

Term Information

Effective Term Spring 2016

General Information

Course Bulletin Listing/Subject Area Architecture
Fiscal Unit/Academic Org Knowlton Sch of Architecture - D1410
College/Academic Group Engineering
Level/Career Undergraduate
Course Number/Catalog 4596E
Course Title Design Agency on Wicked Problems: World Building Your Life
Transcript Abbreviation WickedProblems101E
Course Description In an era of rapid change locally and globally, technologically and socially, we are increasingly confronted by complex emergent systems problems, or Wicked Problems. This course will provide a theoretical framework for understanding and working on wicked problems, and uses design methodologies coming from architectural design to work on the wicked problem of designing your life.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week, 7 Week, 4 Week (May Session), 12 Week (May + Summer)
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Laboratory, Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites Prereq: Honors standing.
Exclusions Not open to students with credit for 4596.

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 04.0201
Subsidy Level Baccalaureate Course
Intended Rank Junior, Senior

Requirement/Elective Designation

General Education course:

Culture and Ideas; Cross-Disciplinary Seminar (597 successors and new)

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Students evaluate significant cultural phenomena and ideas in order to develop capacities for aesthetic and historical response and judgment; and interpretation and evaluation.
- Students demonstrate an understanding of a topic of interest through scholarly activities that draw upon multiple disciplines and through their interactions with students from different majors.
- Students analyze and interpret major forms of human thought, culture, and expression.
- Students evaluate how ideas influence the character of human beliefs, the perception of reality, and the norms which guide human behavior.
- Students understand the benefits and limitations of different disciplinary perspectives.
- Students understand the benefits of synthesizing multiple disciplinary perspectives.
- Students synthesize and apply knowledge from diverse disciplines to a topic of interest.

Content Topic List

- Defining wicked problems from the perspective of the social sciences and grand science challenges
- Case study: Unpacking a wicked problem, socio-political in nature
- Case study: Unpacking a wicked problem, socio-technical in nature
- Information visualization and diagramming principles and techniques
- Applying information visualization & diagramming techniques
- Looking at basic principles of wicked problems: three ecologies, slow and fast time scales, designing for emergence, boundaries, probes, and modulators
- Understanding the 21st Century Context: The evolution of societal form and Network Society
- Trends: urbanization, data data everywhere, open government, platforms, slash careers, the sharing economy, the Internet of Things, quantified self movement
- The big picture: identity, authenticity, and world views
- Personal journeys: vocation and avocation, poetry and performance
- Speculative design: Scenarios and meta-narratives
- System of actions: defining through a case study
- System of actions: understanding social networks

Attachments

- 1_OSU_ARCH 4596 Syllabus_Design and Wicked problems.pdf: Syllabus
(Syllabus. Owner: Griffin,Holly M)
- 2_OSU_ARCH 4596 GE Rationale_Design and Wicked problems_9.10.15.pdf: GE Rationale
(Other Supporting Documentation. Owner: Griffin,Holly M)
- 3_OSU_ARCH 4596 GE Assessment Plan_Design and Wicked problems.pdf: GE Assessment Plan
(GEC Course Assessment Plan. Owner: Griffin,Holly M)
- 4_Concurrence_Form_Arch 4596_KnowltonSchool_Geography.pdf: Concurrence
(Concurrence. Owner: Griffin,Holly M)
- 4_Concurrence_Form_Arch 4596_KnowltonSchool_political science.pdf: Concurrence
(Concurrence. Owner: Griffin,Holly M)
- 4_Concurrence_Form_Arch 4596_KnowltonSchool_sociology.pdf: Concurrence
(Concurrence. Owner: Griffin,Holly M)
- 4_Concurrence_Form_Arch 4596_KnowltonSchool_design.pdf: Concurrence
(Concurrence. Owner: Griffin,Holly M)
- Regarding Arch 4596 and Concurrence Form from Design.docx: Response to comments from Design
(Other Supporting Documentation. Owner: Griffin,Holly M)

