours or schedule a meeting to discuss. Email specific questions you have in advance so that we can make the most of our time. "What did I miss?" is not specific enough.

If you have to miss class for an extended period due to a protracted illness or similar reason, we will treat your needs as a special case and I will do everything I can to help you survive.

Online Instruction

All students must use a UT Zoom account in order to participate in classes, office hours, and any UT affiliated events.

E-mail Notification Policy

In this course e-mail will be used as the main means of communication with students. You will be responsible for checking your e-mail regularly for class work and announcements. If you are an employee of the University, your e-mail address in Canvas is your employee address.

Please make sure that your email is configured in such way as to show your name in the same way as it appears on the official course roster. This most likely means that it should be spelled using Latin alphabet characters only.

All email messages you send concerning the class should be addressed to the TA with a copy to the instructor. We will sort out which of us should act on the message and will make every effort to answer your email in a timely fashion. However, you should not necessarily always expect to get an immediate reply. In particular, don't expect to get answers to questions about a homework or project assignment within the last few hours before that assignment is due. **Please put INF385C as part of the subject line of your email; that will help us identify your emails more quickly.**

The University has an official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. Read the policy: <http://www.utexas.edu/its/policies/emailnotify.html>.

You can find and change your official email address of record at :
https://utdirect.utexas.edu/apps/utd/all_my_addresses

STUDENT RIGHTS & RESPONSIBILITIES

- You have a right to a learning environment that supports mental and physical wellness.
- You have a right to respect.
- You have a right to be assessed and graded fairly.
- You have a right to freedom of opinion and expression.
- You have a right to privacy and confidentiality.
- You have a right to meaningful and equal participation, to self-organize groups to improve your learning environment.
- You have a right to learn in an environment that is welcoming to all people. No student shall be isolated, excluded or diminished in any way.

With these rights come responsibilities:

- You are responsible for taking care of yourself, managing your time, and communicating with the teaching team and with others if things start to feel out of control or overwhelming.
- You are responsible for acting in a way that is worthy of respect and always respectful of others.
- Your experience with this course is directly related to the quality of the energy that you bring to it, and your energy shapes the quality of your peers' experiences.
- You are responsible for creating an inclusive environment and for speaking up when someone is excluded.
- You are responsible for holding yourself accountable to these standards, holding each other to these standards, and holding the teaching team accountable as well.

ACADEMIC INTEGRITY

Each student in the course is expected to abide by the University of Texas Honor Code: **"As a student of The University of Texas at Austin, I shall abide by the core values of the University and**

uphold academic integrity.” **Plagiarism is taken very seriously at UT.** Therefore, if you use words or ideas that are not your own (or that you have used in previous class), you must cite your sources. Otherwise you will be guilty of plagiarism and subject to academic disciplinary action, including failure of the course. You are encouraged to discuss assignments with classmates, but anything submitted must reflect your own, original work. If in doubt, ask the instructor.

Students who violate University rules on academic dishonesty are subject to severe disciplinary penalties, such as automatically failing the course and potentially being dismissed from the University. **PLEASE do not take the risk.** We are REQUIRED to automatically report any suspected case to central administration for investigation and disciplinary hearings. Honor code violations ultimately harm yourself as well as other students, and the integrity of the University, academic honesty is strictly enforced. You are responsible for understanding UT’s Academic Honesty and the University Honor Code which can be found at the following web address: <https://deanofstudents.utexas.edu/conduct/standardsconduct.php>

UNIVERSITY RESOURCES FOR STUDENTS

Services for Students with Disabilities

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 Services for Students with Disabilities (SSD). Please refer to SSD’s website for contact and more information: <http://diversity.utexas.edu/disability/>. If you are already registered with SSD, 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.

Counseling and Mental Health Center

The [Counseling and Mental Health Center](#) serves UT’s diverse campus community by providing high quality, innovative and culturally informed mental health programs and services that enhance and support students’ well-being, academic and life goals. To learn more about your counseling and mental health options, call CMHC at (512) 471-3515.

If you are experiencing a mental health crisis, call the CMHC Crisis Line 24/7 at (512) 471-2255.

The Sanger Learning Center

Did you know that more than one-third of UT undergraduate students use the Sanger Learning Center each year to improve their academic performance? All students are welcome to take advantage of Sanger Center’s classes and workshops, private learning specialist appointments, peer academic coaching, and tutoring for more than 70 courses in 15 different subject areas. For more information, please visit <http://www.utexas.edu/ugs/slc> or call 512-471-3614 (JES A332).

