



DEA 4700/6700 Applied Ergonomics Methods

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| Semester | 2018—19 Spring |
| Credit | 3 units for DEA 4700 4 units for DEA 6700 |
| Lecture room | 151 Martha Van Rensselaer Hall (to be confirmed) |
| Time | Tuesdays and Thursdays 13:30—14:40 (to be confirmed) |
| Course website | http://mdtl.human.cornell.edu |
| Instructor | Jay Yoon, PhD |
| Email | jy846@cornell.edu |
| Teaching assistant | To be confirmed |
| Office | 3427 Martha Van Rensselaer Hall |
| Office hour | Friday 09:00 and 11:00 by appointment |

COURSE DESCRIPTIONⁱ

This course focuses on the practices of ergonomics that make productsⁱⁱ more efficient, easier, more pleasurable, and happier to use, optimizing the quality of physical, cognitive, behavioral, and affective aspect of human-product relationships. The course covers a set of ergonomics methods and techniques, and their applications to the design and analysis of products, product-service-systems, and built-environments. Students will learn key concepts of ergonomics issues in relation to safety, productivity, functionality, and wellness in product use and develop an understanding of how the capabilities and (situated) constraints of human beings can be systematically considered in the development of products.

- Prerequisite: DEA 3510 Human Factors: Ergonomics, Anthropometrics, and Biomechanics

LEARNING OBJECTIVES

- To develop knowledge of the main concepts of ergonomics including human capabilities/limitations and how they would be incorporated into designed systems
- To develop the practical skills to identify, analyze, and solve ergonomics problems of designed systems

LEARNING OUTCOMES

On successful completion of the course, students should be able to demonstrate:

- Knowledge of ergonomics issues and relevant terminologies with respect to theories, processes, and practices.
- A repertoire of skills associated with ergonomics assessment methods and analytical techniques.
- An ability to select and deploy appropriate ergonomics methodologies and to articulate ergonomics issues qualitatively and quantitatively.
- An ability to analyze the unmet needs and expectations of users, formulate informed ergonomic solutions, and select appropriate resources for designing with the users in mind.

ⁱ The current version of the syllabus is subject to revision (last updated: October 12, 2018). Revisions will be announced and distributed via the course website.

ⁱⁱ 'Product' represents a continuum of different design solutions that encompass multiple manifestations and scales, e.g., user interface, interior, service, product, training program, and facility planning.



COURSE DELIVERY AND LEARNING MODES

The course delivery of DEA 4700/6700 consists of a combination of several education activities, including lectures, tutorials, fieldwork, in-class project work, student seminars, inter- and intra-group discussions, reflections, quizzes, and project presentations. These different types of learning activities will be coordinated and adjusted based on the topic and goal of each session (30 sessions in total) and the course progress. In addition to the regular sessions, two guest lectures will take place to complement the learning experience. The course contents are outlined in the section of course contents and schedule.

Apart from the sessions for presentations and guest lectures, each session includes two (or three) class readings that are crucial for students to get familiar with the session’s topic. The chosen reading materials are a curated compilation of topic-specific journal articles, book chapters, conference proceedings, web articles, and booklets. All students are expected to read the chosen reading materials, which will be distributed in a digital format via the course website.

Two group projects for DEA 4700 students (three projects for DEA 6700 students) will be conducted. Each project entails practices of (1) analyzing ergonomics issues associated with a particular design context by means of the learned design methods and tools and (2) generating design solutions that are to be conceptualized and tested through iterative prototyping. The ergonomics methods and tools covered in class will equip the students with the ability to plan, execute, and communicate their work. Generally speaking, the first, second, and third projects will focus on designing a comfortable product to use, a pleasurable product to use, and a new ergonomics design tool respectively. The details of the project setup are described in the section of assessment and grading.