Comments

- Returned per unit's request. *(by McCaul Jr,Edward Baldwin on 10/06/2015 07:19 AM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Griffin,Holly M	09/30/2015 02:21 PM	Submitted for Approval
Approved	Livesey,Robert Shaw	10/05/2015 10:48 AM	Unit Approval
Approved	Sershen,Douglas J	10/05/2015 10:49 AM	SubCollege Approval
Revision Requested	McCaul Jr,Edward Baldwin	10/06/2015 07:19 AM	College Approval
Submitted	Griffin,Holly M	10/14/2015 11:12 AM	Submitted for Approval
Approved	Livesey,Robert Shaw	10/14/2015 12:50 PM	Unit Approval
Approved	Sershen,Douglas J	10/14/2015 12:59 PM	SubCollege Approval
Approved	McCaul Jr,Edward Baldwin	10/15/2015 07:49 AM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler Hogle,Danielle Nicole	10/15/2015 07:49 AM	ASCCAO Approval

SYLLABUS: Architecture 4596

Course: ARCH 4596

Course Title: Design Agency on Wicked Problems: World Building Your Life

Credit Hours: 3

Instructor: Ann Pendleton-Jullian, Professor

Contact: pendleton-jullian.1@osu.edu

Office: 299 Knowlton Hall

Course Components: 1-55 minute lecture/seminar, 2-100 minute studio/lab per week.

Course Prerequisites: no formal prereqs but a curious and collaborative disposition are essential.

Time: TBD

1. Course Description

This course is an introduction to Wicked Problems, which can be understood as extremely cross-disciplinary and radically contingent socio-technical problems. Wicked problems are not solvable in any traditional sense because they are dynamic problem environments that cannot be broken apart and they are simultaneously social and technological in nature. Examples of wicked problems include global warming, the financial crisis, terrorism, environmental design, infectious disease control, hunger, etc. But a new light rail connection and its associated development opportunities is also a wicked problem - anything that we recognize as having complex emergent properties is a wicked problem. In an era of rapid change locally and globally, technologically and socially, we are increasingly confronted by these complex emergent systems problems. This course will provide a theoretical framework for understanding and working on wicked problems and it will use the studio format to engage the real world wicked problem of *designing your life* as a vehicle for applying that theoretical knowledge.

This course uses design methodologies coming from architectural design to work on the wicked problem of designing your life. It will use architectural methodologies as a framework because architectural (landscape and urban) design is about creating new contexts that frame and shape life. While often used to design things, they can also be deployed to design abstract – non-thing – contexts. It also uses these methodologies because they have unique purchase on the skills, tools, and methods necessary. This course will also borrow from cinema the method of world building to give texture to the designing your life project; and it will delve into other areas to scaffold both the theoretical and design activities of the course.

2. Course Goals and Objectives

General Education Categories, Goals, and Expected Learning Outcomes

General Education Category: Culture and Ideas; and Cross-Disciplinary Seminar.

Goals:

For Culture and Ideas: Students evaluate significant cultural phenomena and ideas in order to develop capacities for aesthetic and historical response and judgment; and interpretation and evaluation.

For Cross-Disciplinary Seminar: Students demonstrate an understanding of a topic of interest through scholarly activities that draw upon multiple disciplines and through their interactions with students from different majors.

Course Approach to GE goals: Students will gain a working understanding of the underlying cultural, social and technological forces that are shaping our world today – forces that lead to what are known as ‘wicked’ problems. The course will begin by looking at the evolution of societal form, the factors that influence that evolution, how it is manifest, how new studies in the sciences associated with complexity help us frame a more effective understanding of the world today, and how new affordances affect what one can do. The course uses a project-based approach that is scaffolded by material from several fields - philosophy, the social sciences, ecology theory, systems theory, political science, cinema, game design, architectural design, science/technology/society, cybernetics, literary criticism, and others as required by the focus of individual projects – and tools that support analysis, reflection, design and communication. The combination of readings and tools in support of a specific project creates an active learning environment in which students will develop capacities to assess and analyze what factors/forces are in play, to understand the entanglement of these factors and forces in complex problem environments, and develop design strategies for having agency in these environments. Complex (wicked) problems are, by nature, trans-disciplinary problems, socio-technical in nature. They cannot be worked on any other way. This course will recruit students from many majors.

