

# ARCH 610

## Architectural Analysis and Research

Instructors: Anne Bordeleau, Robert Jan van Pelt, faculty of Waterloo Architecture, and guests.

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The architect's expertise is enhanced by many disciplines and various sorts of specialized knowledge, all the works executed using these other skills are evaluated by his seasoned judgement. The expertise is born both of practice and reasoning. Practice is the constant, repeated exercise of the hands by which the work is brought to completion in whatever medium is required for the proposed design. Reasoning, however, is what can demonstrate and explain the proportions of completed works skilfully and systematically - Thus architects who strove to obtain practical manual skills but lacked an education have never been able to achieve an influence equal to the quality of their exertions, on the other hand, those who placed their trust entirely in theory and in writings seem to have chased after a shadow, not something real. But those who have fully mastered both skills, armed, if you will, in full panoply, those architects have reached their goal more quickly and influentially.

Marcus Vitruvius Pollio

Is it thus possible to create a tradition that is held together by strict rules, and that is also successful to some extent. But is it desirable to support such a tradition to the exclusion of everything else? Should we transfer to it the sole rights for dealing in knowledge, so that any result that has been obtained by other methods is at once ruled out of court? And did scientists ever remain within the boundaries of the traditions they defined in this narrow way? These are the questions I intend to ask in the present essay. And to these questions my answer will be a firm and resounding NO.

Paul Feyerabend

## Course Description

Arch 610 aims to support graduate students in the development of a Masters thesis in Architecture.

Throughout Arch 610, we will question what might constitute a thesis in architecture and how one engages in architectural research. We will cover conventions and methods of research within the discipline of architecture, as well as methods of research which may be generated outside the discipline, all the while questioning what the disciplinary boundaries might be or might mean. The consideration of precedents, case studies, relevant literature and other design research methods aims to assist students as they position their ideas within a larger conceptual discourse. Arch 610 will expose students to epistemological questions, research methodologies, as well as analytical and explorative strategies, so as to guide them in their research and design thesis

Throughout the term, we will consider the history of the discipline, the construction of architecture as an object of research, the intention and foundations of such research, the notion of truth, objectivity or

science in architectural research, as well as the shifting boundaries of architecture as a practice and research activity.

Another objective of Arch 610 is to expose students to the range of disciplinary methods and approaches that architectural research and analysis can take. Half of the course will be dedicated to the exploration of a range of significant methods, for example from social sciences and humanities, geography and science.

Finally, we intend in this course to deepen your research and analytical skills, from the production of a literature review, through case study analysis, the use of GIS, the conduct of interview or the practice of iterative design.

The course is structured in four parts. The first, introductory part, seeks to initiate a frank and open discussion on the main deliverable in the graduate programme offered by Waterloo Architecture: the thesis. The second section focuses on the problem of architectural knowledge, or epistemology. In this part, students will consider the relationship between their chosen research topic and the discipline of architecture. The third section highlights methods of gathering data commonly used within the discipline of architecture and outside it in adjacent fields. In this part, we will reflect on the relative advantages and liabilities of different methods. The last section looks at ways of analyzing the data using theory and design. This final section will address the question how to integrate knowledge acquired in the course in a researched introduction to their thesis topic and a justification of their chosen approach.

Every week, one, two or three lecturers will introduce a specific theme. Their more general presentations will be interspersed with some training and information sessions, namely on ethics, library research, GIS, and referencing. Throughout the term we might announce some preparatory readings: we encourage you to read those required texts before coming to the session.

## Evaluation

In consultation with the faculty teaching Thesis Research and Design (TRD) 1, we have decided to keep the deliverables for Arch 610 at a minimum.

The course includes 12 presentations. During the break of each presentation we ask you to draft a question for the presenter. This question should summarize in one or two sentences a particular point made by the presenter, followed by a single sentence question that addresses this point. These questions will be collected at the end of the break, and five or six of them will be posed to the lecturer. Each question will carry a minimum value of 1 point and a maximum value of 6 points. An excellent question, both in terms of content and articulation, will earn 6 points, a good question 5 points, a satisfactory one 4 points, a barely passable one 3 points, a very sloppy one 2 points, and one that at least puts a question mark on a piece of paper with a name on it will earn 1 point. The total amount of marks to be earned by the questions is 72. Showing up offers an automatic 28 points. So handing in 12 good questions should leave you with a term mark of 88, and handing in 12 satisfactory questions with a term mark of 76, and so on.

We will share your questions with the faculty member teaching your TRD 1 section.

