Design thinking is a humanistic endeavor:

Design is a profoundly human endeavor. At its best, design thinking and practice allows humans to, in the words of Herbert Simon: "Change existing situations to preferred ones." Designers work within the need for action, yet operate in a world of constraints. In the words of Tim Brown, author and president of IDEO, a renowned product design firm, "designers strive to achieve a harmonious balance between human desire, technological feasibility and economic viability."

Design has become a powerful force in the 21st century. On the one hand, design methods and processes are seen as an important means of tackling complex social and cultural problems. On the other hand, designers stimulate desire and need through their manipulation of the form and function of places and objects. Designers are asked to re-think and re-shape processes as well as products and design production has expanded to include the design of interactions, communications services, and collaborations. Currently, design thinking is perceived as a crucial means of fostering creativity and innovation when employed as a problem-solving tool in such fields as business or medical practice. More than ever, designers are called upon to place human needs at the center of their design engagement. As a result, design thinking has become a powerful tool to address issues such as sustainability and social justice, at both a macro and micro level.

Design solutions invariably lead to new design problems. Design thinking includes tools for critical assessments of design failures as well as successes. Too often in the past, design expertise has been focused upon the needs and desires of a small, elite portion of the population. Problems, where design intervention could be of enormous value, have been ignored. Design outcomes have had unexamined consequences. More recently, design practitioners, theorists, historians and critics are raising provocative questions and providing a more rigorous, critical examination of the ethical implications of design production, methods and processes. Understanding the scope and depth of current design thinking can provide unique and sometimes profound insight into the current relationship between humans and their built environment.
Course Description:
This course is an introduction to the theories and methods that underpin design thinking and practice. DES 1101w is divided into four segments: The design process, visual analysis, design theories, and the socio-cultural implications of design. Students investigate the interactions between humans and their natural, social, and designed environments where purposeful design helps determine the quality of those interactions. Students will learn how design outcomes, whether successes or failures, shape and are shaped by socio/cultural and historical factors. Students of design thinking will learn to critically assess the processes, outcomes and effects of design engagement. During the course, students will have opportunities to test and explore the concepts of design thinking through small-group, hands-on participation in design projects, specifically created to reinforce course content.
Throughout the course, students will:
• Engage in detailed analysis of and critical thinking about current design production across many design disciplines.
• Engage the “big ideas” that are shaping design thinking today through critical assessment and hands-on discovery.
• Develop the ability to observe, describe, analyze and interpret visual and spatial design production.
• Examine the role that design production and design thinking plays in shaping the larger society and culture of which it is part.
• Develop understanding of the ways in which design solutions are reflective of socio/culture values.

Audience:
This course is intended for undergraduate students who are interested in learning how design thinking and design processes can be used as a catalyst for exploration, innovation and research.

Rationale:
This course exposes students to many facets of design thinking and provides them with an interdisciplinary perspective about design and human behavior. DES 1101w offers the opportunity to raise awareness about the value and the power of design thinking in our culture.

Course Objectives:
By the end of the semester, students will be able to:
• Develop an understanding of the interactions and interdependencies between humans and the designed environment.
• Understand that design provides a communication through forms in which cultural meanings are made manifest.
• Understand that, in addition to the creation of innovative objects and places, design thinking can be applied to the development of new processes, services, interactions, and collaborations.
• Discuss the formal constructs of design across the discipline and among specializations using the verbal and visual vocabulary of design.
• Explain design theories and processes that guide and direct design thinking.
• Systematically evaluate designed environments using criteria based on the elements and principles of design and to examine the tension that arises between function and aesthetics.
• Recognize the interdisciplinary practice of various design professions and the value of design thinking as a means of innovative problem solving across disciplines.
• Achieve a lifetime awareness of the ethical and social responsibilities in the practice of design.
**Student Learning Outcomes:**