Expected Learning Outcomes:

For culture and Ideas:

1. Students analyze and interpret major forms of human thought, culture, and expression.

2. Students evaluate how ideas influence the character of human beliefs, the perception of reality, and the norms which guide human behavior.

For Cross Disciplinary Seminar:

1. Students understand the benefits and limitations of different disciplinary perspectives.
2. Students understand the benefits of synthesizing multiple disciplinary perspectives.
3. Students synthesize and apply knowledge from diverse disciplines to a topic of interest.

Course Approach to GE expected learning outcomes:

1. Students will use readings and project based graphic analysis to study, analyze and interpret principles about the evolution of societal form, and the evolution of thought, culture and expression tied to the evolution of societal form.
2. Through readings and precedent analysis, students will understand the underlying factors and forces that are influencing our social, material, and idea ecologies today. We will apply theories from ecology to develop a new working theory about how to have agency in today's complex environment.
3. 'Wicked problems are many-disciplinary problems. The seminar component of this course will touch on many topics, but it will also provide a working framework to hold these topics together. The studio/lab portion of this course will use methodologies from design in an applied studio setting to call on and integrate different disciplinary perspectives within the context of the 'designing your life' project. In the process, the students will gain a working understanding of the benefits and limitations of different disciplinary perspectives.
4. Students will understand the benefits of synthesizing multiple disciplinary perspectives through the work and the outcomes of their projects.
5. Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project of 'designing your life.' Projects will be worked on in small collaborative teams (2-3) and will touch on many disciplines from philosophy to social science to game design.

3. Course Topics and Calendar

Also see Appendix 1

Week 1

Introduction: Defining Wicked Problems

Seminar: Defining wicked problems from the perspective of the social sciences and grand science challenges

Studio/lab: Basic graphic techniques: tracings and transformations

Readings:

- “Tribes, Institutions, Markets, Networks. A Framework about Societal Evolution,” David Ronfeldt
- *Envisioning Information*, Edward R. Tufte.

Week 2

Case Study #1

Seminar: Unpacking a wicked problem, socio-political in nature (for example: Cuban Missile Crisis or ISIS)

Studio/lab: Information visualization and diagramming principles and techniques

Readings: *The Age of the Unthinkable*, Joshua Cooper Ramo.
“World Economic Forum Global Risk Landscape.”

Week 3

Case Study #2

Seminar: Unpacking a wicked problem, socio-technical in nature (for example: medical error)

Studio/lab: Applying information visualization & diagramming techniques: mapping games 1

Readings: “Resilience and Stability of Ecological Systems,” C.S. Holling.
Finite and Infinite Games, James P. Carse.

Week 4

Wicked Problems Basic Principles

Seminar: Looking at basic principles of wicked problems: three ecologies, slow and fast time scales, designing for emergence, boundaries, probes, and modulators

Studio/lab: Applying information visualization & diagramming techniques: mapping games 2

Readings: “How to Organize a Children’s Birthday Party,” Dave Snowden,
A Third Window: Natural Life Beyond Newton and Darwin, Robert E. Ulanowicz.

The Three Ecologies, Felix Guattari, translated by Pindar and Sutton.
“Design Unbound,” Chptr 2 in *Design Unbound*, ApJ and JSB.

Week 5

Understanding the Context of the 21st Century 1

Seminar: The big picture: The evolution of societal form and Network Society

Studio/lab: Applying information visualization & diagramming techniques: presenting the game mapping project

Readings: *Connected: How Your Friends' Friends' Friends Affect Everything You Feel, Think and Do*, Nicholas Christakis and James Fowler.

The Wealth of Networks: How Social Production Transforms Markets and Freedom, Yochai Benkler.