## Schedule

### 1. Reflections on Thesis

Sep 11            Thesis – Different Perspectives.  
Andrew Levitt / Donald McKay / Val Rynnimeri / Robert Jan van Pelt

### 2. Architectural Epistemology

Sep 18            Questioning the Discipline – Architectural Epistemology  
  
Philip Beesley / Anne Bordeleau / Adrian Blackwell  
  
1.1. What is the discipline of architecture? What lies outside it?  
1.2. General introduction: Epistemology, Methodology, Research and Analysis

Sep 25            Question of Discipline – Theoretical Framework  
  
Anne Bordeleau / Effie Patelos  
  
2.1: Surveying the field: what is a literature review?  
2.2: Framing the question: how to do a literature review

Oct 2             Siting your Research – Researching your Site  
  
Donald McKay / Lola Sheppard  
  
3.1: Defining a thesis site  
3.2. Site Documentation: Video, photography, diagrams, measurements,

### 3. Methodologies Within and Beyond the Discipline

Oct 16            Research in the Social Sciences and Humanities  
  
Luna Khirfan / Karen Pieters  
  
4.1: Documenting social, political and economical conditions and concerns  
4.2: Interviews, Surveys and Ethnographies with Human Subjects

Oct 23            Design Research  
  
Lola Sheppard / John McMinn  
  
5.1. Precedent (or Case Study) Analysis: buildings, programs, site strategies, etc.  
5.2. Strategies for analysis, (and its instrumentalisation)

Oct 30            Data Research  
  
Maya Przybylski

6.1: Visualizing Big Data: Quantitative Data, Statistics, Diagramming Data

Nov 6

Geographical Research

Jane Hutton / Jake Lowie / Val Rynnimeri

7.1 Questions of scale and perspective

7.2 GIS and other forms of mapping

Nov 13

Historical Research

Robert Jan van Pelt / Effie Patelos

8.1: History within and beyond the discipline; archival research (text/drawing)

8.2: Evaluating your sources, annotated bibliography, resolving research difficulties

Nov 20

Scientific Research

Terri Boake / Elizabeth English

9.1: Investigating materials and techniques

9.2. Analyzing and testing structures

#### **4. Analytical Approaches**

Nov 27

Working with Theory

Adrian Blackwell / Dereck Revington / Elizabeth English

10.1: Theoretical underpinnings in architectural research

10.2. Material investigations as motors of design research

Dec 4

Iteration: Design as Research and Prototyping

Philip Beesley / David Correa

11.1: Defining the questions and parameters / building 1:1 with or without digital tools

11.2: Scales of Working, Design Methods and Priorities / Methods of questioning

## Select Bibliography

### 1. Reflections on Thesis

Sep 11 Thesis – Different Perspectives

Kay Bea Jones, "Unpacking the Suitcase: Travel as Process and Paradigm in Constructing Architectural Knowledge," *The Discipline of Architecture*, Andrzej Piotrowski and Julia Williams Robinson, eds. (Minneapolis and London: University of Minnesota Press, 2000), 127-158.

Andrzej Piotrowski, "On the Practices of Representing and Knowing Architecture," *The Discipline of Architecture*, Andrzej Piotrowski and Julia Williams Robinson, eds. (Minneapolis and London: University of Minnesota Press, 2000), 40-60.

Andrew Levitt, *Inner Studio: A Designer's Guide to the Resources of the Psyche* (Cambridge: Riverside Architectural Press, 2009).

### 2. Architectural Epistemology

Sep 18 Questioning the discipline – Architectural epistemology

Giancarlo de Carlo, "Architecture's Public," in *Architecture and Participation*, Peter Blundell Jones, Doina Petrescu and Jeremy Till, eds. (Abingdon: Spon Press, 2007), 3-22.

Paul Feyerabend, *Against Method: Outline of an Anarchist Theory of Knowledge* (London: Verso, 1993), 9-19.

Adrian Forty, *Words and Buildings* (New York: Thames & Hudson, 2000), Introduction.

Andrzej Piotrowski and Julia Williams Robinson, eds, *The Discipline of Architecture* (Minneapolis: University of Minnesota Press, 2001).

Jane Rendell, "Architectural Research and Disciplinarity," *Arq: Architectural Research Quarterly*, vol. 8, no. 2 (2004), 141-7.

Jeremy Till, "What is Architectural Research?," RIBA Research Committee Document, 1-6.

Sep 25 Question of discipline – Theoretical Framework

Iain Borden and Katerina Rüedi Ray, *The Dissertation: A Guide for Architecture Students*, 3d ed. (London: Routledge, 2014), 20-64.

Linda Groat and David Wang, *Architectural Research Methods* (New York: Wiley, 2002), 45-71.

Ray Lucas, *Research Methods for Architecture* (London: Laurence King, 2016), 6-57

John Zeisel, *Inquiry by Design* (New York and London: Norton, 2005).

Oct 2 Siting your Research / Researching your Site

Ray Lucas, *Research Methods for Architecture* (London: Laurence King, 2016), 69-79, 175-183.

