



Title: MUTANT SYSTEMS_ *Environmental Infiltrations, Interfaces, and Inventions*
Instructor: Special Lecturer_ Matthew Spremulli
Course: Thesis Research + Design 692-03_ Graduate Studio and Seminar

Instead, in the architecture of the 1990s, once could observe how Tschumi's original paradigm of "programming" increasingly transformed into an "atmosphering" where it is no longer the different programmes themselves but the atmospheres of these programmes that now confront each other. ... Just as present day society must give up the illusion of a controllable world and finally confront its uncontrollable nature, architecture must liberate itself from the modernist hubris of believing it can plan the territory and must instead develop scenarios for inhabiting our mutating atmospheres.
[Andreas Ruby] ¹

This thesis studio group will explore specific interactions and exchanges with environments, systems, and processes as elements to provoke mutated architectures. It argues for embracing these dynamic elements as opportunities to design new conceptual interactions with our surroundings and to develop strategies of 'plasticity'/'adaptation' in response to our contemporary strained and unpredictable relationship with the environment. It builds on the ideas of theorists like Reyner Banham to bring provisional or extended systems into design consciousness and embrace an architecture of "environments". In this case, both the scope and definition of 'environments' and 'systems' are widened to include an expanded relationship to site, the logistics of construction and the expression of materiality, as well as the atmospherics that define or blur degrees of interiority. Further, the studio will consider how engaging with these processes that surround/supply architecture becomes an opportunity to provoke new relationships with performance (sustainable or effect based), more profound connections to place, and new experiences.

Rethinking the act of building, fabricating, maintaining, operating, and interacting with architecture in even a local environment provides the chance to interrogate and investigate immediate/tangible questions, challenges, and opportunities. In this light, the architectural scale becomes a 'ground zero' condition to experiment and develop these new relationships. Further, "mutant architectural tactics" become the vehicle to consider radical bottom-up transformations at a larger scale.

Emphasis will be placed on considering how materiality (including manufacturing material effects and emerging material ecology), computation (including simulation, parametric iterations, and fabrication), tectonics, site ecology, and atmospheres can further provoke architecture by infiltrating the design process. As a laboratory the research studio will collect and experiment with these agents of mutation at the architectural scale.

The research studio will help students cultivate questions and strategies to critically reflect on architecture's agency towards environments, systems, and processes. There are a number of theorists and designers looking at the cross pollination of spatial design with the larger theme of environment and environmental systems from which the group can reference. Designers like R&Sie (Francois Roche) explore how combining narrative, computation, and "hyper-locality" can result in novel uses of "indigenous" materials and ecological processes that mutate architecture into

occupiable machines that are on one hand undeniably radical but also rooted in their place. Theorists like David Gissen consider how architecture can embrace processes and materials (even the undesirable ones) and have the ability to re-code and re-construct its surrounding context, blurring the lines between building and landscape (as well as the roles of action/reaction). Designers like Phillipe Rahm explore manipulating and designing with the “physiological” and “atmospheric” (usually invisible) forces that shape the *space* and *feeling* of architecture. Designers like Achim Menges, Andrew Kudless, Skylar Tibbits, and Neri Oxman experiment with how computation, material research, and fabrication can create new modes of construction, dynamic structures, and even new materials for architecture to consider. And critic/writer Cary Wolfe challenges our human-centred worldview and seeks possibilities and opportunities when we consider an environment shared with other species.

Simultaneously, through seminar discussions, precedent research, micro labs, and mini workshops the group will be building a library of tactics and tools that will offer a variety of approaches to investigating their thesis strategies.

The goal of the studio group is to create a set of critical investigations around emerging environmental strategies. The group is encouraged to bring forward a wide range of themes, programmatic intentions, and scales that can be experimented with the larger theme.

¹ Durandin, Benoît, François Roche, and Andreas Ruby. *Spoiled Climate: R&Sie... Architects*. Basel: Birkhäuser, 2004, p. 70

THESIS R+D OBJECTIVES AND STRUCTURE

TRD Motivation and Thesis Context//

This Thesis Research + Design studio seminar will guide students in the development of an individualized research topic as a preparation for their thesis in architecture. The course will use written, verbal and visual presentation to develop a critical argument that sets the stage for the thesis research project culminating in the production of a thesis outline at the end of the semester. The course's goals and learning objectives will be supported by an assignment structure and can be described as:

- The formulation of a focused research agenda and questions within the selected topic
- The development of an intellectual and critical method to achieve the thesis proposal
- An understanding of ideas and strategies contained in critical precedents
- The development of expertise in history and theory published on the given topic
- The development of an original thesis that is grounded in the discipline

TRD Course Structure//

The Thesis Research and Design studio will be taught twice a week on Tuesdays and Thursdays from 9:30 am to 5:00 pm. Within the period of 15 weeks students will work on 6 sequentially titled projects ['S1' to 'S6'] that will operate as a methodical framework to achieve the class objectives and the development of an independent thesis topic. Each sequence is accompanied by a 2 or 3 weeks assignment that allows students to work on their own topic while following a methodical roadmap. Each assignment is introduced through a lecture and will be discussed as a group. Individual desk crits and group discussions will provide feedback for students to develop their individual projects. The results of the assignments will be discussed during review sessions that are scheduled for Tuesdays. During the semester the course will be enriched by seminar like inputs, round table discussions, guest lectures and mini workshops. In addition, students will be able to participate in the Path to Practice Event, which will offer an excellent opportunity to be exposed to experts in the field.

Sequence S5 will conclude with a review titled “**Thesis Talks**”. Students will give a 20-30 minute presentation on their thesis research to external guests. The resulting feedback will help to synthesize the semester’s work into a thesis abstract [S6] that will serve as a completed roadmap for the following semester. At this last stage that will be submitted to the instructor, it will be critical to articulate a clear and focused thesis question, a summary of the research demonstrating a level of expertise on the topic, an analysis of the findings, an articulation of first design implementations, and a complete outline of the individual thesis syllabus. The semester will end with a social event titled “**TRD Open Studio**”, in which students will present a poster to their peers to introduce their thesis research to the Waterloo Architecture Grad Program.

TRD ASSIGNMENT STRUCTURE//

Throughout the semester, students will be exposed to 6 assignments that will help to develop a critical body of work for the final thesis outline.

Sequence S1_AFFILIATIONS// THESIS CLOUD

An architectural design thesis requires students to formulate a tightly focused research agenda within the discipline of architecture / urbanism and to test this agenda through a specific design proposal in a second stage that follows the Thesis Research and Design studio. Though the thesis will ultimately employ the tools of architectural production and will be centered on a narrowly focused question founded on an explicit body of research, the first assignment in S1 will ask students to embed their initial thesis thoughts into a larger context. Allow yourself to open your mind and diversify your interests, spread your net and capture a wide range of sources within and outside the conventional architectural discourse. Create a thesis cloud that will offer a landscape of ideas, thoughts, concepts, precedents, theories and affiliations from within and outside of architecture. *Hand-out Assignment A1*

Sequence S2_PRECEDENTS// MANIPULATION

Your thesis project will not stand-alone and you should learn from precedents that need to be carefully analyzed. Who worked on similar topics? What are the critical projects that had been tested either realized or through virtual contributions? What are the precedents you need to understand in order to contribute to the broader discussion about your chosen topic in the discipline of architecture? And finally, what are potential manipulations and extractions that might be useful for your own thesis approach? *Hand-out Assignment A2*

Sequence S3_METHODS//OPERATIONS

Given these precedents and your initial research, what are the operational methods and techniques of exploration best suited for your thesis investigation? What are the right tools for your exploration and how can you develop these methods extracted from precedents for your own purposes? The development of your design method will be essential to your thesis project and distinguishes a thesis from a studio project. During this sequence literature review will be crucial and will be facilitated through a workshop held by our librarian. We will begin with this investigation in sequence 3, but expect that it will be redefined and developed throughout sequences 4 through 6, incorporating site, context, data and program. *Hand-out Assignment A3*

Sequence S4_SITE[S] // SOFTWARE TOOLS AND ANALYSIS

Though your site might not define yet or you might work on multiple sites, we will start to investigate and analyze the physical environment where your project might be located. During this sequence, you will be exposed to GIS software *or other tools* that will help to compile site- and context-relevant data and to analyze those in support of your project [see annex workshops]. The assignment will consist of multiple components including the development of a digital archive, analytical maps, diagrams, and datascares. *Hand-out Assignment A4*

Sequence S5a_STRATEGIES// PROGRAM

The site investigation will allow for an understanding and analysis of the context and potential applications of your thesis project. As such, the application of your project might be much broader than the final -probably single- site you will select for the next phase. During sequence 5, we will work on opportunity maps and program outlines. *Hand-out Assignment A5a*

