CPSC 311
Human-Computer Interaction
Syllabus

Last Updated 14 January 2020
(Note: syllabus subject to change, your instructor will make an announcement if changes occur)

Basic Facts

Instructor:	Daniel Olivares, PhD
	olivares@gonzaga.edu
	Herak 309A
	Office Hours:
	Monday and Wednesday 3:05PM – 4:05PM
	Thursday 10:45AM – 12:45PM
Teaching Assistant:	Bryan Fischer
	bfischer@zagmail.gonzaga.edu
	Office Hours: TBD
Meeting time/place:	Section 1: MWF 10:00am-10:50am – Herak 301
	Section 2: MWF 11:00am-11:50am – Herak 301
Online:	Course website hosted on Canvas: https://canvas.instructure.com/
Textbooks:	Norman, D (2013). *The Design of Everyday Things* (Revised and expanded ed.) New York: Basic Books (ISBN: 978-0465-050659). (**Required**)
	Johnson, J. (2014). *Designing with the Mind in Mind: Simple Guide to Understanding User Interface Design Rules* (2nd ed.). Burlington, MA: Morgan Kaufman (ISBN: 978-0124079144). (**Required**)
	Barnum, C. (2010). Usability Testing Essentials: Ready, Set…Test! Burlington, MA: Morgan Kaufman (ISBN: 978-0123750921) (**required**)
Other Useful items:	● A digital camera for photographing objects in the world.
	● Software for converting photographs to PDF.
	● A scanner for converting sketches to PDF documents. (A good digital camera also works.)
	● A laptop adhering to GU SEAS requirements. Click here to learn more about the requirements.
	NOTE: You are expected to bring your laptop to class regularly to complete and participate in in-class activities and assignments.

Using Devices in Class	We will use smartphones and laptops throughout the semester to facilitate class activities. However, research and student feedback clearly show that using devices for non-class related activities harms not only your own learning, but other students' learning as well. Therefore, please use devices only during activities that require them. At all other times, please do not be use your device.

Description

If the main purpose of computer software is to assist humans, one must ask why software can sometimes be so difficult to use. In the past, software that was difficult to use was often tolerated, if not expected. Nowadays, software that is difficult to use simply does not sell, and software corporations routinely invest heavily in the expertise, processes, and infrastructure necessary to ensure that the software they produce is highly usable.

To address the problem of developing software that works well for humans, *human-computer interaction* (HCI) has emerged as a key subarea of the field of computer science. A highly interdisciplinary area, HCI incorporates principles and theories from such diverse areas as engineering, computer science, and the social sciences. Its main goals are (1) to explore theories and principles of human computer use and human-computer communication; and (2) to develop techniques and practices for designing and evaluating humanly-usable software.

This course is designed to be an inspirational undergraduate level introduction to the theory and practice of human-computer interaction. Through readings, discussions, hands-on activities, peer-reviews, and user interface design and evaluation projects, you will explore the key concepts, theories and methods of the area, including

- Key principles and concepts for designing human-computer interfaces, along with the theories of human perception, cognition and learning that underlie them.
- Human-centered (or user-centered) software design processes;
- Early data gathering methods (field studies, questionnaires, interviews, contextual inquiry) for human-centered design;
- Low and high-fidelity prototyping techniques;
- Empirical methods for evaluating software (usability testing, controlled experiments); and
- Analytical methods for evaluating software (heuristic evaluation, cognitive walkthrough, KLM, GOMS).

Learning Objectives

By the end of this course, you should be able to

- Design and evaluate interactive software by applying appropriate design principles and concepts;

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- Employ user-centered design methods in the design and implementation[1] of interactive software;
- Design, conduct, and analyze empirical studies that inform the design of interactive software;
- Apply analytical methods to the evaluation of interactive software;
- Communicate about, reason about, and critically review user interface designs through sketching, oral discussions, peer reviews, and well-written documents[2]; and

Course Activities and Structure

Class Meetings. Class meetings will typically contain a mix of lectures, interactive examples, interactive group activities, and small and large group discussions. You are expected to read the assigned material *before* **class**, and you are required to bring your laptop to every class, as you will use it to engage actively in course activities. Note that, in some cases, a Wi-Fi enabled smart device (phone, tablet) may be used to submit in-class participation responses but may not provide an adequate user experience.

