ARCH 620 RESEARCH METHODS IN SUSTAINABLE DESIGN


Students interested in learning about various research methods used to support design thinking should consider this course!

1. General Information

CRN
Credits 4 credits (PhD and MS students); 2 or 4 credits (MARCH or MS students)
Term Fall 2020
Schedule Tuesdays 8:15am – 9:45am; 10:15 – 11:45am
Location REMOTE
Instructor Alison G. Kwok PhD, FAIA, LEED AP, FASES, CHPC
office: 541-346-2126, akwok@uoregon.edu, office hours by appointment

2. Course Overview

This course provides an overview of research theory and introductory qualitative and quantitative design methods. This overview consists of understanding the preliminary considerations that go into selecting a qualitative, quantitative, or mixed methods research design. These include knowing the definition for these different approaches, considering philosophical worldviews, reviewing the literature, understanding the use of theory, anticipating ethical issues, and developing writing strategies. We will discuss the process of research as it relates to each approach. This process includes writing an introduction, specifying a purpose statement, and developing research questions and/or hypotheses. This course will also discuss the methods and procedures for quantitative, qualitative, and mixed methods studies, developing a literature review and a dissertation proposal or master’s prospectus. The common goal is to provide a stimulating environment that encourages progress on the development of a research method appropriate to sustainable design.

The course meets once a week. Research design and methodologies are explored through various learning modes: peer-discussions, readings, writing assignments, and individual projects. Students will seek and use new information resources. Invited scholars, College of Design faculty and/or graduate students may be invited to the class to discuss their research and the role of research in their professional development.

3. Student Learning Outcomes

- Develop an understanding of the basic characteristics of qualitative, quantitative, and mixed methods research and the differences among these approaches
- Discuss the major philosophical worldviews related to research
- Define the major strategies of inquiry used in qualitative, quantitative, and mixed methods research
- Learn how to search the research literature on a topic of interest
- Understand the role of literature and theory in qualitative, quantitative, and mixed methods research
- Develop writing strategies for qualitative, quantitative, and mixed methods research proposals and reports
- Anticipate ethical issues related to research
- Understand the elements that comprise a good introduction to research
- Write a purpose statement for qualitative, quantitative, and mixed methods research
- Develop research questions and/or hypotheses for qualitative, quantitative, and mixed methods research
- Understand the procedures involved in developing quantitative, qualitative, and mixed methods plans
- Develop a thesis prospectus or proposal for a research study
- Present information about research in a scholarly manner
## 4. Textbooks and Reading


### Optional Texts

- Williams, Joseph, *Style: Toward Clarity and Grace*, University of Chicago Press, 1995

