

COURSE OUTLINE IDES 5102F • DESIGN RESEARCH METHODS • Fall (2023)

Instructor: Eileen Harris, PhD

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Location: ME3490

Office Hours: Monday 1:30-2:30 or by appointment.

Time and Location:

Course locations are no longer displayed on the public class schedule and are subject to change. For the latest information please refer to Carleton Central under Student Services – Registration – Student Timetable.

Course Description

Critical review of qualitative and quantitative research methods to support interdisciplinary design. Methods used by collaborators from the sciences and humanities as well as methods designers bring to interdisciplinary collaborations are introduced. Research for design, research through design and theoretical frameworks are discussed.

Includes: Experiential Learning Activity.
Also listed as HCIN 5404.

Learning Outcomes

By the end of this course, students will be able to:

1. Critically review the literature on research approaches or theoretical frameworks.
2. Identify and select appropriate qualitative and quantitative research methods.
3. Design and evaluate research methods and a methodology appropriate to a study's objectives.
4. Plan a design research study.

5. Create an ethics application.
6. Effectively communicate a research approach and rationale through written, visual and oral mediums.
7. Demonstrate professional behaviour.

Course Deliverables

These are the deliverables for this course. Please see 'Appendix A Course Schedule and Assignments' for more detailed information.

First and Last Words and Leading Discussion	20%
Review of Literature	15%
Research Question	15%
Research Design	15%
Research Analysis	15%
Presentation and Final Proposal	20%

Required Materials

Materials required for the course are listed below. You may be asked by your instructor to refer to Brightspace for a more comprehensive list of required materials.

Rogers, Y., Sharp, H., & Preece, J. (2015). *Interaction Design - beyond human computer interaction*. 3rd ed. John Wiley & Sons, West Sussex. Available on-line from Carleton's MacOdrum Library and on Ares.

Saldana, J. (2013) *The coding manual for qualitative researchers*. Los Angeles, CA: Sage

Computer Requirements

Please refer to the computer requirements on the School of Industrial Design Website. You may be asked by your instructor to refer to Brightspace for other information or requirements related to computer work.

<http://www.id.carleton.ca/undergraduate/about-the-bid-program/computer-requirements>

Individual/Group Work

Courses may include individual and group work. It is important in collaborative work that students clearly demonstrate their individual contributions.

Review/Presentation Attendance

Attendance at scheduled Proposal Reviews is mandatory. These are equivalent to exams when indicated in the course outline. Failure to attend the Review/Presentation without reasonable cause will result in a grade of F. Students arriving late for the Review/Presentation or not remaining for the complete session without approval from the instructor, will be addressed on a case-by-case basis at the discretion of the instructor.

If you are not able to attend a Review/Presentation, foresee arriving late, or need to leave before it is complete, please email your instructor in advance explaining the reason for the situation. It is important that you provide a reasonable rationale for your absence, late arrival, or early departure. In the event of an illness or death in the family, you will be required to sign a form verifying your claim and this form is available through the SID administration office.

Late Submission of Lecture & Studio Deliverables

Students who do not hand in deliverables on time will have their earned grade reduced by 3% per day up to a maximum of 3 days.

Regulation on Minimum Grade Requirements

A grade of B- or better must be obtained in each credit counted towards the master's degree. The School does not permit exceptions to this rule.

Students will be required to withdraw from the program if their grade point average falls below 7.0 (B-), or if they receive a grade of less than B- in any two courses that are eligible to be counted toward the Master's degree.

For more information on General Regulations, please refer to:

<https://calendar.carleton.ca/grad/gradprograms/design/#regulationstext>

Participation and Professionalism

Active participation and professional conduct (e.g. class discussion, consultations with instructors, work ethic, etc.) are important in lecture and studio courses. Professionalism also includes Carleton's Policy on Academic Integrity described in more detail below with links to content that you are required to review.

Academic Integrity: Plagiarism and Other Violations

In the School of Industrial Design, students are expected to have read and understand the University's definition of plagiarism and related offences in Carleton's policy on Academic Integrity at <https://carleton.ca/registrar/academic-integrity/>

The definition of plagiarism extends to copying designs, design ideas, research tools, etc. in whole or in part belonging to someone else, failing to acknowledge the sources through the use of proper citations when using another's work in any medium.

The school takes these misconduct offences seriously and will take appropriate action as outlined in Carleton's Academic Integrity policy (see link above).