1. Students will learn how designers identify, define and solve problems.

This course has a cohort of lectures that explain the concept of design thinking, and analyzes three design process models. Students watch a video of a product design firm engaged in utilizing a design process to re-design an everyday object. Students are then asked to analyze a designed object that they consider to be flawed. In this assignment, they must focus on identifying and analyzing the design problems, and propose a design solution. In addition, students in DES 1101w engage in two small-group design integration projects, each eight weeks in length, where they identify, define and solve design problems. Both group projects require the students to place humans at the center of their design solutions through their research as well as their solutions. In the first project, students are required to design a disposable coffee cup using one of the design process models analyzed in the course. In addition to proposing solutions, students must demonstrate an understanding of the design process itself. In the second small-group design integration project, students are required to propose the redesign of a space using the lenses of two design-related theories to develop their solution

- **Learning Outcome:** Students can identify, define, and solve design-related problems.
- **Method of assessment:** The first Student Learning Outcome is assessed through completion of two design integration projects, the first written assignment, and one exam.

**How DES 1101w fulfills the Arts and Humanities Core requirements in Humanistic Studies:**

A liberal education prepares students to think critically and ethically about the world from a variety of perspectives and approaches. These understandings will enrich student life, prepare students for roles beyond college, and help students become more thoughtful and perceptive members of their communities. DES 1101w: Introduction to Design Thinking fulfills the University of Minnesota’s Arts and Humanities Core requirements in Humanistic Studies. These core requirements reflect upon the human condition. Students taking DES 1101w will discover and learn from our distinctive human capacities and achievements, as well as our human limitations and failures. Through reflection and analysis of the processes and products of design, students will develop an understanding of design thinking as a profound example of humanistic enterprises. Students taking DES 1101w will investigate the interactions between humans and their natural, social, and designed environments where purposeful design helps determine the quality of those interactions. Listed below are the criteria for fulfillment of the Arts and Humanities Core in Humanistic Studies. Each criterion is met by the assignments and course content of DES 1101w: Introduction to Design Thinking.

1. **Students engage in detailed analysis of and reflection on some humanistic literature or creative product – for example, a philosophical essay, a religious treatise, a work of cultural commentary, or a documentary film.**

   - In DES 1101w, Introduction to Design Thinking, students will engage in detailed analysis of and critical thinking about design production across many design disciplines.

   - **Methods of Assessment:** Students analyze designed objects and places through lectures that include class discussion. In addition, students analyze designed objects and places in three written assignments, each from a different perspective.

   In lecture, students are introduced to several case studies of design solutions: from an innovative design solution for making water potable, to the way the design of a soccer field in South Africa is playing a role in providing a social network for young women whose family structures are being decimated by the Aids epidemic. Students critically engage and analyze several readings, talks by designers, and films on the topic of design thinking from a variety of viewpoints. In addition, students analyze examples of design production in the context of designer responsibility and ethics. For example, during lecture, students are given a selection of real-world problems that young designers may
2. Students develop their understanding of the works or cultural practices they consider. Where appropriate (for example, in considering a philosophical work) they engage in critical evaluation of the work.

   • In DES 1101w: Introduction to Design Thinking, students will develop the ability to observe, describe, analyze and interpret visual and spatial design production. In addition, students will engage the “big ideas” that are shaping design thinking today through critical assessment and hands-on discovery.

   • Methods of Assessment: Students prepare for the second exam by visiting the McNamara Alumni Center and conducting a visual analysis of the lobby area. An in-depth visual analysis of a current example of design production is the subject of the second paper of the course. In the same paper, students must analyze the relation between the aesthetic, symbolic and utilitarian function of their designed object or place. Students will engage in critical evaluation of design solutions in their second paper and in the second exam of the course.

Designers shape messages, objects and spaces for certain desired outcomes. Students in DES 1101w develop their skills at observation, analysis, interpretation and evaluation by critically examining the visual and spatial organization of many designed objects and spaces. These objects and spaces are chosen to reflect design production from multiples design disciplines. In addition, the interplay between the utilitarian, symbolic, and aesthetic function of designed works is explored through critical engagement through course readings, each offering different perspectives.

3. Students examine how the work under consideration arose out of its cultural or historical context.

   • In DES 1101w: Introduction to Design Thinking, students will examine how designed solutions and practices arose out of cultural or historical contexts.