## 5. Weekly Schedule of Topics and Assignments

<table>
<thead>
<tr>
<th>WEEK</th>
<th>DATE</th>
<th>IN CLASS</th>
<th>READINGS for next</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
</table>
| 1    | Sept 29 | **INTRODUCTION TO DESIGN RESEARCH**  
What is a thesis/dissertation, proposal, committee, committee chair, minor concentrations, key questions, timelines and schedules, definitions of sustainability, research interests?  
**Activity:** Learning Style Inventory  
**Reading LEAD:** Alison  
Booth: Prologue, Ch. 1 (Why), Ch. 2 (Roles); Creswell: Ch. 1 (Selection), 3 (Theory) | Assignment 1a:  
Journal Report  
Due October 5 |
| 2    | Oct 6 | **CULTURE OF DESIGN RESEARCH**  
How is a project selected; what roles do researchers play; how is literature accessed.  
**Activity:** Mystery Analysis  
Booth: Ch. 3, 4 (Questions); Creswell: Ch. 5-7 (Intro, Purpose, Questions) | Assignment 1b:  
Electronic Database Report  
Due October 12 |
| 3    | Oct 13 | **COMPELLING ARTICLES**  
How is a project selected; what roles do researchers play; how is literature accessed  
**Activity:** Mystery Data  
Booth: Ch. 5, 6 (Sources); Creswell: Ch 2 (Literature) | Assignment 2:  
Review 3 Articles  
Due October 19 |
| 4    | Oct 20 | **RESOURCES IN DESIGN RESEARCH**  
What makes a researchable question; how can research succeed; presentation approaches for research methods; what role does writing play in the research process.  
**Guest:** XXX  
**Activity:** Mystery Graphs  
Booth: Ch 7-9 (arguments, claims, evidence) | Assignment 3:  
Abstract and Literature Review  
Due November 2 |
| 5    | Oct 27 | **QUALITATIVE AND QUANTITATIVE METHODS**  
Selecting research methods – qualitative quantitative, mixed.  
Creswell: Ch 8, 9 (Quant, Qual) |
<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Topic</th>
<th>Activity</th>
<th>Guest</th>
<th>Notes</th>
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<tbody>
<tr>
<td>6</td>
<td>Nov 3</td>
<td>CASE STUDY RESEARCH</td>
<td>Stellar Apartments</td>
<td>tbd</td>
<td>Yin: Case Study Research. Chapters 2, 3, and skim 4.</td>
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<tr>
<td></td>
<td></td>
<td>Activity: Survey Development</td>
<td></td>
<td></td>
<td>Assignment 4: Research Prospectus Due Nov 23</td>
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<tr>
<td>7</td>
<td>Nov 10</td>
<td>RESEARCH IN ACADEMIA</td>
<td>The role of research and creative practice, scholarship, teaching, and service</td>
<td>tbd</td>
<td>&quot;To Remember a Lecture Better Take Notes by Hand&quot; and &quot;The Pen is Mightier Than the Keyboard,&quot; (Meuller and Oppenheimer, 2014)</td>
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<tr>
<td>8</td>
<td>Nov 17</td>
<td>RESEARCH REVIEW</td>
<td>What constitutes a solid thesis; how do methods align with the research question; who is involved in a compelling thesis</td>
<td>tbd</td>
<td>&quot;Numerical optimization of integrated passive heating and cooling systems yields simple protocols for building energy decarbonization,&quot; (Remple and Lim, <em>Science and Technology for the Built Environment, 2019</em>)</td>
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<tr>
<td>9</td>
<td>Nov 24</td>
<td>3-minute thesis Presentations</td>
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<tr>
<td>10</td>
<td></td>
<td>FINAL REVIEWS</td>
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6. **Grading Components and Criteria:** Graded/Pass No Pass  
Grading will be based on successful completion of all assignments. The assignments will help students to understand the role of the Master’s Thesis or Dissertation in graduate education, to begin recognizing researchable questions, to define and clarify one’s own question of interest. In-class discussions, individual assignments and discussions with the instructor and guests are the principal means used to provide progress checks to students. The following are all necessary to receive a passing grade:

- **Attendance (attendance, participation, discussion, activities):** 35%
- **Survey development and Human Subjects clearance:** 5%
- **Assignment 1a Journal Report:** 5%
- **Assignment 1b Electronic Database Report:** 5%
- **Assignment 2 Article(s) Review:** 10%
- **Assignment 3 Abstract and Literature Review:** 15%
- **Assignment 4 Research Prospectus or Grant Proposal:** 25%

**Policies**

1. **Attendance and Absence**  
On time attendance is expected at all classes. Late attendance will be marked in Canvas. Absences for medical appointments may be requested in writing. Make up work will not be allowed, unless approved by the instructor.

2. **Late or Missed Work**  
No late assignments are accepted (reasonable exceptions will be made for emergencies and specific prior arrangement with the instructor). Students must successfully complete all assignments. Incompletes will be given ONLY for medical emergencies and requires written pre-approval from the instructor. The instructor reserves the
right to withhold a final course grade if any equipment on loan is not returned in working order by the last week of classes. Requests for extra-credit or compensatory work to make up for missing assignments will not be considered. There will be no final exam.

3. Academic Misconduct
The University Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students’ obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at: https://researchguides.uoregon.edu/citingplagiarism

4. Accessible Education Statement
The University of Oregon is working to create inclusive learning environments. Please notify me if there are aspects of the instruction or design of this course that result in disability-related barriers to your participation. You are also encouraged to contact the Accessible Education Center in 360 Oregon Hall at 541-346-1155 or uoaec@uoregon.edu

5. Diversity
It is the policy of the University of Oregon to support and value diversity. To do so requires that we:
• Respect the dignity and essential worth of all individuals
• Promote a culture of respect throughout the University community
• Respect the privacy, property, and freedom of others
• Reject bigotry, discrimination, violence, or intimidation of any kind
• Practice personal and academic integrity and expect it from others
• Promote the diversity of opinions, ideas, and backgrounds which is the lifeblood of the University

The College of Design promotes the strengths of our multicultural community through the Equity & Inclusion Committee. For more information about the Equity & Inclusion Committee and other student resources, please see: https://blogs.uoregon.edu/design/deansoffice/committees/equity-inclusion-committee/

6. Course Incomplete Policy
Students are expected to be familiar with University policy regarding grades of “incomplete” and the timeline for completion. A grade of Incomplete will be given only for medical emergencies and requires written pre-approval from the instructor. The instructor may withhold a final course grade if equipment on loan is not returned in working order by the last day of classes. Requests for extra-credit or compensatory work to make up for missing assignments or quizzes will not be considered.