Sequence S5b_APPLICATION// TEST DRIVE

The first draft of your thesis application will be a test drive that will help you to jump into the cold water. This first draft will not be the outline of your final thesis project, but will serve as a first iteration. You will work on a 2-week design assignment that moves your work from “research” to “design”. The main purpose of assignment A6 is to operate as a test drive whose critique will help to fine-tune the requested thesis statement. *Hand-out Assignment A5b*

Sequence S6_ARGUMENT// THESIS OUTLINE

The final assignment will ask you to compile all research into a deeply grounded thesis outline. This outline articulates a clear thesis statement including your argument and a detailed plan that describes how you are planning to continue working on your project during the next phase. This will operate as your self-generated syllabus and will help you to structure the independent design work that will follow in the next months. *Hand-out Assignment A6*

The phases shown in this outline will be updated by formal assignments issued during the term. Details shown here may change according to the development over the semester and students' needs. Students will be asked to submit their work a night before the review via “dropbox” online file space that can be used for digital hand-ins.

Students are asked to properly and consistently quote and cite work developed by others. Please use the Chicago Manual of Styles for these purposes. More information under http://www.chicagomanualofstyle.org/tools_citationguide.html

TRD Participation and Students' Involvement//

Students will be asked to continually participate in discussions throughout the semester. Readings and in-class brainstorming sessions will allow students to engage directly with the content. In addition, students are invited to further develop the ThesisLab Manifesto as briefly described in the introduction. This umbrella Manifesto will unfold over the duration of the semester under the guidance of the instructor and in cooperation with peers in the section.

The two guest lectures L1 and L2 are currently scheduled within the sequence S2 Precedents// Manipulation and S5 Strategies// Operations. Experts visiting the class to present their work are tremendous resources for your research. In addition we are looking forward to invite critiques, to visit related events in Toronto. Students are invited to make suggestions and to organize round table discussions with local experts. This process will be discussed at the beginning of the semester and will allow students to actively participate in the shaping of the course and to start networking.

TRD Documentation and Learning Resources//

In addition, you will be asked to complete the semester with a thesis research book, printed through Lulu Print. The class will have access to a template [US letter] that can be manipulated for personal purposes. However, the format of the final book will be limited to 11” x 8.5” portrait. This book will include all findings and assignments of the semester and will operate as your individual “thesis guide”, supporting the next phase of your project. At the end of the thesis completion we intent to publish all final thesis work in form of a thesis publication printed with Riverside Press in Waterloo.

ANNEX// GOVERNING DETAILS

TRD Class Agenda

Welcome to the Thesis Research + Design Graduate Studio and Seminar this fall semester. Please read the syllabus and the information below carefully. The preparation of your thesis research is a unique opportunity to conduct your own research and to position yourself within the discipline. As such the Thesis Research + Design studio requests not only requirements defined by the school policy but tries to prepare students for their professional life. Commitment to your work, collaboration among the group, self-motivation, participation and attendance in time will be critical.

If you run into problems during the semester or if you are concerned about your progress, please contact me at any time via email or request a meeting during the class. This class is meant to provide all support you need to develop your thesis outline and research agenda. However deadlines are critical tasks to take care of in our profession. Successful time management will be an important skill for your success.

In the moment when you step out of the academic environment you will need to offer the professional world not only a strong portfolio and good grades. In your future professional life it will be most essential to also understand the opportunities and responsibilities of our profession. The next generation of architects and designers will participate in an important paradigm shift. Use this class to strengthen your position and to develop your agenda.

TRD Class Meetings

Lectures and class meetings will be held throughout the term at the beginning of studio days and at the end. Be prepared to meet every studio day promptly at 9:30 a.m. Please be punctual. Specific dates will be established as the term evolves, responding to class progress. Check your email late evening on the day before or early morning on studio days for updates on meeting times and locations.

TRD Grading

The semester consists of brief two – three week exercises that ask students to probe their thesis topic through the lens of specific research areas and methods. To successfully complete the class each assignment needs to be accomplished and presented in time. Progress, participation and collaboration will affect the grades throughout the semester. The assignments will be graded as follow:

A1, A2, A3, A4 [40%]

A5a and A5b [20%]

A6 [30%]

Participation [10%]

TRD CLASS CULTURE

Maintain the Studio

Cooperate in maintaining the studio space. If you play audio material, use headphones.

Attend Lectures and Work In Studio

Attend all lectures. Work in studio on studio days. Be in full attendance in studio from 9:30-12 a.m. and 1- 5 p.m. on studio days. If you are planning to visit the library or conduct off site research, please talk to your instructor.