In addition, in some class meetings, you will engage in **studio activities** in which you (a) work on design sketches and/or present sketches to your peers for feedback and discussion[3]; or (b) perform design and problem-solving tasks in teams, and then present your progress to the class for feedback and discussion, These studio activities will provide opportunities to apply the theories, concepts, principles and methods being explored in the class.

Canvas is the online presence for this course. You can access it at https://canvas.instructure.com/. Once you log on to our course site, you can read course announcements, participate in online discussions, send e-mail to course participants, access course materials, hand in course deliverables, review peers' work, and access your grades.

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[1] No specific implementation technology will be taught in this course; it is assumed that your programming background will enable you to implement a software prototype in a language of your choice. If computer science is not your major, you can still take this course by teaming up with team members capable of completing prototype implementations. Please talk to me if you have any questions about this.

[2] This course seeks to prepare you for an aspect of your future career that is not emphasized in other computer science courses: namely, designing software artifacts to function well as components of human and social systems. Oral and written communication skills are an important part of this kind of work. Indeed, the software professional engaged in interface design and evaluation will need to communicate effectively with customers and design team members. Hence, achieving quality in oral and written communication is itself an appropriate objective of this course, which you can expect to be "writing intensive."

[3] An important aspect of this course is both giving and receiving design feedback based on theories, concepts, principles, and methods explored in the class. Feedback will be given/received individually, in small group activities, and in front of the class during in-class activities and presentations.

Communication

We will use Canvas to communicate, submit assignments, and view grades. A URL invitation link will be sent to your official @zagmail.gonzaga.edu email to provide course access.

Note: Please use Canvas as the primary communication method for course-related messages. I will monitor email as well but using Canvas is the preferred communication method. This will increase your message visibility and reduce likelihood of emails getting flagged as spam or getting lost in transit. Further, **any course-related emails should be sent from your official @zagmail.gonzaga.edu student email**.

Additionally, [Discord](#) (free to use) will be used to augment class communication and facilitate digital office hours–ask questions and discuss topics with other students in the class, TAs, and the instructor. Discord supports voice and text communication as well as screen sharing capabilities (*see Canvas for server invite URL*).

Grading

Your grade for the course will be based on the following items (weights are in parentheses):

- **Class Participation (15%).** Because this course depends heavily on in-class activities, you are expected to attend class meetings and to participate actively. I understand that you may need to miss class occasionally for valid reasons. For this reason, your **three lowest class participation scores will be discarded**—that is, you will receive three free attendance/participation credits.** Any discrepancies in participation need to be brought to my attention within a week of the posted grade.

  In-class participation credit will be given based on submission of in-class activity artifacts (i.e. work done during class) via paper and/or Canvas assignment/quiz submissions. Note that you will need to be on a Wi-Fi enabled device connected to the Gonzaga Wi-Fi in order to access in-class participation assignments/quizzes.

- **Individual Assignments (20%).** Through a series of individual assignments, you will practice the key design, analysis, and evaluation skills being taught in the course.

- **Exams (20%). Two** midterm exams, worth 10% each, will cover the first two thirds of the course. A study guide will be posted to the course website one week prior to the exam.