7. Expectations
PhD/MS
This course occurs in the first term the PhD/MS student’s time in the Department. At the conclusion of the course, you will have begun your literature review as a result of additional readings (2-3 readings a week) that will explore contextual, theoretical, and methodological approaches used by others who are conducting research aligned with your dissertation interests. You will understand and critique at least four distinct methodological approaches related to your topic and identify content areas that are necessary components of your course of study.

MARCH/MS Students (2 credits)
This course may be taken at any time during a student’s time in the Department. Typically, students who are interested in understanding the context of design and how some of the decisions are made.
Course Engagement and Educational Activity

The course has a broad series of activities and assignments that will introduce students to resources, references, and analytical approaches. When required, all papers will be prepared double-spaced using 11-point font with 1-inch margins. Labeling convention for Canvas: e.g.: 2020_10_02_Assignment1_LASTNAME; max 5 mb

Graduate students are expected to perform work of higher quality and quantity, typically with forty hours of student engagement for each student credit hour. Therefore, a 3-credit graduate course would typically engage students approximately 120 hours; a 4-credit graduate course may be expected to entail approximately 160 hours for the average student for whom the course is designed.

<table>
<thead>
<tr>
<th>Educational Activity</th>
<th>UG Hours</th>
<th>G Hours</th>
<th>Explanation/Justification</th>
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<tbody>
<tr>
<td>Discussion Participation (35%)</td>
<td>n/a</td>
<td>45</td>
<td>In class 3 hours/week; out-of-class reading and preparation for discussion</td>
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<tr>
<td>Human Subjects Training (5%)</td>
<td>n/a</td>
<td>15</td>
<td>out-of-class, online reading and tests</td>
</tr>
<tr>
<td>Assignments (60%)</td>
<td>n/a</td>
<td>100</td>
<td>out-of-class research, reading, writing, and preparation of documents and deliverables</td>
</tr>
</tbody>
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- **Attendance and Participation (35%)**
  You are expected to attend, actively participate, and lead in the class discussions and activities. Participation also includes reading the assigned texts and materials in advance of each class, reviewing related materials, and sharing your ideas during class discussions and/or activities. You may be asked to bring materials to class, react to other students’ work, or turn in your own work for comments as part of the participation grade. Other than a signed medical excuse from a physician, no absences will be accepted. One unauthorized absence will result in 0 points for participation.

- **Complete Human Subjects Research Training (5%)**
  Completion due by Nov 20, upload to NLT noon
  Each student is expected to understand the research process and ethical issues that are pertinent to conducting research with human subjects. Completion of the institution’s training (Collaborative Institutional Training Initiative—CITI) in the Research Compliance Services, (for protection of human research subjects) will help to facilitate a greater understanding of these issues. Got to this page: [http://rcs.uoregon.edu/content/human-subjects-education-requirement](http://rcs.uoregon.edu/content/human-subjects-education-requirement), click on CITI Collaborative Institutional Training Initiative, take basic Social Behavioral-Educational Research modules  [for 2 cr course, this is optional]

- **Assignment 1a: Journal Report (5%)**
  Due: October 5 to Canvas NLT 8pm
  This assignment is to select a journal and report back objectively to the following questions (but is not limited to): when did the journal come about, who is the editor in chief, where is it based, publication cycle, submittal and review process, impact factor, topics covered. Define any unknown terms. Prepare a brief summary of your findings (1-page handout for each person in the class). You will have approximately 5 minutes to present your findings.

- **Assignment 1b: Electronic Database Report (5%)**
  Due: October 12 to Canvas NLT 8pm
  This assignment asks you to carefully critique an online database resource through the UO library. Each report describes the following (but is not limited to) the database content, who produces that content, what organization is the vendor, (e.g. Avery Index to Architectural Periodicals is available through CSA, but who produces the index?), the process to get into the database, the scope, coverage, years of indexing/abstracting/full text, selectively indexed or cover to cover. Prepare a brief summary of your findings (1-page handout for each person in the class). You will have approximately 5 minutes to present your findings.
• **Assignment 2: Review three articles (10%)**  
  Due: Oct 19 to Canvas NLT 8pm  
  This assignment involves identifying three published studies that use the same research design and strategy of inquiry that you plan to use in your proposed project. For each study, write a two-page review (6 pages total) that briefly addresses how the study illustrates: (a) the characteristics of the qualitative, quantitative, or mixed methods research design; (b) the specific strategy of inquiry; and (c) your overall critique of the research design. You should submit copies of each article with the review. You will have 5 minutes to present your findings. [2 cr course: 1 article, minimum]