There is a total of four formative course reflections throughout the semester, through which the course delivery will be moderated and improved. Students will provide the instructor and teaching assistant with constructive feedback with respect to the appropriateness and effectiveness of the course topics, ways of the course delivery and the instructor’s support, teaching materials, team dynamics, time management, schedule, etc. The reflections will be facilitated in the form of an anonymous survey and open-discussion. Upon collection and analysis of the feedback, students will be informed of the results and the way forward.

In addition to the course reflections, students will be provided with a reflection booklet at the beginning of the semester. With the booklet, students can individually reflect on and document their journey for their own benefit, which could potentially serve as a reference for self-check and improve their educational progress.

COURSE CONTENTS AND SCHEDULEⁱⁱⁱ

| # | Date | Topic | Reading |
|----------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Jan 22 | Course overview Introduction to project 1 and 3—Ergonomics issues in workplace | <ul style="list-style-type: none"> Calvo, R. A., & Peters, D. (2014). The psychology of wellbeing. In Positive computing (pp. 13–40). MIT Press. Hedge, A. (2016). Ergonomic workplace design for health, wellness, and productivity. CRC Press. (Section two—one chapter per team) |
| Design for comfort (4 sessions) | | | |
| 2 | Jan 24 | Introduction to design for comfort—Seat comfort experience Posture analysis methods 1 (Rapid Upper Limb Assessment) | <ul style="list-style-type: none"> Clarkson, J. (2008). Human capability and product design. In P. Hekkert & H. N. J. Schifferstein (Eds.), Product experience (pp. 165–197). London: Elsevier. Vink, P., & De Looze, M. P. (2008). Crucial elements of designing for comfort. In P. Hekkert & H. N. J. Schifferstein (Eds.), Product experience (pp. 441–459). London: Elsevier. |
| 3 | Jan 29 | Posture analysis methods 2 (Rapid Entire Body Assessment) | <ul style="list-style-type: none"> Middlesworth, M. (2017). A step-by-step guide: Rapid Upper Limb Assessment (RULA). Ergonomics Plus. |

ⁱⁱⁱ The course contents are subject to alterations in the event of unforeseen circumstances. The up-to-date syllabus is available at <http://mdtl.human.cornell.edu>