Week 6

Understanding the Context of the 21st Century 2

Seminar: Trends: urbanization, data data everywhere, open government, platforms, slash careers, the sharing economy, the Internet of Things, quantified self movement

Studio/lab: Finite and infinite games

Readings: “The Hacker Ethic as the Culture of the Information Age,” by Pekka Himanen in *The Network Society: A Cross-cultural perspective*.

Future Perfect: The Case for Progress in a Networked Age, S. Johnson.

Week 7

Understanding ‘me’ (for the Designing-My-Life project) 1

Seminar: The big picture: identity, authenticity, and world views

Studio/lab: Working on identity, authenticity, and world views

Readings: *Flow: The Psychology of Optimal Experience*, Mihalyi Csikszentmihalyi.

Week 8

Understanding ‘me’ (for the Designing-My-Life project) 2

Seminar: Personal journeys: vocation and avocation, poetry and performance

Studio/lab: Working on vocation and avocation, poetry and performance

Readings: *Ghost Written*, David Mitchell.

Week 9

The Designing-My-Life project 1

Seminar: Speculative design: Scenarios and meta-narratives

Studio/lab: What-if’s and scenarios

Readings: *Speculative Everything: Design, Fiction, and Social Dreaming*, Dunne and Raby.

Week 10

The Designing-My-Life project 2

Seminar: World Building 1: *Minority Report* and prototyping the future

Studio/lab: Working on world building

Readings: *Minority Report*, Steven Spielberg, Director, 2002

“World Building,” Chtr 13 in *Design Unbound*, ApJ and JSB.

Week 11

The Designing-My-Life project 3

Seminar: World Building 2: presenting work so far

Studio/lab: Working on world building

Readings:

Week 12

The Designing-My-Life project 4

Seminar: System of actions: defining through a case study

Studio/lab: Designing a system of action

Readings: “Abreu and the Venezuelan Youth Orchestra” and “System of Actions,”

Chptrs 1 and 14 in *Design Unbound*, ApJ and JSB.

Week 13

The Designing-My-Life project 5

Seminar: System of actions: understanding social networks

Studio/lab: Designing a system of action

Readings:

Week 14

Pulling it All Together

Seminar: Adaptation and Resilience

Studio: Mapping an “Odyssey Years Plan”¹

Readings: *The Odyssey Years*, David Brooks.

Week 15

Final Review

4. Textbooks, Materials and Assigned Readings

Readings will be taken from the following (not comprehensive) list:

- *Envisioning Information*, Edward R. Tufte, (Connecticut: Graphics Press, 1990)
- “Tribes, Institutions, Markets, Networks. A Framework about Societal Evolution,” David Ronfeldt, http://www.youtube.com/watch?v=UBulH9_04vc
- *Connected: How Your Friends’ Friends’ Friends Affect Everything You Feel, Think and Do*, Nicholas Christakis and James Fowler, (New York: Little, Brown and Co. 2009)
- *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yochai Benkler, (New Haven: Yale University Press, 2006)
- “The Hacker Ethic as the Culture of the Information Age,” by Pekka Himanen in *The Network Society: A Cross-cultural perspective*, edited by Manuel Castells (Malden, MA: Blackwell Publishing, 2004)
- *Future Perfect: The Case for Progress in a Networked Age*, Steven Johnson (New York: Penguin Books, 2012)
- *The Age of the Unthinkable*, Joshua Cooper Ramo, (New York: Little Brown and Co., 2009)
- “Resilience and Stability of Ecological Systems,” C.S. Holling, 1973
- *The Three Ecologies*, Felix Guattari, translated by Pindar and Sutton, (London: Continuum International, 2008)
- *A Third Window: Natural Life Beyond Newton and Darwin*, Robert E. Ulanowicz, (W Conshohocken, PA: Templeton Press, 2009)
- “How to Organize a Children’s Birthday Party,” Dave Snowden, <http://www.youtube.com/watch?v=Miw92eZaJg>
- “World Economic Forum Global Risk Landscape”
- *Finite and Infinite Games*, James P. Carse (New York: Random House, 1986)
- *Minority Report*, Steven Spielberg, Director, 2002
- “Abreu and the Venezuelan Youth Orchestra,” “Design Unbound,” “World Building,” and “System of Actions,” Chapters 1, 2, 13, and 14 in *Design Unbound*, A. Pendleton-Jullian (Cambridge, Ma: MIT Press, 2016)
- *Speculative Everything: Design, Fiction, and Social Dreaming*, Anthony Dunne and Fiona Raby, (Cambridge, Ma: MIT Press, 2013)
- *Flow: The Psychology of Optimal Experience*, Mihalyi Csikszentmihalyi, (New York: HarperCollins, 1990)
- *The Odyssey Years*, David Brooks, article, *New York Times*, October 9th, 2007
- *Ghost Written*, David Mitchell, (New York, Random House, 1999)