Complete all parts of the work; submit your work on time

All assigned parts of the work must be completed. Punctual completion is required. Grade penalties will be applied to late submissions and chronic lateness may result in disciplinary review

including refusal of acceptance. Late submissions must be accompanied by formal transmittal indicating reason for lateness. For submissions administered with evening deadlines, penalties would be assessed at 5% up to midnight, and 5% next day and each day afterward. 'Days' begin at midnight each day, and include weekends and holidays.

Accommodation for illness; not for travel

If you need to apply for accommodation of lateness or absence due for illness, make a formal application by using 'Verification of Illness' [VIF] forms or counseling letters, filed with the Architecture Office. Student travel plans are not considered acceptable grounds for granting alternative reviews and submission times.

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences [e.g., plagiarism, cheating] or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate Associate Director. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline'. For typical penalties check Guidelines for the Assessment of Penalties. Note: "Plagiarism, which is the act of presenting the ideas, words or other intellectual property of another as one's own. The use of other people's work must be properly acknowledged and referenced [...]. The properly acknowledged use of sources is an accepted and important part of scholarship. Use of such material without complete and unambiguous acknowledgement, however, is an offence under this policy."

References

www.uwaterloo.ca/academicintegrity/
www.adm.uwaterloo.ca/infosec/Policies/policy71.htm.
www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Grievance

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please contact the department's administrative assistant who may provide further assistance.

Appeals

A decision made or penalty imposed under Policy 70 [Student Petitions and Grievances] [other than a petition] or Policy 71 [Student Discipline] may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 [Student Appeals] www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Students with Disabilities

The Office for Persons with Disabilities [OPD], located in Needles Hall, Room 1132, collaborates with academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

SEMESTER Schedule Fall 2014:

MONTH	WEEK	TUESDAY	THURSDAY
SEPTEMBER	0		4/9 THESIS PREP INTRODUCTION Lottery / Selection of Section / Umbrella Topics
Orientation Week			
Classes Begin	1	09/9 S1 AFFILIATIONS// THESIS CLOUD Hand-out Assignment A1, Lecture S1 Presentation of 10 min Thesis Abstract	11/9 DESK CRITS All School Meeting
Lecture// Louis Becker // Henning Larsen Architects	2	16/9 Group Review and Individual Work	18/9 DESK CRITS
	3	23/9 S2 PRECEDENTS// MANIPULATION Internal Review A1, Hand-out Assignment A2, Lecture S2	25/9 DESK CRITS
OCTOBER	4	30/9 Group Review and Individual Work	02/10 L1 GUEST LECTURE DESIGN RESEARCH I Desk Crits
	5	07/10 S3 METHOD// OPERATIONS Internal Review A2, Hand-out Assignment A3, Lecture S3	09/10 LITERATURE REVIEW W1 WORKSHOP Lecture// Nader Tehrani // nadaa
	6	14/10 Group Review and Individual Work	16/10 DESK CRITS Lecture// Jesse Reiser // RUR
	7	21/10 MID REVIEW Presentation of A1-A3	23/10 S4 SITE ANALYSIS Hand-out Assignment A4, W2 GIS WORKSHOP
	8	28/10 W3 GIS WORKSHOP Lecture S4	30/10 DESK CRITS Lecture// Joel Sanders // JSA Architects
NOVEMBER	9	04/11 S5a STRATEGIES//PROGRAM Hand-out Assignment A5 a, Lecture S5	06/11
	10	11/11 Group Review and Individual Work	13/11 DESK CRITS Lecture// Sean Lally Weathers //
	11	18/11 S5b APPLICATION// TEST DRIVE Hand-out Assignment A5 b	20/11 DESK CRITS Lecture// Meejin Yoon // Howeler & Yoon
	12	25/11 Group Review and Individual Work	27/11 L2 GUEST LECTURE DESIGN RESEARCH II Desk Crits
DECEMBER	13	02/12 S6 ARGUMENT//THESIS OUTLINE Review A5, Assignment A6,	04/12 DESK CRITS Lecture S6 Exams Start
	14	09/12 Group Review and Individual Work	11/12 DESK CRITS
	15	16/12 DESK CRITS	18/12 THESIS OPEN STUDIO Digital Submission

The schedule is open for adjustments. Please see schedule announced in assignments. Changes will be discussed during class time. Further information: <http://gradcalendar.uwaterloo.ca/page/GSO-Academic-Deadlines-and-Events>