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| | | | <ul style="list-style-type: none"> Middlesworth, M. (2017). A step-by-step guide: Rapid Entire Body Assessment (REBA). <i>Ergonomics Plus</i>. |
| 4 | Jan 31 | Human capability and product design Impairment simulation 1 | <ul style="list-style-type: none"> Clarkson, J. (2008). Human capability and product design. In P. Hekkert & H. N. J. Schifferstein (Eds.), <i>Product experience</i> (pp. 165–197). London: Elsevier. |
| 5 | Feb 5 | Human capability and product design Impairment simulation 2 | <ul style="list-style-type: none"> Goodman, J., & Waller, S. (2007). Evaluation tools. In J. Clarkson, R. Coleman, I. Hosking, & S. Waller (Eds.), <i>Inclusive design toolkit</i> (pp. 3.42–3.60). Cambridge: Engineering Design Centre, University of Cambridge. |
| Design for ease of use (6 sessions) | | | |
| 6 | Feb 7 | Introduction to design for ease of use | <ul style="list-style-type: none"> Carroll, J. M., & Mentis, H. M. (2008). The useful interface experience: The role and transformation of usability. In P. Hekkert & H. N. J. Schifferstein (Eds.), <i>Product experience</i> (pp. 499–512). London: Elsevier. Rubin, J., & Chisnell, D. (2008). What makes something usable? In <i>Handbook of usability engineering</i> (pp. 3–20). Indiana, US: Wiley. Norman, D. A. (2005). Human-centered design considered harmful. <i>Interactions</i>, 14–19. |
| 7 | Feb 12 | Interim presentation of project 1 (4700 & 6700) Interim course reflection | |
| 8 | Feb 14 | Task and heuristic analysis | <ul style="list-style-type: none"> Hollnagel, E. (2012). Task analysis: why, what, and how. In G. Salvendy (Ed.), <i>Handbook of human factors and ergonomics</i> (pp. 385–396). John Wiley & Sons. Nielsen, J. (1995). Heuristic Evaluation: How to conduct a heuristic evaluation. nngroup.com. Retrieved October 4, 2018, from https://goo.gl/b75EK5 Komninos, A. (2018). How to improve your UX designs with task analysis. <i>interaction-design.org</i>. Retrieved October 4, 2018, from https://goo.gl/iGeQtk |
| 9 | Feb 19 | Self-reported metrics Video prototyping | <ul style="list-style-type: none"> Tullis, T., & Albert, W. (2013). Self-reported metrics. In <i>Measuring the user experience</i> (pp. 121–161). Elsevier. Tomitsch, M., & Wrigley, C. (2018). Video prototyping. In <i>Design. Think. Make. Break. Repeat</i> (pp. 134–135). Bis Publishers. |
| 10 | Feb 21 | Eye tracking and related evaluation techniques Usability lab-test | <ul style="list-style-type: none"> Tullis, T., & Albert, W. (2013). Behavioral and physiological metrics. In <i>Measuring the user experience</i> (pp. 163–185). Elsevier. Tullis, T., & Albert, W. (2013). Measuring usability through biometrics. In <i>Measuring the user experience</i> (pp. 271–277). Elsevier. |
| | Feb 26 | February break | |
| 11 | Feb 28 | Student seminar on usability issues Quiz 1 | |
| 12 | Mar 5 | Student seminar on usability issues Interim presentation of project 3 (6700 only) | <ul style="list-style-type: none"> Marc Hassenzahl. (2008). Aesthetics in interactive products: Correlates and consequences of beauty. In P. Hekkert & H. N. J. Schifferstein (Eds.), <i>Product experience</i> (pp. 287–299). London: Elsevier. |
| Design for pleasure (6 sessions) | | | |
| 13 | Mar 7 | Introduction to design for pleasure | <ul style="list-style-type: none"> Desmet, P. M. A. (2008). Product emotion. In P. Hekkert & H. N. J. Schifferstein (Eds.), <i>Product experience</i> (pp. 379–397). London: Elsevier. Richins, M. L. (2008). Consumption emotions. In P. Hekkert & H. N. J. Schifferstein (Eds.), <i>Product experience</i> (pp. 399–418). London: Elsevier. |
| 14 | Mar 12 | Final presentation of project 1 (4700 & 6700) Interim course reflection | |
| 15 | Mar 14 | Guest lecture 1: Beyond smartphone interactions Submission of project 1 deliverables | <ul style="list-style-type: none"> Laurans, G., Desmet, P. M. A., & Hekkert, P. (2012). Assessing emotion in human–product interaction: An overview of available methods and a new approach. <i>International Journal of Product Development</i>, 16(3), 225–242. |
| 16 | Mar 19 | Probing user emotions 1 (self-report) Introduction to project 2 | <ul style="list-style-type: none"> Cardello, A. V., & Jaeger, S. R. (2016). Measurement of consumer product emotions using questionnaires. In H. L. Meiselman (Ed.), <i>Emotion measurement</i> (pp. 165–195). Elsevier. Desmet, P. M. A. (2003). Measuring emotions: Development and application of an instrument to measure emotional responses to products. In M. A. Blythe, A. F. Monk, K. C. J. Overbeeke, & P. C. |