- *Plus additional material as required by individual projects*

5. Assignments and Grading

Analysis and Mapping Projects: In addition to regular reading assignments, there will be two projects for the course.

Project 1: Through a combination of graphic diagrams, photographs and text, students will analyze and map the playing of a strategic game over time. This project will be reviewed in class in critique format and will count for **15%** of their grade.

Project 2, Part a: Students will create a project brief, which is a document that will create the frame of conditions for their projects. It will include a theoretical set-up that positions the project challenge, a deep contextualization of the issues, challenges, and constraints, and then an outline of the inputs and constraints. It will directly draw from the readings and seminar discussions. This will count for **15%** of their grade.

Project 2, Part b: Through a combination of graphic diagrams, photographs and text, students will design and present their 'Designing my Life' projects. This project will consist of a set of scenarios, world building around those scenarios and then an Odyssey Plan that creates a system of proposed actions for their next ten years. These will be presented and critiqued twice – once at mid-point and then as a final project. The mid-point critique will count for **10%** of their grade and the final for **40%**.

Class Participation: Being present and participating in both the seminar and studio/lab is essential. Class participation will count for **10%** of the grade.

Course portfolio: In addition to the two projects and class participation, students are expected to keep a sketchbook that records their thoughts and ongoing work. The course sketchbook will count for **10%** of their grade.

Quizzes and Examinations: There will be no quizzes or exams for this class,

6. Honors Embedded Option

In accordance with the goals of the university Honors program, for students enrolled in the Honors Embedded component, this course will:

Promote significant interaction between faculty and students;
Develop the creative abilities of Honors students;

Require high standards of academic achievement;
Expose students to use of methodology and research techniques; promote intellectual exchange among students;

Students enrolled in the Honors embedded option of this course will have additional requirements. They will be assigned additional readings and meet together as a group with the instructor for an additional 55 minute session, once a week. The goal of these meetings is to develop a more critical in-depth understanding of the intellectual scaffolding of the course and to use this understanding to actively participate in the weekly seminar discussions of the whole class.

In addition, these students will be encouraged to quickly develop skill and motivation for self-directed work and, where possible, to mentor the other students. This is intended to help them develop not only critical skills of analysis and reflection, but also leadership skills. In recognition of these additional requirements, for students enrolled in this option, the activities and participation component of the final grade, worth 10%, will be more stringently evaluated.

7. Other Course Policies and Information

Attendance:

Students are expected to attend all class sessions. Students who miss deadlines due to valid extenuating circumstances may submit the required work at a date agreed upon with the instructor. University regulations limit such circumstances to serious personal illness and immediate family emergency, and both cases require written documentation: a doctor's note or a newspaper obituary. Unexcused late assignments are not accepted, incomplete assignments are evaluated in relation to their degree of completion. Attendance will be verified through a sign-in sheet. Signing in for someone other than yourself can be considered academic misconduct.

Student Codes of Conduct and Academic Integrity:

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct <http://studentlife.osu.edu/csc/>

Disability Services:

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.

¹ First used by Bill Burnett and Dave Evans in their Stanford University's *Designing Your Life* Course, but coming from David Brooks in his "The Odyssey Years" article (NYTimes, Oct 9, 2007)

GE RATIONALE: Architecture 4596

General Education Categories: Culture and Ideas; and Cross-Disciplinary Seminar.

