Course Calendar Description
This course focuses on an advanced topic in architectural humanities. The topic changes from year to year. It may emphasize history, theory, criticism, urban studies, or architecture in development.

Course Description
This course will seek to develop a critical position for "soft systems" with regards to materially-driven computational design and construction. Discussions, papers, and an exhibition will be developed from texts in architectural technology, architectural case studies, and student design and technology projects. These primary 'texts' will be vehicles through which the course seeks to square broader concerns of human behaviour, the environment, and professional ethics with prevailing theories of computational design and material technology.

This year’s course will focus specifically on “artificial rock”, placing emerging understandings of concrete technologies in conversation with soft systems to develop a framework for “Soft Rock”. The course will work in two parts. Part 1 will survey literature in the field in dialogue with case studies through student-led discussions. Part 2 will develop individual scholarship and writing for an online exhibition, placing scholarly literature in dialogue with design.

Term Coordination
Co-requisite: ARCH 5217 Innovation in Computers and Building, ARCH 5198, section 3: Humanities Seminar, and ARCH 6002: Free Lab (JF option)

This is one of four coordinated courses. Three courses – M1 Design and M1 Technology and M1 Humanities - run concurrently and culminate in the fourth, a Free Lab. In M1 Design students explore the spatial possibilities of soft concrete. In M1 Technology students develop computational simulations, and documentation in support of M1 Design. M1 Humanities positions the work in a social, political,
and cultural context. Student work in these three courses will contribute to the Free Lab project.

**Ethnographic Research Study**

In a separate, but related study to this course work ("Materials and People: Social Characterization of New Materials in Architecture"), Professor Forren along with a Social Anthropologist collaborator is also seeking to gain insights into the social impacts new material and design technologies have: both in how they affect how architects design, and in their effect on people’s reactions to or behavior within spaces made by them. This is to better understand the social effects of new materials so that we can design, build and understand them better in our buildings and cities.

As a student in this course you may participate in this study. In order to provide you with detailed information about the study and answer questions about what participation would entail, a third-party consent administrator will be meeting with the class in the first week. With Prof. Forren absent they will present the study overview to the entire group, answer questions and then ask you to indicate your consent (sign for yes, return blank for no). They will collect all copies of the forms (that way, nobody knows who has or has not given consent). Their contact information is below for follow-up questions.

After the completion of the design research project and after your course enrollment and grading has ended, this data will be analyzed to draw conclusions about how architects design and work with new materials and technologies. Participation in this separate, but related study ("Materials and People: Social Characterization of New Materials in Architecture") is not a condition of enrollment or course credit. It will not affect your course evaluation, nor impact your future academic standing in any courses taught by Prof. Forren. Professor Forren will have no knowledge of whether you are participating in the study until after your enrollment and evaluation have ended. Choosing whether or not to take part in this separate, but related study is entirely your choice.

If you have any questions about "Materials and People: Social Characterization of New Materials in Architecture", please contact Lana Neil, (at 902 293 1212, Skype: Lana_neil, lana_neil@hotmail.com)
Learning Objectives

· Understand emerging environmental, material, technological, and social discourse in contemporary design and construction.
· Develop a critical position with regards to the use of materials and technology in architecture, and demonstrate this through written and visual communication.
· Engage in and develop skills in argumentation and critique through close readings and discussions of primary texts.
· Develop skills in research methods in design and technology.

CACB Student Performance Criteria

The BEDS/MArch program enables students to achieve the accreditation standards set by the Canadian Architectural Certification Board. They are described at https://tinyurl.com/cacb-spc-2017 (pages 14–17). This Dalhousie ARCH course addresses the CACB criteria and standards that are noted on the “Accreditation” page of the School of Architecture website: https://tinyurl.com/dal-arch-spc.