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| | | Wright (Eds.), <i>Funology: From usability to enjoyment</i> (pp. 111–123). Kluwer Academic Publishers. |
| 17 | Mar 21 | Probing user emotions 2 (facial expression) |
| | | <ul style="list-style-type: none"> Tullis, T., & Albert, W. (2013). Behavioral and physiological metrics. In <i>Measuring the user experience</i> (pp. 163–185). Elsevier. Jacob-Dazarola, R., Nicolás, J. C. O., & Bayona, L. C. (2016). Behavioral measures of emotion. In H. L. Meiselman (Ed.), <i>Emotion measurement</i> (pp. 101–118). Elsevier. |
| 18 | Mar 26 | Video-supported interview technique (self-confrontation) Determining emotions to design for |
| | | <ul style="list-style-type: none"> Lee, K.P. and Jeong, S.H. (2006) 'Development of tool for video-debriefing for understanding emotion over usability', Paper presented at The 5th Design & Emotion Conference, 27–29 September, Gothenburg, Sweden. Lim, S.S. (2002) 'The self-confrontation interview: enhancing our understanding of human factors in web-based interaction', <i>Journal of Electronic Commerce</i>, Vol. 3, No. 3, pp.162–173. |
| 19 | Mar 28 | Interim presentation of project 3 (6700 only) |
| | Apr 2 | Spring break |
| | Apr 4 | Spring break |
| 20 | Apr 9 | Guest lecture 2: Design for in-flight passenger experience |
| 21 | Apr 11 | Methods and tools for assessing user experience |
| | | <ul style="list-style-type: none"> Vermeeren, A. P. O. S., Roto, V., Law, E. L.-C., Obrist, M., Hoonhout, J., & Vaananen-Vainio-Mattila, K. (2010). Filling the Toolbox (pp. 1–9). Presented at the CHI 2010, Atlanta, Georgia. |
| 22 | Apr 16 | Interim presentation of project 2 (4700 & 6700) Interim course reflection |
| 23 | Apr 18 | Assessing quality of interactive products |
| | | <ul style="list-style-type: none"> Hassenzahl, M., Diefenbach, S., & Göritz, A. (2010). Needs, affect, and interactive products – Facets of user experience. <i>Interacting with Computers</i>, 22(5), 353–362. |
| Design for well-being (4 sessions) | | |
| 24 | Apr 23 | Introduction to design for well-being Design for personal significance 1 |
| | | <ul style="list-style-type: none"> Desmet, P. M. A., & Pohlmeier, A. E. (2013). Positive design: An introduction to design for subjective well-being. <i>International Journal of Design</i>, 7(3), 1–15. Gaggioli, A., Riva, G., Peters, D., & Calvo, R. A. (2017). Positive technology, computing, and design: shaping a future in which technology promotes psychological well-being. In M. Jeon (Ed.), <i>Emotions and affect in human factors and human-computer interaction: Taxonomy, theories, approaches, and methods</i> (pp. 477–502). Elsevier. |
| 25 | Apr 25 | Quiz 2 Design for personal significance 2 |
| 26 | Apr 30 | Product impact on user behavior Motivation and engagement |
| | | <ul style="list-style-type: none"> Peters, D., Calvo, R. A., & Ryan, R. M. (2018). Designing for Motivation, Engagement and Wellbeing in Digital Experience. <i>Frontiers in Psychology</i>, 9, 179–15. Deci, E. L., & Ryan, R. M. (2015). Self-determination theory. In J. Write (Ed.), <i>International Encyclopedia of Social & Behavioral Sciences</i> (Second Edition. pp. 486–491). Elsevier. |
| 27 | May 2 | Design for virtue and character strengths |
| | | <ul style="list-style-type: none"> Pohlmeier, A. E., & Desmet, P. M. A. (2017). From good to the greater good. In J. Chapman (Ed.), <i>Handbook of sustainable product design</i> (pp. 469–486). Niemiec, R. M. (2017). Foundations of strengths-based practice. In <i>Character strengths interventions, Seven core concepts of the science of character</i> (pp. 1–21). Hogrefe Publishing. |
| 28 | May 7 | In-class project work and feedback |
| 29 | May 14 | Final presentation of project 2 (4700 & 6700) Final presentation of project 3 (6700 only) Roundoff course reflection |
| 30 | May 16 | Submission of project 2 & 3 deliverables |

ASSESSMENT AND GRADING SCALE

For DEA 4700 students, the course grade is composed by the four key elements: (1) attendance and class participation (student seminar), (2) two quizzes, (3) project 1, and (4) project 2. For DEA 6700 students, project 3 is included is as an additional element of the course grade. The points of each element are outlined in the table below.