   • Methods of Assessment: Students examine the cultural and historical context of designed objects and places through lectures that include class discussion. In addition, students engage this material in the first paper when they analyze the ways their “flawed object” reflects the society and culture that produced it. These issues are also addressed on the third exam.

Students will learn how design outcomes, whether successes or failures, shape and are shaped by socio/cultural and historical factors. This criteria will be explored throughout the course, including in a lecture that traces shifting cultural ideas regarding education that have been instrumental in shaping design decisions on the University of Minnesota campus since its founding. Examples are drawn from three areas of campus developed from the late 19th century to the mid-20th century. Students then analyze recent campus development to uncover current cultural context and compare that with statements from the University of Minnesota’s Master Plan for building and development. Students will also listen to a talk by Cameron Sinclair, founder of Architecture for Humanity, where he shows how design solutions created to respond to catastrophic events must first respect the culture of the victims and the results when they don’t.

4. The course explores the role that the work plays in the larger society of which it is a part.

   • Students in DES 1101w: Introduction to Design Thinking will develop understanding of the ways in which design solutions are reflective of social/culture values.

   • Methods of Assessment: Students examine the ways in which design solutions are reflective
of socio/culture values through lectures that include class discussion. In addition, students engage this material in a hands-on manner, through the two design integration projects of the course. These issues are also addressed on the third exam of the course.

Throughout the course, students develop an understanding of the ways in which design solutions are reflective of socio/cultural values. Several examples from the course address the way that changing socio/cultural values towards sustainability are shaping design solutions and processes, and vice versa. Students are presented with a case study of Interface Carpet, where president, Ray Anderson recounts his company’s reorganization to close the loops on wasteful, ecologically unsound practices. He points out that, by becoming sustainable, his company has grown, become more financially solid, and has survived economic downturns. Students also listen to a talk by Janine Benyus, on the topic of “biomimicry.” Biomimicry is a means of looking to the natural world for innovative design solutions based in the behaviors of animals and plants.

Students are encouraged to look for sustainable solutions for their two design integration projects. These projects are small-group hands-on design problem solving projects. Students are able to engage and test out the ideas from the course by creating their own design solutions.

**DES 1101w is a Writing-Intensive (W-I) course:**

Designers must be able to communicate effectively. Writing is often a catalyst for creative problem solving. Written communication is crucial to design thinking. Because designers work collaboratively, within a system of constraints, the ability to communicate effectively with clients, manufacturers, and users is critical. In DES 1101w: Introduction to Design Thinking, students must demonstrate their ability to describe, analyze and interpret the designed environment through three written assignments. The first assignment includes a mandatory draft. Students are encouraged to submit drafts of subsequent papers.

The theme of the first paper is an analysis of an object, considered to be flawed. In addition to providing a rich description of the object, and proposing a solution to the flaw, students examine how the object reflects the society/culture that produced it. In the second paper, students engage in a detailed visual analysis of a designed object or place. This assignment requires the student to provide a rich description of the artifact, analyze its formal content and analyze the relationship between its appearance and its function. In the third assignment, students articulate their personal response to a place they consider to be memorable. This place is then analyzed through the lens of two design-related theories. Each theory focuses on some aspect of the relationship between humans and their designed environment.

In addition to the three papers, students complete small informal writing assignments, such as a review of a design blog or website. Papers written for DES 1101w use the style guidelines of the American Psychological Association or APA style. The nuances of the style are learned incrementally over the semester.

**Writing Assistance:**

Student Writing Support (SWS) provides free writing instruction for all University of Minnesota students—graduate and undergraduate—at all stages of the writing process. In face-to-face and online collaborative consultations, SWS consultants help students develop productive writing habits and revision strategies.

SWS consultants are teachers of writing: graduate and undergraduate teaching assistants and professional staff. Some consultants specialize in working with non-native speakers, and others have experience with writing in specific disciplines. Consulting is available by appointment online and in 15 Nicholson Hall, and on a walk-in basis in 9 Appleby Hall. For more information, go to: [http://writing.umn.edu](http://writing.umn.edu) or call 612.625.1893.