Goals:

For Culture and Ideas: Students evaluate significant cultural phenomena and ideas in order to develop capacities for aesthetic and historical response and judgment; and interpretation and evaluation.

For Cross-Disciplinary Seminar: Students demonstrate an understanding of a topic of interest through scholarly activities that draw upon multiple disciplines and through their interactions with students from different majors.

Expected Learning Outcomes:

For culture and Ideas:

1. Students analyze and interpret major forms of human thought, culture, and expression.
2. Students evaluate how ideas influence the character of human beliefs, the perception of reality, and the norms which guide human behavior.

For Cross Disciplinary Seminar:

1. Students understand the benefits and limitations of different disciplinary perspectives.
2. Students understand the benefits of synthesizing multiple disciplinary perspectives.
3. Students synthesize and apply knowledge from diverse disciplines to a topic of interest.

COURSE Approaches to these goals and expected learning outcomes:

Goals: This course is a project-based course where the project is a vehicle for learning about culture, ideas and the nature of cross-disciplinary work. The project work is scaffolded by an intellectual framework of seminar topics and readings that provide content and context that is specifically focused on the evolution of culture, ideas, their interrelationship, and the history and future of cross-disciplinary work.

Students will gain a working understanding of the underlying cultural, social and technological forces that are shaping our world today – forces that lead to what are known as ‘wicked’ problems. The course will begin by looking at the evolution of societal form, the factors that influence that evolution, how it is manifest, how new studies in the sciences associated with complexity help us frame a more effective understanding of the

world today, and how new affordances affect what one can do. The course uses a project-based approach that is scaffolded by material from several fields - philosophy, the social sciences, ecology theory, systems theory, political science, cinema, game design, architectural design, science/technology/society, cybernetics, literary criticism, and others as required by the focus of individual projects – and tools that support analysis, reflection, design and communication. The combination of readings and tools in support of a specific project creates an active learning environment in which students will develop capacities to assess and analyze what factors/forces are in play, to understand the entanglement of these factors and forces in complex problem environments, and develop design strategies for having agency in these environments. Complex (wicked) problems are, by nature, radically cross-disciplinary problems, socio-technical in nature. They cannot be worked on any other way. This course will recruit students from many majors.

Expected Learning Outcomes:

1. Students will study, analyze and interpret the evolution of societal form, thought, culture and expression through readings, seminar discussions, and project based graphic tools.
2. Students develop an understanding of how underlying ideas are influencing the character of our beliefs, perceptions of reality, and norms that guide our behavior today through readings and precedent analysis.
3. Students will develop an understanding of the benefits and limitations of different disciplinary perspectives through interrogating two case studies of ‘wicked problems’ from multiple perspectives.
4. Students will understand the benefits of synthesizing multiple disciplinary perspectives through case studies and two projects.
5. Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project of ‘designing your life.’ Projects will be worked on in small collaborative teams (2-3) and will touch on many disciplines from philosophy to social science to game design.

RATIONALE

- a) How do the **course objectives** address the GE categories expected learning outcomes?

‘Wicked problems’ are by nature social-technical, radically cross-disciplinary problems. In taking on these kinds of problems, the course provides a framework for studying culture and ideas in the context of multi-disciplinary manifestations and perspectives. In being project based, the course will go beyond *studying* these into *working with them* – developing a whole set of skills, including integrative skills. By working with these topics in

two projects, they will use this knowledge, and these skills to integrate multiple factors across many different disciplines, creating a coherent design proposal that demonstrates their ability to work on complex multi-disciplinary problems.

b) How do the **readings** assigned address the GE categories expected learning outcomes?