| | Attendance and class participation (student seminar) | Quiz 1 | Quiz 2 | Project 1 | Project 2 | Project 3 | Total |
|-----------------|------------------------------------------------------|--------|--------|-----------|-----------|-----------|---------|
| DEA 4700 | 10 pts | 5 pts | 5 pts | 40 pts | 40 pts | N/A | 100 pts |
| DEA 6700 | 10 pts | 5 pts | 5 pts | 40 pts | 40 pts | 20 pts | 120 pts |

The total points will be converted into a percentage and rounded off. Students will receive letter grades with pluses and minuses. Extra-points will be awarded to the groups who submit a group diary (for details, see the section “extra deliverable” below).

| A+ | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 4.3 | 4 | 3.7 | 3.3 | 3.0 | 2.7 | 2.3 | 2 | 1.7 | 1.3 | 1 | 0.7 |
| 98-100% | 93-97% | 90-92% | 87-89% | 83-86% | 80-82% | 77-79% | 73-76% | 70-72% | 67-69% | 63-66% | 60-62% |

ATTENDANCE AND CLASS PARTICIPATION (STUDENT SEMINAR)

Attendance is mandatory, i.e., students are expected to attend all classes. Absence will be accepted only in exceptional circumstances and is to be requested in advance and in writing (email to jy846@cornell.edu). Repeated absence not previously agreed—exceeding three sessions—will result in a grade penalty at the end of the semester.

Class participation will be assessed based on the student seminars that are meant to support peer learning and teaching environment in class. Each group of project 1 will select one usability issue themselves and give a seminar about the chosen topic. Guidelines on the submission, expected format, and contents will be offered by the instructor and teaching assistant.

QUIZZES

Students will take two quizzes, each of which counts for 5% of the end grade. The quizzes test basic knowledge of the assigned readings. The question format is a combination of true/false and multiple choice. Prior to the quizzes, a set of example questions will be offered to help the students get a quick sense of what the quizzes would look like.

Only students with exam schedule conflicts, medically verified absences, and the like may take the makeup quizzes. In this case, consult the instructor or the teaching assistant and let them know the condition in advance.

MARKING CRITERIA OF PROJECT 1, 2, AND 3

In each group project, students will be assigned to work with different members. Four (or five) students will work together as a group and receive the same grade. Group formulations will be randomized, yet balanced by the instructor and teaching assistant based on diversity of the group members, e.g., education levels (undergraduate, i.e., DEA 4700 and graduate, i.e., DEA 6700 study) and genders. The assessment and marking criteria of the projects are as follows.

| Criterion | Weighting | Criterion description | Assessment means |
|---------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Design and development process | 60% | <ul style="list-style-type: none"> How you investigated the ergonomics issues (i.e., range and quality of utilization of ergonomics methods and tools to understand and explore the target design context(s) and user(s)) What the specific issues you identified are, who experiences these issues, and how they impact him/her What your key insights are (i.e., creative and contextual framing of project opportunities and challenges) How your research and insights informed your solution and how you developed, tested, iterated and refined your design solution (i.e., thoroughness of iterative process, reference to the current designs and users’ unmet needs and expectations) | <ul style="list-style-type: none"> In-class discussion Interim presentation Written paper |
| Design communication | 40% | <ul style="list-style-type: none"> Succinct and effective communication of <ul style="list-style-type: none"> What your solution is and what specific area of user needs it addresses How you arrived at the design decisions How your design solution benefits the target users (or community)) Quality of visual and audio communication across the whole presentation | <ul style="list-style-type: none"> Final presentation Written paper Poster Demonstration video |



DELIVERABLES OF PROJECT 1, 2, AND 3

Each group project entails four deliverables in common: (1) a written paper, (2) a demonstration video of the design solution, (3) a poster and (4) an oral presentation.