In addition, SWS offers a number of web-based resources on topics such as documenting sources, planning and completing a writing project, and addressing punctuation and grammar questions.
See http://writing.umn.edu

**Readings, Notes and Handouts:**
All course materials will be posted to the DES 1101w course website.

**Student Responsibilities:**
Students are responsible for all information disseminated in lecture, sections, readings, course website, site visits and handouts, plus all course requirements, including deadlines, and responsibilities listed below. Occasionally, your TA or Pat will send important information via U of MN e-mail. It is your responsibility to read these e-mails.

**Important note regarding Spring Semester 2012:** Spring Break takes place from Monday, March 12, 2012 through Friday, March 16, 2012. Typically we have an exam either the Thursday before break or the Tuesday after break. You are expected to be in attendance on those days. Make-up exams will not be given for extended or alternative spring breaks, unless you are engaged in an official University activity. Please talk with Pat early in the semester to make arrangements for missed work if that is the case.

**Attendance:** I believe attendance is essential to the learning process. Learning involves participation in the process as well as attention given to all participants. Many class meetings will be a lecture format, and your attendance, attention, and discussion are stimulating factors in the success of learning. This is equally true of the recitation sessions.

**Completion of reading and written assignments:** It is imperative that you read the assignment before attending the lecture. The written assignments and exams are designed to help you apply the content of the class. Thoughtful reading of texts and participation in lectures and recitation sessions will prepare you for the written assignments and exams. All written assignments must be submitted on time, as hard copy. Late assignments will be penalized. (See policy explanation on page 7.) Notes for lecture will be available to download from the course website prior to lecture. Please bring these notes to lecture. You will be adding additional information to the notes during class.

**Disabilities:** It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities are encouraged to bring this to my attention early in the semester to discuss individual needs for accommodations. Further information is available from Disabilities Services, 612/626-1333, or at: http://ds.umn.edu/

**Use of Student Work:** Students understand that enrollment in this course grants consent for their work to be selected for inclusion in college or departmental publications (online or in print.)

**Respect:** You are expected to be attentive during class, ask questions if you do not understand something, and to offer your opinion. Racism, sexism, homophobia, ageism and other forms of bigotry are inappropriate to express in this class.

You are also expected to listen respectfully to other students, the graduate teaching assistants, the instructor, and guest speakers. Talking with classmates, reading newspapers, texting, etc. during lectures is rude behavior. It is unacceptable in this class, and students engaging in this behavior will be asked to leave. Consider this classroom a “beep-free” zone. Turn off cell phones, pagers, i-Pods, watches, etc. during lectures. Do not allow your phone to beep to indicate a message. Laptop use is not allowed in lecture. Please plan to download the lecture notes, bring them to class, and take written notes during lecture.
Scholastic Misconduct:
You are responsible for being aware of and following all University of Minnesota guidelines for scholastic misconduct. Scholastic misconduct can be grounds for dismissal from the University and includes:

• Cheating on assignments
• Acquiring or using test materials without faculty permission
• Plagiarizing (representing as a student's own work any part done by another person)
• Submitting the same paper, or substantially similar papers, to meet the requirements of more than one course without the approval and consent of all instructors concerned.
• Depriving another student of necessary course materials or otherwise interfering with another student's work
• Falsifying a record
• Any other act that violates the academic rights of another student or involves misrepresentation of a student's own work

University of Minnesota Policy on Use of Class Notes for Commercial Purposes:
Students may not distribute class notes, handouts, or other instructor-provided materials for commercial purposes, through the Internet, or for any reason other than personal study among classmates enrolled in the course, without the express written consent of the instructor. The provisions of this policy are enforceable as University rules under the University of Minnesota Statement of Standards of Student Conduct, and violations may result in warning, required compliance, confiscation, probation, suspension, or expulsion.

Late Assignments and Non-Participation in Group Projects:
Your grade in this course is based on your performance on three types of assignments: written assignments, exams and group projects. Grades for assignments turned in after the due date will be reduced by 10% per day. The late period extends for five days beyond the due date (with penalty.) Late assignments will not be accepted after the late period, and a grade of 0 will be earned for the assignment.