- **Team Project (45%).** Teams of three to four students (*maximum to 8 teams per section*) will engage in a project with four components:

  o *Early design study (8%)*. Teams will choose a design problem from a set of suitable problems provided by the instructor or an **approved** design problem submitted by the team. Teams will apply two data gathering techniques—a contextual inquiry and market research—in order to establish requirements and formulate user personas. They will present their results in an early data gathering report.

  o *Low fidelity prototype study (10%)*. Based on their early data gathering results, teams will construct a low fidelity (paper) prototype of their proposed design, and iteratively test the design through a "wizard of Oz" study involving at least three prospective users. They will construct a demo video of their low fidelity prototype, and provide a link to that video in a report that presents the results of their iterative testing.

  o *Analytic evaluation (5%)*. Using the low-fidelity prototype, teams will use either the cognitive walkthrough or heuristic evaluation technique to conduct an analytic evaluation of the application and present their results in a report.

  o *Usability Study (22%)*. Teams will design a formal study to test the usability of the real-world software application under closed laboratory conditions. They will recruit at least three suitable users to participate in the study, which they will video record. They will analyze participants' interactions with the software. They will present their results in both a formal written report (worth 15%), and a class presentation (worth 7%) that uses actual video clips to illustrate and corroborate the findings.

Grading Scale

The following scale will be used to convert your course percentage into a grade.

100-90	A
88-89.99	A-
85-87.99	B+
80-84.99	B
78-79.99	B-
75-77.99	C+
70-74.99	C
68-69.99	C-
65-67.99	D+
60-64.99	D
<60	F

Suggestions for Getting the Most out of This Course

- **Adopt a growth mindset.** On the first day of class, I introduced the concept of a "growth" vs. a "fixed" mindset, and cited research a legacy of research that demonstrates the positive impact a "growth" mindset can have on learning and success. Revisit those slides and/or view Carol Dweck's Ted Talk on the power of the growth mindset. The structure of this course, and my approach to teaching, aim to create a learning environment that promotes a growth mindset. By being aware of the concept and principles, you can positively contribute to that environment.

- **Attend class.** You can only benefit from this course if you show up! This is especially true of the group activities. Therefore, you are expected to attend every class session. In addition, I expect you to participate actively in class by asking questions, answering questions, and engaging in the collaborative design and problem-solving activities. Remember, part of your grade is based on attendance and participation (see above).

- **Put in enough time.** My rule of thumb is that students need to put in 3-4 hours of work outside of class for every hour they spend in class. This translates to roughly **6-8 hours per week.** You may need to put in only a fraction of 6 hours during some weeks, while you will find yourself putting in more than 6 hours during other weeks—especially during weeks in which pieces of your final design project are due.

- **Take initiative to get help**. You are strongly urged to "get by with a little help from your friends," as the familiar song goes. You can do this in two ways. First, I recommend that you find students in the course with whom to meet and discuss course material. Second, take the initiative to contact the instructor or other students if you begin to struggle. It behooves you to seek help as soon as you notice that you're struggling.

- **Have reasonable expectations**. Learning does not come "for free"; it is not simply a matter of "being taught." Your destiny in the course is up to you (growth mindset!). If you take an active role in your own learning, you will excel in this course, and have fun doing so. If, in contrast, you treat this course in the same way you treat television or video games—as an information "delivery" system—you will likely not get much out of the course, and your grade will suffer.

Policies

Please familiarize yourself with the following course policies. By following them, you will get the most out of this course, and you will not encounter any unwelcome surprises down the road.

- **Attendance**: The Gonzaga attendance policy on absences stipulates that the maximum allowable absence is two class hours (100 minutes) for each class credit. For three-credit classes, the maximum

absence is, therefore, six class hours (300 minutes). Classes scheduled to meet for more than 50 minutes have more than one class hour for each meeting; for example, a class which meets for 75 minutes has one and one-half class hours for each scheduled meeting. Instructors may report absences to the Registrar's Office, which will in turn notify the students. The grade given for excessive absences is a "V," which has the same effect as "F" (Fail) and is counted in the GPA. This outcome can be appealed to the Dean of the College/School in which the course is offered.

What does this mean for you?

If you miss six (6) 50-minute class periods over the course of the semester you can be given a "V" grade which will appear on your transcript as an "F."