| Deliverable | Description |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A written paper | A 2~8-page written paper communicates the problem, design process and methodology, idea generation and screening, and prototypes of the design solution as well as an argument of its effectiveness and usefulness. |
| A demo video | A 2~3-minute video succinctly demonstrates the design solution, conveying the problem, process (an overview of the methods used to design and evaluate the design solution), and its advantages along with usage scenarios. |
| A poster | A poster summarizes the essence of the project with visual and textual descriptions. |
| An oral presentation | A 10~15-minute oral presentation conveys the project's aim and vision, progression through the entire design process, and communication of key aspects of the final design solution. |

- The format of a written paper will follow the guideline of case studies submission of the ACM CHI Conference on Human Factors in Computing Systems (hereafter called “CHI”)— <http://chi2019.acm.org/authors/case-studies>. The submission format and document template file are available on the website.
- The format of a demo video will stick to the guideline of video showcase of CHI— <http://chi2019.acm.org/authors/video-showcase>. It is recommended that students review the guide to a successful video production and submission— <http://chi2019.acm.org/guide-to-a-successful-video-submission>.
- The format of a poster will follow the guideline of CHI— <https://chi2018.acm.org/authors/poster-instructions>. A template file will be offered to students.
- There is no specific guideline for an oral presentation to follow. Good and bad examples of an oral presentation and associated considerations are available at <https://chi2018.acm.org/guide-to-a-successful-presentation>.

Late submission of any item will result in a 10% deduction from the grade of the related project.

EXTRA DELIVERABLE

While not obligatory, all groups are highly encouraged to keep a group diary (either a printed copy or an online blog) that records the journey the group has been through to the end result— descriptions of the lessons of weekly activities, implications for the project progress, development of prototype(s), etc. by means of texts, photos, and videos. 2 points will be earned for each project. For example, a DEA 6700 student who submits three diaries (i.e., project 1, 2, and 3) will receive 6 extra points.

KEY ACTIVITIES AND DATES

| | Activity | Date |
|--------------------------------------|--------------------------------------|-------------------|
| Project 1 (DEA 4700 and 6700) | Introduction to project 1 | January 22, 2019 |
| | Interim presentation | February 12, 2019 |
| | Final presentation | March 12, 2019 |
| | Submission of project 1 deliverables | March 14, 2019 |
| Project 2 (DEA 4700 and 6700) | Introduction to project 2 | March 19, 2019 |
| | Interim presentation | April 16, 2019 |
| | Final presentation | May 14, 2019 |
| | Submission of project 2 deliverables | May 16, 2019 |
| Project 3 (DEA 6700) | Introduction to project 3 | January 22, 2019 |
| | Interim presentation | March 28, 2019 |
| | Final presentation | May 14, 2019 |
| | Submission of project 2 deliverables | May 16, 2019 |
| Quiz | Quiz 1 | February 28, 2019 |
| | Quiz 2 | April 25, 2019 |
| Student seminar | Seminar 1 | February 28, 2019 |



LEARNING RESOURCES

READINGS

All reading materials, including papers and book chapters, will be distributed in a digital format via the course website (<http://mdtl.human.cornell.edu>).

RECOMMENDED READINGS

- Hedge, A. (2016). Ergonomic workplace design for health, wellness, and productivity. CRC Press.
- Hekkert, P., & Schifferstein, H. N. J. (Eds.). (2008). Product experience. London: Elsevier.
- Tullis, T., & Albert, W. (2013). Measuring the user experience. Elsevier.

PROTOTYPING MATERIALS

Group project 1, 2, and 3 takes iterative prototyping. Prototyping devices and facilities will be available to use at the digital design and fabrication studio located at HEB 2L31. There are areas specifically planned as a wood shop, metal shop, assembly studio, paint room, laser studio, and 3D print studio. For safety, all students are required to receive safety training before using the studio. The general information about the facility use is accessible at <https://www.human.cornell.edu/about/administration/facilities/d2fs>.