Requests for Academic Accommodation

You may require special arrangements to meet your academic obligations during the term. For an accommodation request for any of the following topics below, refer to the link provided for more information: <https://students.carleton.ca/course-outline/>

- **Pregnancy obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#) For accommodation regarding a formally-scheduled final exam, you must complete the Pregnancy Accommodation Form ([click here](#)).
- **Religious/Spiritual Obligation:** Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, please review the [Student Guide to Academic Accommodation \(PDF, 2.1 MB\)](#)
- **Academic Accommodations for Students with Disabilities:** The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your

instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more details, visit the [Paul Menton Centre website](#).

- **Survivors of Sexual Violence:** As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit the [Equity and Inclusive Communities website](#).
- **Accommodations for Student Activities:** Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, see the [Senate Policy on Accommodation for Student Activities \(PDF, 25KB\)](#).
- **The Use of Self-Declaration Forms:** In place of a doctor's note or medical certificate, students may complete the [self-declaration form](#) available on the Registrar's Office website to request academic accommodation for missed course work including tests and assignments. Students are also encouraged to connect directly with their instructors to discuss required accommodations arising from the COVID-19 situation.

Statement on Student Mental Health

As a university student, you may experience a range of mental health challenges that significantly impact your academic success and overall well-being. If you need help, please speak to someone. There are numerous resources available both on- and off-campus to support you. Here is a list that may be helpful:

Emergency Resources (on and off campus): <https://carleton.ca/health/emergencies-and-crisis/emergency-numbers/>

Carleton Resources:

- Mental Health and well-being: <https://carleton.ca/wellness/>
- Health & Counselling Services: <https://carleton.ca/health/>
- Paul Menton Centre: <https://carleton.ca/pmc/>
- Academic Advising Centre (AAC): <https://carleton.ca/academicadvising/>
- Centre for Student Academic Support (CSAS): <https://carleton.ca/csas/>

- Equity & Inclusivity Communities: <https://carleton.ca/equity/>

Off-Campus Resources:

- Distress Centre of Ottawa and Region: (613) 238-3311 or TEXT: 343-306-5550, <https://www.dcottawa.on.ca/>
- Mental Health Crisis Service: (613) 722-6914, 1-866-996-0991, <http://www.crisisline.ca/>
- Empower Me: 1-844-741-6389, <https://students.carleton.ca/services/empower-me-counselling-services/>
- Good2Talk: 1-866-925-5454, <https://good2talk.ca/>
- The Walk-In Counselling Clinic: <https://walkincounselling.com>

Student Responsibility

The student is responsible for knowing the content of this course outline; the schedule of classes, assignments, and/or Reviews; and the material that was covered when absent. The studio is a professional environment and students should be working during the scheduled hours.

Unless otherwise arranged, the class will meet during scheduled class hours. Please note that attendance is important since issues and questions may be raised in class, and announcements made, along with information disseminated through Brightspace. As external professionals are often involved in our work, scheduling changes for guest lectures, presentations, and Reviews may occur at short notice, requiring students to stay informed.

Changes to the Course Outline

The course outline may be subject to change in the event of extenuating circumstances.

Appendix A Course Schedule

Course Schedule

Week 1: Course Introduction

September 11, 2023

[Course overview](#)

[Read this before class.](#)

Boell, S.K. & Dubravka, C-K. (2014). A Hermeneutic Approach for Conducting Literature Reviews and Literature Searches. *Communications of the Association for Information Systems* 34(12), pp. 257-286.

Available at: <http://aisel.aisnet.org/cais/vol34/iss1/12>

1 Introduction to statistics and experimental design

Week 2: Discourse in Research in/on/for Design

September 18, 2023

[This week's articles discuss fundamental questions about 'design research', what is it, why do it and what might distinguish design research from other disciplines and/or unite it with other disciplines.](#)

For this discussion, read:

Rogers, Y., Sharp, H., & Preece, J. (2015). Chapter 1: What is Interaction Design? In: *Interaction Design - beyond human computer interaction* (3rd ed., pp. 1-35). Chichester, West Essex: John Wiley & Sons. In this Chapter, read specifically: sections 1.1-1.4, p.1-15.

Friedman, K. (2000). Creating design knowledge: from research into practice. *IDATER 2000 Conference*, Loughborough University, Loughborough UK (p. 5-32). Available at: <https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/1360/1/Friedman2000.pdf%3E%20%5B1>.

Frankel, L. & Racin, M. (2010) The Complex Field of Research: for Design, through Design, and about Design. *Design Research Society DRS 2010*, Montreal, Canada July 7-9 2010 (p. 1-12). Available at: <http://www.drs2010.umontreal.ca/data/PDF/043.pdf>

2 Descriptive statistics

Week 3: Philosophical Roots of Research & Essentials

September 25

This week's topic focuses on the philosophical foundation of research, quantitative vs. qualitative frameworks & discussion on where design fits in this narrative?

