

## RESEARCH METHODS FOR DESIGN

Design 51-744 | Spring 2018 | Tuesday/Thursday 10:00-11:20 am + Studio II MW 1:30-4:20 pm | MM215

---

### INSTRUCTOR

**Bruce Hanington**

MM 201

268-1641

hanington@cmu.edu

### TEACHING ASSISTANT

**Manya Krishnaswamy**

MM 216

manyak@andrew.cmu.edu

### COURSE DESCRIPTION

Designers use many research methods established by other disciplines, adapt even more, and develop their own for research within the creative process of human centered design. This course will present an opportunity to explore several of the research methods currently employed by the design professions, to understand the basis of these methods, and to gain first-hand experience through direct application of methods within a design project. In addition to the practical considerations for carrying out research in education and professional design practice, the course will provide a context of themes by which research may be understood, including quantitative and qualitative, objective and subjective, structured and unstructured, fixed and flexible.

This course has an explicit integration with the graduate Design Studio II course 51-712, such that methods are introduced “just-in-time” for hands-on experience in developing the Studio II project. Following a brief stage of Definition, the presentation of methods will follow a sequence of Exploratory, Generative, and Evaluative research, coinciding with the Studio II project stages of Discovery and Exploration, Concept Generation, and Refinement and Evaluation. Specific methods presented throughout the course will include ethnographic and observational studies for user and product research, contextual inquiry, archival research, surveys, interviews and questionnaires, participatory techniques and creative co-design for concept generation, prototyping and testing, synthesis and analysis techniques, and the role of visual communication within the design research process, collected, analyzed, and expressed through drawing, collage, modeling, photography, and diagrams. The emphasis is on gathering information from people throughout the creative process, rather than isolating research as a separate activity from design.

Although the course is linked to the Studio II project, material will be sufficiently broad to imply other concurrent and future applications. The course should equip students with the necessary tools to determine appropriate methods for specific design research needs, how to find supporting resources, and when to seek help. In addition, an understanding of design research methods will be an invaluable tool in the ability to critically evaluate existing research.

### AUDIENCE

This course is a required course for all first year MDES and MPS students in the School of Design, offered in the spring semester. For MDES students, the timing coincides with preparation for summer internships and the forthcoming thesis year. Others may request enrollment in the course but must either enroll concurrently in Design Studio II 51-712, or have a parallel project of appropriate scope and timing for methods application.

### FORMAT AND ORGANIZATION

This class meets for two sessions of 80 minutes each week, and the instructor will participate in at least one session of Studio II each week. The instructor conducts the sessions on Tuesdays and the format will include lecture, discussion, case studies, and presentations by faculty, guests, and students.

## **RESEARCH METHODS FOR DESIGN**

Design 51-744 | Spring 2018 | Tuesday/Thursday 10:00-11:20 am + Studio II MW 1:30-4:20 pm | MM215

---

The Teaching Assistant will lead class sessions on Thursdays. The format will be “recitations” designed to help guide students through the process of understanding methods for appropriate selection and application in their projects, using a combination of hands-on workshop exercises and meetings with teams.

### **LEARNING OBJECTIVES AND EVALUATION**

Objectives of this course are that you will be able to:

- Demonstrate knowledge of research methods available to designers
- Determine appropriate methods for specific design research needs
- Plan and apply research methods within the design process
- Synthesize and analyze research for design insight and application
- Critically evaluate existing research

Grades will be determined by evidence of course material integrated into the studio project (70%), participation in class (20%), and occasional short assignments (10%). In most cases your grade for Research Methods and Studio II will be equated. For students not enrolled in Studio II, assessments will be based on evidence of course material applied to a parallel project, with deliverables required on a similar schedule to the Studio II project.

### **REQUIRED TEXT**

Hanington, Bruce & Martin, Bella. *Universal Methods of Design: 100 Ways to Research Complex Problems, Develop Innovative Ideas, and Design Effective Solutions*. Beverly, MA: Rockport Publishers, 2012.

In addition to the required text, a number of other recommended books, articles, and online resources are outlined at:

[designresearchmethods.com](http://designresearchmethods.com)

You are encouraged to make frequent use of this site for additional information and references to support methods investigations.

**PLAGIARISM**

The University and the School of Design regard plagiarism as a serious academic offense. Depending on the content and context of the offense, and at the recommendation of the course instructor, the penalty shall be either failure of the assignment or failure of the course. There's more information online at:

[www.cmu.edu/policies/documents/Cheating.html](http://www.cmu.edu/policies/documents/Cheating.html).

Here's the gist of what it says: Plagiarism includes but is not limited to, failure to indicate the source with quotation marks or footnotes where appropriate if any of the following are reproduced in the work submitted by a student: 1. a phrase, written or musical; 2. a graphic element; 3. a proof; 4. specific language; 5. an idea derived from the work, published or unpublished, of another person.

Note that plagiarism does not only refer to copying portions of written text, but also includes copying designs and other visuals such as photographs without proper attribution. While less obvious than written plagiarism, design plagiarism is often characterized as copying both the design (type, color, composition, image style, etc.) and the concept/communication goal of a project. With design examples easy to find online, it is important to use what you find as references and not copy them directly.

**TAKING CARE OF YOURSELF**

Take care of yourself this semester. Do your best to maintain a healthy lifestyle by eating well, exercising, avoiding drugs and alcohol, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress.

All of us benefit from support during times of struggle. You are not alone. There are many helpful resources available on campus and an important part of the college experience is learning how to ask for help. Asking for support sooner rather than later is often helpful.

If you or anyone you know experiences any academic stress, difficult life events, or feelings like anxiety or depression, we strongly encourage you to seek support. Counseling and Psychological Services (CaPS) is here to help: call 412-268-2922 and visit their website at <http://www.cmu.edu/counseling/>. Consider reaching out to a friend, faculty or family member you trust for help getting connected to the support that can help.

If you or someone you know is feeling suicidal or in danger of self-harm, call someone immediately, day or night:

CaPS: 412-268-2922

Re:solve Crisis Network: 888-796-8226

If the situation is life threatening, call the police:

On campus: CMU Police: 412-268-2323

Off campus: 911

## **OVERVIEW OF TOPICS**

Stages correspond to Studio 51-712 project

### **Stage 1 Definition**

Methods overview: inventories and frameworks  
Territory Maps and Stakeholder Maps

### **Stage 2 Discovery and Exploration**

Exploratory research methods  
User and product studies  
Design ethnography  
Interviews, questionnaires and surveys  
Diaries and photo journals  
Observation and documentation  
Unobtrusive and trace measures  
Contextual inquiry  
Cultural probes and inventories  
Simulation and role-playing  
Literature reviews  
Design implications and inspiration  
Design research and ethics

### **Stage 3 Concept generation**

Generative research methods  
Participatory and collaborative design  
Projective techniques: expressive exercises  
Constructive techniques: concept generation  
Creative toolkits  
Collages, diagrams and mapping  
Velcro modeling  
Content analysis  
Personas and scenarios  
Lo-fidelity and experience prototyping

### **Stage 4 Refinement and evaluation**

Evaluative research methods  
Gauging human-product interactions  
Mid-hi fidelity prototyping  
Usability testing  
Think-aloud protocol  
Heuristic evaluation  
Structured observation  
Laboratory and field tests  
The experimental model

### **Stage 5 Reflection and communication**

Summarizing research  
Reporting, presenting, and reflecting