The majority of the readings will serve to introduce the key societal, cultural and technological issues that create the context of the 21st century. They are culled from a wide range of disciplines and will serve as both an intellectual framework for the course and more personalized scaffolding for individual projects. Other readings are related to specific tools (information visualization, for example) and methodologies needed to underpin the development of skills that turn the readings and discussions into applied work on the projects. But more specifically:

GE EXPECTED LEARNING OUTCOMES	READINGS
1 Students will study, analyze and interpret the evolution of societal form, thought, culture and expression.	<p>"Tribes, Institutions, Markets, Networks. A Framework about Societal Evolution," Ronfeldt.</p> <p><i>The Wealth of Networks: How Social Production Transforms Markets and Freedom</i>, Benkler</p> <p>"The Hacker Ethic as the Culture of the Information Age," by Himanen in <i>The Network Society: A Cross-cultural perspective</i>, edited by Castells</p> <p><i>A Third Window: Natural Life Beyond Newton and Darwin</i>, R. E. Ulanowicz</p>
2 Students will develop an understanding of how underlying ideas are influencing the character of our beliefs, perceptions of reality, and norms that guide our behavior today.	<p>"Tribes, Institutions, Markets, Networks. A Framework about Societal Evolution," David Ronfeldt.</p> <p><i>Connected: How Your Friends' Friends' Friends Affect Everything You Feel, Think and Do</i>, Christakis & Fowler</p> <p><i>The Wealth of Networks: How Social Production Transforms Markets and Freedom</i>, Benkler</p> <p><i>Future Perfect: The Case for Progress in a Networked Age</i>, Johnson</p> <p><i>The Age of the Unthinkable</i>, Joshua Cooper Ramo</p> <p><i>The Three Ecologies</i>, Felix Guattari</p>
3 Students will develop an understanding of the benefits and limitations of different disciplinary perspectives.	<p><i>The Age of the Unthinkable</i>, Joshua Cooper Ramo</p> <p><i>The Three Ecologies</i>, Felix Guattari</p> <p>World Economic Forum Global Risk Landscape</p>
4 Students will understand the benefits of synthesizing multiple disciplinary perspectives through case studies and two projects.	<p><i>Envisioning Information</i>, Edward R. Tufte</p> <p>World Economic Forum Global Risk Landscape</p> <p><i>Speculative Everything: Design, Fiction, and Social Dreaming</i>, Dunne & Raby</p> <p><i>Flow: The Psychology of Optimal Experience</i>, Csikszentmihalyi</p> <p><i>Ghost Written</i>, David Mitchell</p>

5	Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project.	<i>Envisioning Information</i> , Edward R. Tufte <i>Finite and Infinite Games</i> , James P. Carse "Abreu and the Venezuelan Youth Orchestra," "World Building," & "System of Actions," Chptrs 1, 13, 14 in <i>Design Unbound</i> , A. Pendleton-Jullian <i>Speculative Everything: Design, Fiction, and Social Dreaming</i> , Dunne & Raby <i>Flow: The Psychology of Optimal Experience</i> , Csikszentmihalyi <i>The Odyssey Years</i> , David Brooks
	GE Expected Learning Outcomes 1-5	OTHERS AS CALLED FOR & RELATED TO INDIVIDUAL PROJECTS

c) How do the **topics** address the GE categories expected learning outcomes? Broadly (with more specificity below), weeks 1 and 4 provide the framework of 'wicked problems', which, as radically cross-disciplinary socio-technical problems, are *about* society, culture and ideas, and can only be approached as cross-disciplinary in nature.

The introduction to the course and the topics of "understanding the context of the 21st century," and "understanding me" – understanding *oneself in that context* - address *Expected Learning Outcomes 1 and 2*.

The case studies directly address the *Expected Learning Outcomes 3 and 4*.

The project directly addresses the *Expected Learning Outcomes 4 and 5* and indirectly addresses and synthesizes all five of the expected learning outcomes.