For interactive prototyping, students are encouraged to buy and use basic prototyping toolkits that do not require highly advanced programming and electronics knowledge and skills. Note that the course puts emphasis on the pragmatic use of interactive technology. Interactive prototyping is meant to serve as a means to quickly generate and evaluate the ideas instead of refining product properties. Some examples of easy-to-use, yet powerful prototyping tools are:

- LittleBits: <https://littlebits.com>
- Kiwoco: <https://www.kiwico.com/tinker>
- Makey Makey: <http://makeymakey.com>
- Microduino: <https://microduinoinc.com>
- IFTTT: <https://ifttt.com>

COURSE POLICY

CONSENT FOR RESEARCH PARTICIPATION

The tutorial sessions in class and the three group projects will involve peer-to-peer participant studies, i.e., the students enrolled in the course will be recruited to conduct their own or other groups' studies. The studies utilize the design methods and tools taught in the course such as user observation, interview, survey, heuristic evaluation, etc. (for an overview of the methods, refer to the section of course contents and schedule). The data will be collected using videos, audios, photographs, sketches, and/or written notes. Participants' profiles and project titles will never be attributed to file names and their meta-data. When the personal data of the participants is necessary for the process and outcome of the project (e.g., paper, poster, demo video, slide presentation, or other means of publication), the participants' responses will be anonymized. In addition, from the phase of data collection to the phase of project presentation, all data will be anonymized by replacing participants' names with nominal codes (e.g., participant A or member 1) and blurring participants' faces on photographs or videos.

Both involving participants and participating in a study as a participant are an important facet of the course's learning experience as they contribute to practicing the design methods and tools, understanding and addressing end-users' wants and needs, and emphasizing with the end-users. However, some students might find this setup not acceptable or questionable, thus would have the inhibition to participate in certain studies. In this case, consult



the instructor or the teaching assistant and let them know the decision in advance. Non-participation will not affect the student's end grade.

PUBLICATION AUTHORSHIP

The student work may be further developed into academic publications for submission to conferences in the fields of design research and human-computer interaction. Examples are CHI, Nordi-CHI, TEI, DIS, DRS, ICED, IASDR, Pervasive Healthcare, etc. The students who produced the work will have the authorship as the first authors and will be in charge of the publication process (e.g., submission and revision). The instructor will be identified as the co-author (i.e., the last author) in recognition of his support in the work process and publication.

DISSEMINATION OF COURSE OUTCOMES

Upon completion of the course, some of the course outcomes, including papers, posters, and demo-movies of the group projects will be made available on the course website under the approval of the students. The students who produced the work will be credited. This is to inform and inspire future DEA 4700/6700 students. Perhaps, some students want to embargo their project outcomes for certain reasons. In this case, consult the instructor or the teaching assistant and let them know the decision in advance. Non-participation will not affect the student's end grade.

ACADEMIC INTEGRITY

Absolute integrity is expected of every Cornell student in all academic undertakings. Integrity entails a firm adherence to a set of values, and the values most essential to an academic community are grounded on the concept of honesty with respect to the intellectual efforts of oneself and others. Academic integrity is expected not only in formal coursework situations, but in all University relationships and interactions connected to the educational process, including the use of University resources. While both students and faculty of Cornell assume the responsibility of maintaining and furthering these values, this document is concerned specifically with the conduct of students.

A Cornell student's submission of work for academic credit indicates that the work is the student's own. All outside assistance should be acknowledged, and the student's academic position truthfully reported at all times. In addition, Cornell students have a right to expect academic integrity from each of their peers. The Cornell code of academic integrity is available at <https://cuinfo.cornell.edu/aic.cfm>.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

This course follows the accommodations procedure of Cornell University policy. The request can be made through the student service services. To facilitate all necessary aids and services in a timely manner, it is recommended that students send an early notification to the instructor—within the first two weeks of classes, or at least two weeks before accommodations are expected to begin. For more details, check the procedure at <https://sds.cornell.edu>.