Undergraduate Writing Center: <http://uwc.utexas.edu/>

Libraries: <http://www.lib.utexas.edu/>

ITS: <http://www.utexas.edu/its/>

Student Emergency Services: <http://deanofstudents.utexas.edu/emergency/>

BeVocal

BeVocal is a university-wide initiative to promote the idea that individual Longhorns have the power to prevent high-risk behavior and harm. At UT Austin all Longhorns have the power to intervene and reduce harm. To learn more about BeVocal and how you can help to build a culture of care on campus, go to: <https://wellnessnetwork.utexas.edu/BeVocal>.

CLASSROOM SAFETY AND COVID-19

To help preserve our in-person learning environment, the university recommends the following.

- Adhere to university [mask guidance](https://t.e2ma.net/click/fuzy1f/7f70iib/3gdvdx) (<https://t.e2ma.net/click/fuzy1f/7f70iib/3gdvdx>). Masks are strongly recommended inside university buildings for vaccinated and unvaccinated individuals, except when alone in a private office or single-occupant cubicle.
- [Vaccinations are widely available](https://t.e2ma.net/click/fuzy1f/7f70iib/j9dvdxc) (<https://t.e2ma.net/click/fuzy1f/7f70iib/j9dvdxc>), free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated.
- [Proactive Community Testing](https://t.e2ma.net/click/fuzy1f/7f70iib/z1evdxc) (<https://t.e2ma.net/click/fuzy1f/7f70iib/z1evdxc>) remains an important part of the university's efforts to protect our community. Tests are fast and free.
- The university has determined that all students coming to campus for the fall semester must receive a viral COVID-19 test in their local community within 72 hours prior to arrival in Austin for move in. If they already reside in Austin, they must test within 72 hours of moving into the residence where they will reside for the academic semester. Finally, individuals who are already living in the residence in Austin where they will reside this academic semester should test within 72 hours (3 days) prior to the start of class on Aug. 25.
- We encourage the use of the [Protect Texas App](https://protect.utexas.edu/app/) (<https://protect.utexas.edu/app/>) each day prior to coming to campus.
- If you develop COVID-19 symptoms or feel sick, stay home and contact the [University Health Services'](https://www.healthyhorns.utexas.edu/) (<https://www.healthyhorns.utexas.edu/>) Nurse Advice Line at 512-475-6877. If you need to be absent from class, contact [Student Emergency Services](https://t.e2ma.net/click/l02i5z/dmu8psb/9yd5cm4) (<https://t.e2ma.net/click/l02i5z/dmu8psb/9yd5cm4>) and they will notify your professors. In addition, to help understand what to do if you have been had close contact with someone who tested positive for COVID-19, see this [University Health Services link](https://healthyhorns.utexas.edu/coronavirus_exposure_action_chart.html) (https://healthyhorns.utexas.edu/coronavirus_exposure_action_chart.html).
- [Behavior Concerns and COVID-19 Advice Line](https://safety.utexas.edu/behavior-concerns-advice-line) (BCCAL - <https://safety.utexas.edu/behavior-concerns-advice-line>) remains available as the primary tool to address questions or concerns from the university community about COVID-19.
- Students who test positive should contact [BCCAL](#) or self-report (if tested off campus) to [University Health Services](#).
- Visit [Protect Texas Together](https://protect.utexas.edu/) (<https://protect.utexas.edu/>) for more information.

CAMPUS SAFETY INFORMATION

The following are recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767,

- 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 emergency preparedness:
<https://preparedness.utexas.edu/>

STUDENT EMERGENCY SERVICES

UT's Student Emergency Services (<http://deanofstudents.utexas.edu/emergency/>) provides assistance, intervention, and referrals to support students navigating challenging or unexpected issues that impact their well-being and academic success. If you need to be absent from class due to a family emergency, medical or mental health concern, or academic difficulty due to crisis or an emergency situation, please register with Student Emergency Services. SES will verify your situation and notify your professors.

Emergency Evacuation Procedures

The following recommendations regarding emergency evacuation from the Office of Campus Safety and Security, 512-471-5767, <http://www.utexas.edu/safety/>

Coping with stress and personal hardships

The [Counseling and Mental Health Center](#) offers a variety of services for students, including both individual counselling and [groups and classes](#), to provide support and assistance for anyone coping with difficult issues in their personal lives. As mentioned above, life brings unexpected surprises to all of us. If you are facing any personal difficulties in coping with challenges facing you, definitely consider the various services offered and do not be shy to take advantage of them if they might help. These services exist to be used.

Q Drop Policy

If you want to drop a class after the 12th class day, you'll need to execute a Q drop before the Q-drop deadline, which typically occurs near the middle of the semester. Under Texas law, you are only allowed six Q drops while you are in college at any public Texas institution. For more information, see: <http://www.utexas.edu/ugs/csacc/academic/adddrop/qdrop>

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.