Focus 1 Philosophical Roots

Robson, C. & McCartan, K. (2016). Chapter 2: Approaches to social research. In *Real World Research* (4th ed. pp. 14-28). Chichester, West Essex: John Wiley & Sons. In this chapter, read specifically: p. 14-29 up to 'Multi-strategy research designs'.

Hignett, S. & McDermott, H. (2015). Chapter 5: Qualitative methodology. In Wilson, J. & Sharples, S. (Eds.), *Evaluation of Human Work* (3rd ed., pp. 119-138). Boca Raton, FL: Taylor & Francis. In this chapter, read specifically: p. 119-124 up to 'Data Management, Display and Analysis'.

Focus 2 Research Essentials

Muratovski, G. (2016). *Research for Designers*. Los Angeles CA: Sage Publications. p. 27-46. Read specifically: Chapter 3 Research Essentials.

Robson, C. & McCartan, K. (2016). Part I: Setting The Scene, Keeping your own project journal & Chapter 1: Introduction. In *Real World Research* (4th ed. pp. 1-13). Chichester, West Essex: John Wiley & Sons.

3 Normal distribution

Rogers, Y., Sharp, H., & Preece, J. (2015). *Interaction Design - beyond human computer interaction*. 3rd ed. John Wiley & Sons, West Sussex. Chapter 9 (9.: The Process of Interaction Design

- Chapter 1: (1.5-1.6, p. 15-23)
- Chapter 7: Data Gathering
- Chapter 10: Establishing Requirements

Week 4: What Frames my Approach? Theoretical Frameworks, Tools for Problem Identification

October 2, 2023

Review of Literature Due

For this discussion read:

Focus 1 Discussion on Common Approaches in Qualitative Research

Muratovski, G. (2016). *Research for Designers*. Los Angeles CA: Sage Publications. Read specifically: Chapter 4 Qualitative Research p. 47-103. Chapter 7 Applied Research Section 7.1 What is Applied Research? p. 190-192.

Stolterman, E. (2008). The nature of design practice and implications for interaction design research. *International Journal of Design 2*(1), 55-65.

Kimbell, L. (2011). Rethinking Design Thinking: Part I. Design and Culture The Journal of the Design Studies Forum 3(3), p. 285-306.

Friedman, K. (2003). Theory construction in design research: criteria: approaches, and methods. *Design Studies 24*, 507-522. DOI: 10.1016/S0142-694X(03)00039-5.

Focus 2 Discussion on Visualizing the Problem - Mapping/Thematic Techniques to Support Your Gap Analysis, Research Question, & Research Strategy

Hanington, B. & Martin, B. *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*. Beverly MA: Rockport Publishers. Read: 53. Literature Reviews, 16. Concept Mapping, and 56. Mind Mapping.

4 Using the Normal Distribution

[Week 5 Thanksgiving NO CLASS](#)

Week 6: Basic Methods of Data Collection through Inquiry (Asking) October 16, 2023

This week's articles discuss distant, more quantitative ways to collect data from participant inquiry.

Deliverable: Assignment 1 Essay (digital submission)

Research question due

For this discussion read:

Robson, C. & McCartan, K. (2016) *Real World Research* (4th ed.). Chapter 11 Surveys & Questionnaires (p. 243-279). John Wiley & Sons Ltd., West Sussex, UK.

Other related sources that may help your assignments and studies:

Sinclair, M.A. (2005). Chapter 4: Participative assessment. In Wilson, J.R. & Corlett, N. (Eds.), *Evaluation of Human Work* (3rd ed., pp. 97-111). Boca Raton, FL: Taylor & Francis.

5 Choosing statistical tests

Week 6: Creative Methods for Data Collection through Inquiry (Asking)
October 23, 2023

[This week's article discuss interpersonal, creative, and qualitative ways to engage participants in inquiry.](#)

For this discussion read:

Hanington, B. & Martin, B. *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*. Beverly MA: Rockport Publishers. Read: 14. Collage, 21. Creative Toolkits, 24. Cultural Probes, 30. Diary Studies, 44. Generative Research.

Sanders, E.B.-N. & Stappers, P.J. (2008). Co-creation and the new landscapes of design. *CoDesign* 4(1), p. 5-18.

Muratovski, G. (2016). *Research for Designers*. Los Angeles CA: Sage Publications. In this chapter, read specifically: Chapter 7 Applied Research Section 7.2 Action Research p. 192-196.

McClelland, I. & Fulton Suri, J. (2015). Chapter 10: Involving people in design. In Wilson, J.R. & Sharples, S. (Eds.), *Evaluation of Human Work* (4th ed., pp. 252-299). Boca Raton, FL: Taylor & Francis.