• **Assignment 3: Abstract and Literature Review (15%)** 2 weeks  
  Due: Nov 2 to Canvas NLT 8pm  
  This project is intended to form part of your research proposal. Conduct an abstract review of 20 research sources (books, journal articles priority) that are related to a topic or sub topic area of interest to you within your discipline. Include one or two “popular” articles, if pertinent to your topic. Submit your citations and annotation/summaries. [2 cr course: 10 sources]

  Next, you will expand your review and dig into specific articles—this comprises the literature review. This project may form part of your research proposal. Collect, organize, analyze, and critique 5 research sources (books, journal articles priority) that are related to a topic or sub topic area of interest to you within your discipline. Include one or two “popular” articles.

  1. Write an introduction to your topic and the overall problem you are addressing.
  2. Literature Review (3 to 5 pages): using the models provided in Creswell.
  4. Definition of Terms (1 page as needed): glossary of terms, with citations
  5. Literature Map: Create a literature map with your literature review, as discussed in Creswell, page 35.
  6. Convey the major aspects of your thesis/research topic.  
     A) Topic/subtopic, B) major themes/findings found in literature, C) summary slide of literature sources (by theme/category and the number and kinds of resources for each). You will have 5 minutes to present your findings.

• **Assignment 4: Research Prospectus/Grant Proposal/other approved (25%)** 3 weeks (alternative assignment may be proposed with approval from the instructor)  
  Due: Nov 23 to Canvas 8pm  
  You will prepare a proposal describing the research study that you plan to complete. This proposal should reflect the proposal outlines suggested by Creswell. The proposal should include (but not be limited to) the following points and be approximately 10 pages:

  1. **Title page:** with title that reflects the content focus of the study, the population, and the research approach
  2. **Introduction:** provides a problem statement, identifies deficiencies in knowledge, and suggests audiences for the research
  3. **Literature review:** reviews literature and/or theories relevant to the study. You may include the literature review from assignment 3, if applicable.
  4. **Purpose statement** with research questions, hypotheses, and assumptions defined
  5. **Methods:** section that discusses procedures, equipment, and analysis appropriate to your purpose and research approach.
  6. **Discussion:** of anticipated outcomes, analysis, any ethical issues
  7. **Anticipated Results:** “storyboard” graphs, charts, images of potential comparisons and outcome that you hope to investigate and find
  8. **References:** specify style manual and follow end-of-text references.
  9. **Appendices** (optional): project timeline, copies of instruments or protocols, visual diagrams, and a proposed budget
Use 11-point font, Times or serif font permitted by Graduate School and see UO Thesis and Dissertation Style and Policy Manual (online, Graduate School). You should share a copy of this assignment with your faculty advisor and allow them some time to comment.

**Presentation:** prepare 1 ppt/pdf [https://threeminutethesis.uq.edu.au/](https://threeminutethesis.uq.edu.au/) 3-thesis oral presentation,

**Grading Rubrics for Assignments and Participation**

A  Excellent: exceeds expectations; clear group leader; respectful listener, professional thought leader, gives evidence of reflection, critique, and insight
B  Good: meets expectations; clear evidence of completing readings and prep work; regular participant in discussions
C  Satisfactory: mostly meets expectations; occasional preparation, some weak participation
D  Inferior: notably lacking participation; comments may be irrelevant or dispersive, or nonparticipant
F  Unsatisfactory: frequently and significantly fails to contribute to discussions and group work

**Accreditation Criteria**

PC.1 Career Paths  
PC.2 Design  
PC.3 Ecological Knowledge & Responsibility  
PC.4 History & Theory  
PC.5 Innovation  
PC.6 Leadership & Collaboration  
PC.7 Learning & Teaching Culture  
PC.8 Social Equity & Inclusive Environments  
SC.1 Health Safety & Welfare  
SC.2 Professional Practice  
SC.3 Regulatory Context  
SC.4 Technical Knowledge  
SC.5 Design Synthesis  
SC.6 Building Integration

**Acknowledgments**

I taught the first offering of this course in Fall 2011. I thank Professor Mark Gillem for continuing to develop the structure of the second offering of this course in Fall 2012 and Hajo Neis in Fall 2018; also thank Professors Erin Cunningham, GZ Brown, and Siobhan Rockcastle for teaching ARCH 678 Advanced Methods in Sustainable Design.