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, written permission of the instructor. Unauthorized sharing of materials promotes cheating. It is a violation of the University's Student Honor Code and an act of academic dishonesty. The University is well aware of the sites used for sharing materials, and any materials found on such sites that are associated with a specific student, or any suspected unauthorized sharing of materials, will be reported to [Student Conduct and Academic Integrity \(Student Conduct and Academic Integrity\)](#) in the [Office of the Dean of Students \(Office of the Dean of Students\)](#). These reports can result in sanctions, including failure of the course.

Title IX Reporting

Title IX is a federal law that protects against sex and gender-based discrimination, sexual harassment, sexual assault, unprofessional or inappropriate conduct of a sexual nature, dating/domestic violence and stalking at federally funded educational institutions. UT Austin is committed to fostering a learning and working environment free from discrimination in all its forms. When unprofessional or inappropriate conduct of a sexual nature occurs in our community, the university can:

1. Intervene to prevent harmful behavior from continuing or escalating.
2. Provide support and remedies to students and employees who have experienced harm or have become involved in a Title IX investigation.
3. Investigate and discipline violations of the university's [relevant policies](#).

Faculty members and certain staff members are considered "Responsible Employees" or "Mandatory Reporters," which means that they are required to report violations of Title IX to the Title IX Coordinator. **I am a Responsible Employee and must report any Title IX-related incidents** that are disclosed in writing, discussion, or one-on-one. Before talking with me or with any faculty or staff member about a Title IX-related incident, be sure to ask whether they are a responsible employee. If you would like to speak with someone who can provide support or

remedies without making an official report to the university, please email advocate@austin.utexas.edu. For more information about reporting options and resources, visit <http://www.titleix.utexas.edu/>, contact the Title IX Office via email at titleix@austin.utexas.edu, or call 512-471-0419.

LAND ACKNOWLEDGMENT

We would like to acknowledge that we are meeting on Indigenous land. Moreover, (I) We would like to acknowledge and pay our respects to the Carrizo & Comecrudo, Coahuiltecan, Caddo, Tonkawa, Comanche, Lipan Apache, Alabama-Coushatta, Kickapoo, Tigua 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, here on Turtle Island.

INF385T : Special Topics in Information Science : Quantifying User Experience – Instructor: Dr. Jacek Gwizdka
Course Schedule (subject to change)
Fall 2021 - Thurs. 12:30 PM - 03:30 PM

#	Date	Topic	Reading Assignment (readings and online discussions <i>before</i> class)	Class activity	Assignments (due before class meeting, unless indicated otherwise)
1	Aug 26	Introduction. Algebra refresh	SL:1-2; CS: Appendix A		
2	Sept 2	Stats refresher 1 (Frequency distributions, graphs, Central Tendency)	SL: Appendix; CS:1-3	Exercise	
3	Sept 9	Stats refresher 2 (Variability, theoretical distributions normal distribution, samples, confidence intervals)	CS:4,7,8 D1	Exercise	A1: Stats refresher 1
4	Sept 16	Confidence intervals for UX	SL:3 D2	Exercise	A2: Stats refresher 2
5	Sept 23	Testing UX goals (1-sample tests)	SL:4 D3	Exercise	A3: Confidence intervals
6	Sept 30	Testing UX goals (cont.)	SL:5 (pp.61-72) D4	Exercise	
7	Oct 7	Comparing UI designs (paired-tests)	SL:5 (pp.61-72) D4	Exercise	A4: Testing UX goals (t-test)
8	Oct 14	Comparing UI designs (cont.)	SL:5 (pp73-102) D5	Exercise	
9	Oct 21	Sample size (summative studies)	SL:6 D6	Exercise	A5: Comparing UI designs
10	Oct 28	Sample size (formative studies)	SL:7 D7	Exercise	P1: Descriptive stats
11	Nov 4	Usability Questionnaires - SUS	SL:8-9 D8	Exercise	A6: Sample sizes
12	Nov 11	Correlation for UX data	SL:10 p277-287, CS:6 D9	Exercise	P2: Comparing UI designs
13	Nov 18	ANOVA for UX data	SL:10 295-310; SL:11 D11	Exercise	A7: Correlation
14	Nov 25	<i>No classes - Thanksgiving Holidays</i>			
15	Dec 2	Final presentations			P3: ANOVA

Readings from the main textbook: **SL**: Sauro, J., & Lewis, J. (2016). Quantifying the User Experience (2nd ed.). Morgan Kaufmann. <https://www.sciencedirect.com/book/9780128023082/quantifying-the-user-experience>;

LS: Lewis, J. R., & Sauro, J. (2016). Excel and R Companion to the Second Edition of “Quantifying the User Experience: Practical Statistics for User Research.” MeasuringU Press. (available on Canvas in PDF).

CS: Spatz, C. (2019). Exploring statistics: Tales of distributions. (Selected chapters). <https://exploringstatistics.com/>

Other abbreviations: **D** – online discussions; **A** – individual assignment; **P** – group project.