6 Two level non-parametric tests: within subjects

Week 7: Basic Methods for Data Collection through Inquiry (Asking) October 30, 2023

This week's articles discuss interpersonal methods of collecting data from participants through inquiry such as interviews and focus groups.

For this discussion read:

Robson, C. & McCartan, K. (2016). Chapter 12: Interviews & Focus Groups. In *Real World Research* (4th ed. pp. 284-306). Chichester, West Essex: John Wiley & Sons.

Sharples, S. & Cobb, S. (2015). Chapter 4: Methods for Collecting and Observing Participant Responses. In Wilson, J.R. & Sharples, S. (Eds.), *Evaluation of Human Work* (4th ed., pp. 84-118). Boca Raton, FL: Taylor & Francis. In this chapter, read specifically: p.84-91 up to 'Structured Observations'.

7 Two level non-parametric tests: within subjects

Week 8: Basic Methods for Data Collection through Observation (Looking)
This week's authors discuss different observation techniques used in both qualitative and quantitative approaches.

For this discussion read:

Robson, C. & McCartan, K. (2016) *Real World Research* (4th ed.). Chapter 14: Observational methods. In *Real World Research* (4th ed. pp. 319-345). Chichester, West Essex: John Wiley & Sons.

Sharples, S. & Cobb, S. (2015). Methods for Collecting and Observing Participant Responses. In Wilson, J. & Sharples, S. (Eds.), *Evaluation of Human Work* (3rd ed., pp. 84-118). In this chapter, read specifically: p.91-98 from 'Structured Observations' up to 'Eliciting Comparative Judgements'.

8 K-Sample non-parametric tests: within subjects

Week 9: Creative Methods for Data Collection through Observation (Looking)
This week's articles discuss the use of creative aids used to learn through observation.

For this discussion read:

Wensveen, S. & Matthews, B. (2014). Prototypes and prototyping in design research. In: Rodgers P.A. & Yee, J.(eds.) The Routledge Companion to Design Research. Routledge Handbooks Online. p. 262-276.

Rogers, Y., Sharp, H., & Preece, J. (2011). Interaction Design - beyond human computer interaction. 3rd ed. John Wiley & Sons, West Sussex. Available on-line from Carleton's MacOdrum Library and on Ares.

- Chapter 11: Design, Prototyping, and Construction

Bainbridge, L. & Sanderson, P. (2005), Verbal protocol analysis. In: Evaluation of Human Work, 3rd Edition, p. 171-184. DOI: 10.1201/9781420055948.ch36

9 K-Sample non-parametric tests: between subjects

Week 10: Creative Methods of Analysis, Interpretation & Presentation

[This week's articles discuss the use of creative methods to analyze, interpret and communicate findings that respond to your research question.](#)

For this discussion read:

Rogers, Y., Sharp, H., & Preece, J. (2011). Interaction Design - beyond human computer interaction. 3rd ed. John Wiley & Sons, West Sussex. Available on-line from Carleton's MacOdrum Library and on Ares.

- Chapter 8: Data Analysis, Interpretation, and Presentation

Hanington, B. & Martin, B. Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions. Beverly MA: Rockport Publishers. Read: 03. Affinity Mapping, 73. Scenarios, 80. Stakeholder Maps, 82, Storyboards, 91. Triangulation and 95. User Journey Maps

Maguire, M. (2001). Methods to support human-centred design. International Journal of Human-Computer Studies, 55(4), 587-634. In this article, read specifically: p. 604- from 'Produce Design Solutions'.

10 Parametric two sample tests: between subjects

Week 11: Coding and Diagramming Approaches for Interpretation

This week's readings discuss the use of coding and thematic analysis methods to analyze, interpret and communicate findings to answer your research question.

For this discussion read:

Saldana, J. (2016) *The Coding Manual for Qualitative Researchers*, 3rd. ed. Sage Publishing: London (chapters below)

- An Introduction to Codes and Coding p.1-30
- Writing Analytic Memos about Narrative and Visual Data p. 44-65
- First Cycle Coding Methods p. 68-82, review any five coding methods for discussion and reader report.

...and watch : Braun & Clark Video :What is Thematic Analysis

<https://www.youtube.com/watch?v=4voVhTiVydc>

11 Parametric two sample tests: within subjects

Week 12: Review of Research Proposal

This week students will share their progress on their Mini Research Proposal through a formal Review to help inform the final proposal.

Week 13: Review of Research Proposal

This week students will share their progress on their Mini Research Proposal through a formal Review to help inform the final proposal.