Evaluation

Students are evaluated on the following:

Assignment:

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<tr>
<th>Assignment</th>
<th>Type</th>
<th>Duration</th>
<th>Grade</th>
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<tbody>
<tr>
<td>H1.0 Attendance and Participation</td>
<td>Individual</td>
<td>10 weeks</td>
<td>15%</td>
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<tr>
<td>H2.0 Seminar</td>
<td>Group</td>
<td>1 week</td>
<td>20%</td>
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<tr>
<td>H3.1 Research Outline</td>
<td>Individual</td>
<td>4 weeks</td>
<td>10%</td>
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<tr>
<td>H3.2 Research Draft</td>
<td>Individual</td>
<td>2 weeks</td>
<td>20%</td>
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<tr>
<td>H3.3 Research Essay</td>
<td>Individual</td>
<td>3 weeks</td>
<td>35%</td>
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<tr>
<td>H4.0 Web Platform Creation</td>
<td>Group</td>
<td>1 week</td>
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*Not graded. Participation required for completion of the term.

All assignments graded by instructor and assistants. Standards are according to the Dalhousie Faculty of Graduate Studies standards. See assignment descriptions for criteria. Grading responses will be verbal and written.

Late assignments will be deducted one third letter grade 24 hours after the Brightspace deadline and one third letter grade every 72 hour period after that.

Individual and Group Work

Over 50% of the semester’s grade is based on individual performance. In the Group work seminar all members receive the same grade and are expected to coordinate responsibilities (i.e. who speaks when and about what) and communication according to group work sheet.

Schedule

Readings and Assignments. Readings available on Brightspace.

WEEK 1

Introduction

WEEK 2

Environment


WEEK 3

Material


**WEEK 4**

**Labour**


**WEEK 5**

**DUE: H3.1 Research Outline**

- Website format and organization discussion

**WEEK 6**

**Politics**

- Latour, Bruno, and Albena Yaneva. “Give me a gun and I will make all buildings move: An ANT’s view of architecture.” In Explorations in architecture: Teaching, design, research (2008): 80-89 [9 pp]

**WEEK 7**

**DUE: H3.2 Research Draft**

**WEEK 8**

- Website format and organization review

- **H3.2 Peer review workshop**

- Writing Support

**Week 9**

- Website format and organization finalization

- Writing Support

- SRI Completion (15 minutes)

**Week 10**

**DUE: H3.2 Research Essay**

**Course Grading Scale**

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<tr>
<th>GR</th>
<th>PERCENT</th>
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<tr>
<td>A+</td>
<td>90-100</td>
<td>Exemplary. Leads the course and is an example to the rest of the seminar.</td>
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<tr>
<td>Grade</td>
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<tr>
<td>A</td>
<td>85-89</td>
<td>Excellent. High level of performance at most or all levels.</td>
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<tr>
<td>A-</td>
<td>80-84</td>
<td>Very good. High level of performance at multiple levels.</td>
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<tr>
<td>B+</td>
<td>77-79</td>
<td>Good. High level of performance at some levels.</td>
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<tr>
<td>B</td>
<td>73-76</td>
<td>Competent. Standard or above-average performance at some or multiple levels.</td>
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<tr>
<td>B-</td>
<td>70-72</td>
<td>Requires improvement. Sub-standard performance at one or more levels.</td>
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<tr>
<td>F</td>
<td>0</td>
<td>Insufficient basis to evaluate work.</td>
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The above scale applies to the overall course grade. Individual assignment standards and criteria are included in the assignment descriptions. Assignments can receive grades in the C or D range. You can find the university's general C and D standards in the undergraduate calendar, [Academic Regulation 17.1](#).

**Mid-Term Progress Grade**

Students will receive a mid-term grade during Week 7.

**Attendance and participation requirements**

Regular and effective attendance and participation is expected.

**Absences and Extensions**

Students may self-declare illnesses. Please review the school's policy. Absences/extensions lasting more than 3 days require a doctor's note.