- **Add a profile picture to Canvas**. Uploading a recent picture of yourself to Canvas will help me, the TA, and other students in the class to associate your name with your face. I would greatly appreciate it if you would do this, as it will help me to learn your name more quickly.

- **Corresponding with the instructor via e-mail**. Please e-mail me only through Canvas; do not e-mail me directly, except in an emergency. If you think your question is of general interest to the class, consider posting it to the course activity feed in Canvas. In general, you can expect an e-mail response from me quickly, and certainly within **24 hours** of sending it.

- **Accessing course materials**. Canvas is the online presence for this course. <mark>Log in regularly (every day)</mark> to view course announcements, view the course calendar and schedule, participate in the course feed, access course materials, access your grades, and submit assignments.

- **Checking your grades**. To view your current grades, click on the Grades tab in Canvas. My goal is to have work graded within one week of the final deadline, but this may not always be possible. Please check your grades regularly to ensure that your grades have been entered properly, and please let your instructor or the TA know as soon as possible if you detect an error.

- **Challenging a grade**. If you believe that I have made a mistake in grading an assignment, you have *one week* **(from the time your grade is first posted to the gradebook)** to discuss the matter. Such discussions should take place through Canvas—never in class (see point above). Please discuss grading issues as soon as possible. Students have often attempted to bargain for points well after their grades have been posted—often near the end of the semester when they have realized that they needed more points to obtain a certain grade. Please do not attempt to do this!

- **Exams**. Please show up to the midterm exam with your GU student I.D. You be allowed a "cheat sheet": one side of half of an 8-1/2" by 11" sheet of paper. In general, I will not allow you to make up the exam unless you (a) have a legitimate excuse (e.g., medical or family emergency) and (b) make other arrangements with me at least one week in advance of the exam. If a genuine emergency comes up and you cannot give me due notice of your need to make up an exam, I will

accept make-up requests after the fact, provided that (a) they are in writing, with supporting, signed documents, and (b) they are submitted to me no later than 24 hours after the starting time of the exam you missed. I will review each case on an individual basis, and I will let you know if your request is granted no later than 24 hours after it is submitted.

- **Late policy for assignments**. <mark>Deadline reminders are a courtesy, not a requirement. You are responsible to follow the course calendar and be aware of provided due dates!</mark> Course assignments are due by the stated due dates and times. As an example, if a deliverable is due on Thursday at 11:59 pm and has a 10% per 24-hour late policy, you could hand it in on Friday by 11:59 p.m. at 10 percent penalty. **Note that some assignments may be time sensitive and will not allow for late submissions.** In cases of illness and extenuating personal circumstances, you may request in writing (e-mail is fine) that an exception be granted to this policy, but your request must be issued in a timely manner (preferably in advance of the due date), and there is no guarantee that it will be granted.

- **Academic integrity:** You are expected to follow the university policy on academic honesty. Academic honesty is expected of all Gonzaga University students. Academic dishonesty includes, but is not limited to cheating, plagiarism, and theft. Any student found guilty of academic dishonesty is subject to disciplinary action, which may include, but is not limited to, (1) a failing grade for the test or assignment in question, (2) a failing grade for the course, or (3) a recommendation for dismissal from the University. A complete copy of Gonzaga's Academic Honesty policy can be found at [course catalog](#).

- **University Statement Regarding Course Expectations.** As a Jesuit university that seeks to provide an equal opportunity to learn for all students, this course is offered with the expectation that students are here voluntarily, and understand that the university expects all interactions relating to its courses to occur in the context of a professional academic work environment that is welcoming and accessible to all students regardless of gender, race, ethnicity, religion, disability, sexual orientation or identity and any other non-merit factor in educational programs or activities. This environment includes virtual course environments, such as Canvas, and **any course-related communications via e-mail and social media**. We strive to create a healthy environment conducive to intellectual honesty and free inquiry; as such, behaviors which constitute harassment, discrimination, or hostile and/or inappropriate conduct will not be tolerated, and faculty, staff and administrators will take action to ensure such matters are addressed promptly and appropriately. For inquiries or concerns about non-discrimination or the complaint process at Gonzaga, contact the Office of Equity and Inclusion, Business Services Center, 102 E. Boone Avenue.