Occasionally, there are legitimate extenuating circumstances for turning in late work. These circumstances will be judged on an individual basis and must be accompanied by documentation, i.e., hospital admittance receipt. If you have an emergency, please inform your TA or Pat via email as soon as possible. If we have another outbreak of H1N1, we will follow University guidelines.

Group projects only work when all members participate. Failure to attend designated group meetings will result in major point reductions. Failure to participate in the group project will result in removal from the group and loss of project points. Specifics will be included in the assignment handouts. Extreme special circumstances will be reviewed on a case-by-case basis.

Grade Disputes:
Students sometimes have questions about comments or grades on papers and exams. We are eager to help you better understand the material and will be happy to answer any questions. In the event that you have questions or disagree with the grading, you should first meet with your TA for clarification. If you still have questions, please talk with Pat.

Assignments and Point Distribution 200 total points:

Written Assignments: 60 points total
1. Design Evaluation Paper 10 points
2. Design Analysis Paper 20 points
3. Memorable Place Paper 30 points
Exams: 75 points total
- Exam 1: Segment 1: The Design Process 20 points
- Exam 2: Segment 2: Visual Analysis 25 points
- Exam 3: Segments 3 & 4: Design Theory & Socio-Cultural Aspects of Design 30 points

Design Integration Team Projects: 60 points total
- Project 1: “Make it Better” 25 points
- Project 2: “Design and Theory” 35 points

Additional Assignments: 5 points total
Two additional written assignments

Important Note: There is no final exam in DES 1101w.

Grading Scale:
At the end of the term, points for each assignment will be added together and a letter grade will be assigned based on a percentage of the whole as shown on the scale below. Please be reminded that a grade of “C” designates average work. Only if your work is above average can a grade better than a “C” be earned.

Students are sometimes concerned about equity among sections. As a teaching team, we want you to know that we review each assignment and compare grades across the sections, checking for consistency. At the end of the course, we again compare and adjust slightly if needed.

<table>
<thead>
<tr>
<th>Total Points/Grade</th>
<th>U of M Description of Letter Grade</th>
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<tbody>
<tr>
<td>93-100 A</td>
<td>Represents achievement that is outstanding relative to the level necessary to meet course requirements</td>
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<tr>
<td>90-92 A-</td>
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<tr>
<td>87-89 B+</td>
<td>Represents achievement that is significantly above the level necessary to meet course requirements</td>
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<tr>
<td>83-86 B</td>
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<tr>
<td>80-82 B-</td>
<td></td>
</tr>
<tr>
<td>77-79 C+</td>
<td>Represents achievement that meets course requirements in every respect</td>
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<tr>
<td>73-76 C</td>
<td></td>
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<tr>
<td>70-72 C-</td>
<td></td>
</tr>
<tr>
<td>67-69 D+</td>
<td>Represents achievement that is worthy of credit even though it fails to meet fully the course requirements</td>
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<tr>
<td>60-66 D</td>
<td></td>
</tr>
<tr>
<td>0-59 F</td>
<td>Represents failure and signifies that the work was completed but at a level not worthy of credit</td>
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Grading Policies:
Incompletes: The instructor assigns Grades of “incomplete”, only in cases of extended illness or family/personal crisis. Please discuss these issues with your TA and instructor as early as possible so we can work with you.

Make-up Assignments and Exams: There are no make-up assignments without documentation of illness or family/personal crisis. Make-up exams are provided only in the case of documented emergencies, or special circumstances. These must be discussed with Pat Hemmis.

Extra Credit Work: There is no opportunity for extra-credit work in DES 1101w.
Unclaimed Work: Coursework must be picked up from TAs by the end of finals week. Any unclaimed work will be disposed of, at that point.
Required Readings


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Talks, Films and Video Presentations


SEGMENT I: THE DESIGN PROCESS

DES 1101w begins with a month-long exploration of design thinking and design processes. The topic is addressed in multiple interconnecting ways: through class lecture and discussion, guest-lectures, films, a writing assignment with a required draft and through a group project. Segment I has three points of focus: the design process; how design thinking can provide innovative, creative solutions to a wide variety of problems; and ways that design processes and outcomes both reflect and shape culture. This segment concludes with an overview of important issues and trends influencing current design thinking.