**Assignment Submissions**

Unless otherwise noted final assignment submissions will be digital files uploaded to Assignment Folders on Brightspace.

**Lecture Recording**

Lectures may be recorded by students. Lecture slides will be posted to Brightspace.

**Brightspace**

Brightspace will be used to manage: course materials, groups, grading, assignment submissions, and other course related information. Link: [https://dal.brightspace.com/d2l/home/72050](https://dal.brightspace.com/d2l/home/72050)

**Tools, Equipment, and Materials**

None.

**Required Software**

Essays will be formatted in a publication software.

**One Drive Working Folder**

In order to consolidate work for the term we will be working off of a shared One-Drive folder for both M1 Design and Technology. The link is below:

[https://dalu-my.sharepoint.com/:f:/g/personal/jm544275_dal_ca/EpJ0H3U3d_ZGsteFOXTo-ABecU2FXmcQoABgVQmAFHrLw?e=xWCzVn](https://dalu-my.sharepoint.com/:f:/g/personal/jm544275_dal_ca/EpJ0H3U3d_ZGsteFOXTo-ABecU2FXmcQoABgVQmAFHrLw?e=xWCzVn)

**Required Textbooks**

Required readings and resources will be provided on Brightspace or Library Reserve. Adrian Forty's *Concrete and Culture* (available online through Dalhousie Library) will be used regularly for readings and students may wish to purchase a print copy.

**Additional Expenses**

None.

**Citations and Writing**

Writing and citation should follow School of Architecture Author-Date guidelines ([https://www.dal.ca/faculty/architecture-planning/school-of-architecture/current-students/school-works/writing.html](https://www.dal.ca/faculty/architecture-planning/school-of-architecture/current-students/school-works/writing.html))

**Time and Credit Hours**

3 credit hours for 9 hours / week, including class time. This may be staggered through the term.

**Additional Tutoring or Academic Support**

Writing supports are available through the Dalhousie Writing Centre ([https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)).
SRI Evaluation
SRI Evaluations will be completed in-class, Week 9.

University Policies and Resources
This course is governed by the academic rules and regulations set forth in the University Calendar and the Senate. See the School’s “Academic Regulations” page (tinyurl.com/dal-arch-regulations) for links to university policies and resources:

- Academic integrity
- Accessibility
- Code of student conduct
- Diversity and inclusion; culture of respect
- Student declaration of absence
- Recognition of Mi’kmag territory
- Work safety
- Services available to students, including writing support
- Fair dealing guidelines (copyright)
- Dalhousie University Library
## Term Schedule

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Assignment D2. Reading Discussion

Each seminar week, students will be responsible for a close-reading of all selections in one Reading Discussion Set. These may be divided among your group. Present your interpretation of their arguments, and lead the class in a discussion of the texts. This includes posing questions that link class projects and concepts, larger architectural issues, and/or broader technical, social, or cultural concerns. All students in the course will review the texts before discussion.

The discussion are preparation for the research paper and provide students with content of the field (both scholarship and works) from the perspectives of outsiders looking in (humanities scholars), theorists in-the-know (architectural scholars), and practitioners speaking in their own words. From this introduction to works and scholarly positions you are expected to craft your own intuitions and instincts into a critical position: both in regards to the field at large and your emerging role within it. Some questions to ask are how does this (or does this) change, challenge, or reinforce my design ambitions and values and my understanding of architecture’s role, responsibility, and potentialities in society and culture. In addition, it is intended to give you good ideas and friction through which to think about your own design and technology projects.

By conducting close reading, and crafting responses in collaboration and discussion with your peers you will be able to hone your instincts into a precise position winnowing from general concepts and ideas to the specificities of discourse and practice.