### 3. Methodologies Within and Beyond the Discipline

#### Oct 16 Research in the Social Sciences and Humanities

Soumyen Bandyopadhyay, Jane Lomholt, Nicholas Temple, Reneé Tobe, eds., *The Humanities in Architectural Design: A Contemporary and Historical Perspective* (London: Routledge, 2010).

Tapan Dhar and Luna Khirfan, "Community-Based Adaptation Through Ecological Design: Lessons from Negril, Jamaica, *Journal of Urban Design*, vol. 21, no. 2, 2016, 234-55.

Luna Khirfan, "Design charrettes: an approach to community climate change adaptation in Tobago," in *Global Change and the Caribbean: Adaptation and Resilience*, David Barker, Duncan McGregor, Kevin Rhiney, and Thera Edwards eds. (Kingston: University of the West Indies Press, 2016), 223-247.

Linda Groat and David Wang, *Architectural Research Methods* (New York: Wiley, 2002), 173-202.

Joseph Rykwert, "Architecture and the Public Good", in *Research and Practice in Architecture* (Helsinki: Alvar Aalto Akatemia, 2001), 8-14.

#### Oct. 23 Design Research

Kristina Hill, "Shifting Sites, in *Site Matters: Design Concepts, Histories, and Strategies*, Carol j. Burns and Andrea Kahn, eds. (New York: Routledge, 2005), 131-152.

Murray Fraser, ed., *Design Research in Architecture: An Overview* (Farnham: Ashgate 2013).

Linda Groat and David Wang, *Architectural Research Methods* (New York: Wiley, 2013), 21-61.

Marjan Colletti, *Digital Poetics: An Open Theory of Design-Research in Architecture* (London: Routledge, 2016).

#### Oct. 30 Data Research

Shannon Mettern, "Methodolatry and the Art of Measure: The new wave of urban data science", Places, November 2013, <https://placesjournal.org/article/methodolatry-and-the-art-of-measure/>

#### Nov 6 Geographical Research

M. Elen Deming and Simon Swaffield, *Landscape Architecture Research: Inquiry, Strategy, Design* (New York: Wiley, 2011).

John Dixon Hunt, *Historical Ground: The Role of History in Contemporary Landscape Architecture* (London and New York: Routledge, 2014).

#### Nov 13 Historical Research

Marc Bloch, *The Historian's Craft*, Peter Putnam transl. (New York: Knopf, 1953).

Linda Groat and David Wang, *Architectural Research Methods* (New York: Wiley, 2002), 135-171.

Andrew Leach, *What Is Architectural History?* (Cambridge and Malden: Polity, 2011).

Ray Lucas, *Research Methods for Architecture* (London: Laurence King, 2016), 125-139.

#### Nov 20 Scientific Research

Tom Coppens and Hendrick Van Geel, "Urban and Architectural Design and Scientific Research: How to Save an Arranged Marriage?", in *Theory by Design: Architectural Research Made Explicit in the Design Studio*, Els de Vos, ed. (Antwerp: University Press Antwerp, 2013), 79-90.

Arie Graafland and Leslie Kavanuagh, eds, *Crossover: Architecture, Urbanism, Technology* (Rotterdam: 010 Publishers, 2006), 210-280.

Michael U. Hensel, *Design Innovation for the Built Environment: Research by Design and the Renovation of Practice* (London: Routledge, 2012).

### 4. Analytical Approaches

#### Nov 27 Working with Theory

Andrew Ballantyne, *Deleuze and Guattari for Architects* (London and New York: Routledge, 2007).

Hélène Frichot and Stephen Loo, eds., *Deleuze and Architecture* (Edinburgh: Edinburgh University Press, 2013).

K. Michael Hays, *Architecture Theory Since 1968* (Cambridge: MIT, 1998), x-xv.

Neil Brenner, "What is Critical Urban Theory," *City*, vol. 13, nos 2-3 (2009), 198-207.

Arie Graafland and Leslie Kavanuagh, eds., *Crossover: Architecture, Urbanism, Technology* (Rotterdam: 010 Publishers, 2006), 646-703.

Ray Lucas, *Research Methods for Architecture* (London: Laurence King, 2016), 153-63.

#### Dec 4 Design as Research and Prototyping

Michael U. Hensel, Defne Sunguroglu Hensel and Jeffrey P. Turko, "Research by design in the context of the OCEAN Design Research Association," in *Design Innovation for the Built Environment: Research by Design and the Renovation of Practice*, ed. Michael U. Hensel (London: Routledge, 2012), 91-106.

Bob Sheil, ed., *Manufacturing the Bespoke: Making and Prototyping Architecture* (Hoboken: Wiley, 2012).