- **University Note on Harassment, Discrimination and Sexual Misconduct**. Consistent with its [mission](#), Gonzaga seeks to assure all community members learn and work in a welcoming and inclusive

environment. Title VII, Title IX and Gonzaga's policy prohibit gender-based harassment, discrimination and sexual misconduct. Gonzaga encourages anyone experiencing gender-based harassment, discrimination or sexual misconduct to talk to someone from the Campus and Local Resources list found in the Gonzaga's Harassment and Non-Discrimination Policy.

It may be helpful to talk about what happened in order to get the support needed and for Gonzaga to respond appropriately. There are options for support and resolution, namely confidential support resources, and campus reporting and support options available. Gonzaga will respond to all reports of sexual misconduct in order to stop the harassment or misconduct, prevent its re-occurrence and address its effects. Responses may vary from support service referrals to formal investigations.

As a faculty member, I want to get you connected to the resources here on campus that can help you in this situation and therefore will report all incidents of sexual misconduct and thus cannot guarantee confidentiality. I will report all incidents of gender-based harassment, discrimination, and sexual misconduct to Title IX. I will provide our Title IX coordinator with relevant details such as the names of those involved in the incident, and Title IX will reach out to you to explore options for support, safety measures and reporting. For inquiries or concerns about gender-based harassment, discrimination or sexual misconduct or the complaint process at Gonzaga, contact the Title IX Coordinator:

Stephanie N. Whaley

Title IX Directory 509-313-6910

whaleys@gonzaga.edu

Business Services

Building 018

Or by filling out an online form:

https://cm.maxient.com/reportingform.php?GonzagaUniv&layout_id=3

For more information about policies and resources or reporting options, please visit the following websites: http://www.gonzaga.edu/eo and www.gonzaga.edu/titleix

● **University Notice to Students with Disabilities/Medical Conditions.** The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of

their disabilities. If you believe you have a disability/medical condition requiring an accommodation, please call or visit the [Disability](#) [Access Office](#) (Foley Library room 122).

- **Course Evaluation.** At Gonzaga, we take teaching seriously, and we ask our students to evaluate their courses and instructors so that we can provide the best possible learning experience. In that spirit, we ask students to give us feedback on their classroom experience near the end of the semester. I will ask you to take a few minutes then to carry out course/instructor evaluation on-line. Please know that I appreciate your participation in this process. This is a vital part of our efforts at Gonzaga to improve continually our teaching, our academic programs, and our entire educational effort.

- **Resources and Success for Well-being**. Please take care of yourself and your fellow zags! Be aware of the student support resources that the University provides for you. Additional resources for student support are available at
  https://www.gonzaga.edu/academics/Diversity/CampusClimate/campus-and-local-resources.asp

  o **Center for Cura Personalis.** The [Center for Cura Personalis](#) serves students in many ways including through proactive outreach and educational programs about healthy choices and interventions for students who may be struggling.

  o **Health and Counseling Services.** Health & Counseling Services functions as your private physician's office and counseling center. Health & Counseling Services is a confidential resource. To schedule an appointment, please call 509-313-4052.

  o **University Ministry.** University Ministry's mission is to support members of the Gonzaga community in their spiritual growth and development, empowering them to live out God's love in the world. Contact: University Ministry, Hemmingson Center 104, x4242 or umin@gonzaga.edu

  o **Campus Security and Public Safety.** At Gonzaga we believe that the security of our campus is a responsibility shared by all members of the community. For more information, visit the [Campus Security and Public Safety](#) site.