**Evaluation**
- Effective links between readings
- Clear reading of main thrust of readings
- In-depth analysis and critique

Assignment D3 Research

The concept of soft systems describes emergent sensibilities, approaches, sources, and themes identified in the contemporary “artificial rock” landscape and discourse. Looking both to references from the past and ongoing work in the present, conduct a survey of projects and scholarship identifying an example or set of examples that speak to this emergent sensibility. Through techniques of close looking, close reading, and thick descriptions position these work(s) within a areas encountered in the course, such as environment, labour, technology, politics, or materials. Develop critiques of the work(s) by discussing their value and promise as well as possible gaps, potential augmentations, and promises for future design and research. Develop a position as to what these particular works might tell us about the possible relationships between artificial rock and its role within soft systems.

Alongside this written exploration, develop a visual narrative that investigates and describes spatial details of the work that cannot be expressed in words. A set of diagrams linking concepts or territories, the deconstruction of a joint, or the exposition of an underlying geometry are just some examples. This should be an image of your own production and not a source image (although it may be derived from / built on source material).

**Some topics or areas discussed / encountered in the readings include:**
- Morphogenesis
- Cybernetics
- Topological thinking
- Algorithmic design
- New materiality and material engagement theory
- Science and technology studies (STS) of design and technology
- Embodied knowledge
- Automated production
- Machine learning
- Biomimicry
· Microclimates and environmental gradients

**Some architects and works you may wish to examine:**
· Mark West
· Phillipe Block
· Lina Bo Bardi
· Anton Garcia-Abril
· Andrew Kudless
· David Pigram
· Concrete forming work
· Aptum studio
· Frei Otto
· Felix Candela
· Antonio Gaudi
· Dana Cupkova
· Bridge guy
· Susan group
· Formliners
· Studio Mumbai
· Phil Ayers
· Miguel Fisac
· Ronald Rael
· Barkow Leibinger
· Robert Maillart
· Cast Thicket
· Brad Bell

**Assignment D3.1 Research Outline**
The outline should establish the main idea of the paper and its significant points. Include preliminary mock-up ideas for visual matter that will effectively support the main idea. 1000 words. 3 images.

**Assignment D3.2 Research Draft**
A draft submission of the final paper, formatted with proper citations. Draft image(s). Provide a short narrative of any specific questions or issues you would like feedback on. 1500 to 2000 words.

These will be distributed for peer review discussion in small groups (3 to 4) in Week 8. You must read and prepare notes on your classmates’ work for this discussion.

**Assignment D3.2 Research Essay**
A final submission of the final paper, formatted with proper citations. Final image(s). 1500 to 2000 words. 5 resources minimum, at least 4 from published texts. Refer to Chicago Humanities style guides. Quick guide: tinyurl.com/yce7omma. Full guide: tinyurl.com/qex7zva, log in, then go to Chapter 14.

**Assignment D4 Web Platform**
The course will endeavour to construct a web platform as a public face for the term. Essays will be included in the web platform and constitute an online exhibition. Formatting requirements will be communicated during the term. Creation of the platform will be
brainstormed and developed by the class, and short-term tasks assigned to each individual. Execution of the tasks are required for course completion, but the assignment is not graded.
References

A list of references and resources for research papers will be made available.

**Morphogenesis and hylomorphism**
- Deleuze and Guattari, Tim Ingold

**Algorithmic and systems thinking**
- Christopher Alexander, Kostas Tzeridis, Gordon Pask, Cedric Price

**Topological versus Typological thinking and Population thinking**
- Bernard Cache, D’arcy Thompson, Ernst Mayr

**New materiality and material engagement theory**
- Antoine Picon, Kiel Moe, Lambros Malafouris

**Soft systems**
- Sanford Kwinter, Joe Dahmen

**Technology, ethics, and design**
- Maria Puig de la Bellacasa, Bruno Latour, Albena Yaneva, Donna Haraway

**The body's knowledge**
- Tim Ingold, Pierre Bourdieu, Zeynep Alexander, Don Ihde, Michael Polanyi, Donald Schon, Sherry Turkle, Andy Clarke, Paul Dourish, George Claxton, Christopher Ellard