Methods of Assessment: Students will complete one exam, complete the first written assignment and collaborate with their team on the first design integration project: “Make It Better.”

Special Assignment for Week 1

- Bring one item that you consider to be a “flawed design” to the first meeting of your recitation section on Wednesday, January 18th.

Readings for Week 1

Thursday, 1/19


Week 1 10:15 – 11:30

<table>
<thead>
<tr>
<th>Tuesday 1/17</th>
<th>Intro/Syllabus</th>
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<tbody>
<tr>
<td>The Deep Dive</td>
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<tr>
<td>Wednesday 1/18</td>
<td>Introductions and presentation of “Flawed Objects”</td>
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<tr>
<td>Thursday 1/19</td>
<td>Design Thinking</td>
</tr>
<tr>
<td></td>
<td>Written Assign 1 discussed</td>
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</tbody>
</table>

Readings for Week 2

Tuesday, 1/24

Thursday, 1/26

**Week 2**
Tuesday 1/24  **10:15 – 11:30**
Design Truths and Constraints

Wednesday 1/25  *(All Recitation Sections)*
Introduction to Team Project 1: “Make It Better”
Team Project work time
*DUE: Draft of Written Assignment 1*

Thursday 1/26
Design Process Models
Mapping *The Deep Dive*

**Readings for Week 3**
Thursday, 2/2

**Week 3**
Tuesday 1/31  **10:15 – 11:30**
Really Creative Design Thinking
Barry Kudrowitz

Wednesday, 2/1  *(All Recitation Sections)*
Team Project work time

Thursday 2/2
Abductive Logic and Design

**Week 4**
Tuesday 2/7  **10:15 – 11:30**
User Experience
Angie Tank Wang

Wednesday, 2/8  *(All Recitation Sections)*
Team Project work time

Thursday 2/9
Maya Lin

**SEGMENT 2: VISUAL ANALYSIS**

DES 1101w continues with a month-long exploration of the process of visual analysis. We will begin by examining the interplay between the utilitarian function, the symbolic function and the aesthetic function of designed works. We will critically evaluate Virginia Postrel’s controversial ideas regarding the role of aesthetics in contemporary design.

Designers shape messages, objects and spaces for certain desired outcomes. To do this, designers must be able to express themselves in media other than words and symbols. Whether manipulating space and
form in the design of a building, landscape, or object, or juxtaposing words and images in the design of an identity program, designers work with a set of visual and spatial components. In this portion of the course, students will engage in an in-depth observation and analysis of these components through the process of visual analysis.

In this segment, we will begin to examine ethical considerations of formal design decisions. When do design decisions create misleading or subversive results? What is the role and responsibility of the designer in this regard?

Methods of Assessment: Students will complete the second written assignment, present the results of their first design integration project: “Make It Better,” and complete a second exam.

Week 5
Tuesday 2/14

Exam 1: Segment I, The Design Process

Wednesday, 2/15
(All Recitation Sections)

Team Project work time

DUE: Written Assignment 1

Thursday 2/16

Elements of Design

Best Design Sites Assignment Discussed

Written Assign 2 discussed (Due in Week 9)

Week 6
Tuesday 2/21

10:15 – 11:30

Elements of Design

Wednesday, 2/22
(All Recitation Sections)

Team Presentations, Groups 1 & 2

Thursday 2/23

Elements of Design

Week 7
Tuesday 2/28

10:15 – 11:30

Principles of Design

DUE: Best Design Sites Assignment, collected in lecture

Wednesday, 2/29
(All Recitation Sections)

Team Presentations, Groups 3 & 4

Thursday 3/1

Principles of Design
Readings for Week 8
Tuesday, 3/6

Week 8
Tuesday 3/6
10:15 – 11:30
Visceral, Emotional and Reflective Design
Rise of Aesthetic Function

Wednesday 3/7
(All Recitation Sections)
Team Presentations, Groups 5 and 6

Thursday 3/8
Exam 2: Segment 2, Visual Analysis

Week 9
3/12 – 3/16
10:15 – 11:30
Spring Break!