GE EXPECTED LEARNING OUTCOMES	TOPICS
1 Students will study, analyze and interpret the evolution of societal form, thought, culture and expression.	week 1: Defining Wicked Problems. weeks 5-6: Understanding the context of the 21st century.
2 Students will develop an understanding of how underlying ideas are influencing the character of our beliefs, perceptions of reality, and norms that guide our behavior today.	week 1: Defining Wicked Problems. weeks 5-6: Understanding the context of the 21st century. weeks 7-8: Understanding 'me' - oneself, in the context of the 21st century.
3 Students will develop an understanding of the benefits and limitations of different disciplinary perspectives.	weeks 2-3: case studies #1 and #2.
4 Students will understand the benefits of synthesizing multiple disciplinary perspectives through case studies and two projects.	weeks 2-3: case studies #1 and #2. weeks 1-5 studio/lab: info visualization and diagramming principles and techniques - tools for working w/ multi-disciplinary projects.
5 Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project.	weeks 9-14: The Designing-My-Life Project weeks 1-5 studio/lab: info visualization and diagramming principles and techniques - tools for working with multi-disciplinary projects.

- d) How do the written **assignments** address the GE categories expected learning outcomes?

Assignments in this course consist of a written paper, which will be in the form of a 'brief,' and two projects – one that is intended to build skills needed to work on the cross disciplinary project and one that is the project itself, multi-disciplinary in nature and culturally embedded. The paper – the brief – is a document that outlines the influences and framework for the final project. In order to write this 'brief,' students will need to summarize and synthesize their learning around the *Culture and Ideas* topics and to present a unique point of view that will be the departure point for their final projects. The final projects will require development of sophisticated analytical, integration and representation + communication skills. Based upon the methodologies of architectural studios, projects will be assessed regularly through a form of review known as critique. Critique takes three forms: one-on-one, shoulder-to-shoulder mentorship; group pin-ups where the entire class reviews the projects as a community of practice; and formal reviews with outside experts from many diverse relevant disciplines. Critique is more than assessment; it is a working-together-on-the-project learning environment. As such, it is highly discursive and extremely effective at ascertaining how much is being assimilated.

- e) How does the **course aim to sharpen students' response, judgment, and evaluation skills?**

The project-based portion of this course requires, not only basic response, judgment and evaluation skills, but an extreme form of these that supports the students' ability to work through their individual perspectives and histories. The studio setting is one that fosters independence of mind, self-direction and self-critique while simultaneously being a collaborative space where students mentor and critique each other. By the end of the semester, the professor acts mostly as air-traffic control for the students who become motivated and capable of acting as a community of practice around the design problem.

GE ASSESSMENT PLAN: Architecture 4596

General Education Categories: Culture and Ideas; and Cross-Disciplinary Seminar.

Goals:

For Culture and Ideas: Students evaluate significant cultural phenomena and ideas in order to develop capacities for aesthetic and historical response and judgment; and interpretation and evaluation.

For Cross-Disciplinary Seminar: Students demonstrate an understanding of a topic of interest through scholarly activities that draw upon multiple disciplines and through their interactions with students from different majors.

Expected Learning Outcomes:

For culture and Ideas:

1. Students analyze and interpret major forms of human thought, culture, and expression.
2. Students evaluate how ideas influence the character of human beliefs, the perception of reality, and the norms which guide human behavior.

For Cross Disciplinary Seminar:

1. Students understand the benefits and limitations of different disciplinary perspectives.
2. Students understand the benefits of synthesizing multiple disciplinary perspectives.
3. Students synthesize and apply knowledge from diverse disciplines to a topic of interest.

COURSE Approaches to these goals and expected learning outcomes:

Goals: Students will gain a working understanding of the underlying cultural, social and technological forces that are shaping our world today – forces that lead to what are known as ‘wicked’ problems. The course will begin by looking at the evolution of societal form, the factors that influence that evolution, how it is manifest, how new studies in the sciences associated with complexity help us frame a more effective understanding of the world today, and how new affordances affect what one can do. The course uses a project-based approach that is scaffolded by material from several fields - philosophy, the social sciences, ecology theory, systems theory, political science, cinema, game design, architectural design, science/technology/society, cybernetics, literary criticism, and others as required by the focus of individual projects – and tools that support analysis, reflection,

design and communication. The combination of readings and tools in support of a specific project creates an active learning environment in which students will develop capacities to assess and analyze what factors/forces are in play, to understand the entanglement of these factors and forces in complex problem environments, and develop design strategies for having agency in these environments. Complex (wicked) problems are, by nature, trans-disciplinary problems, socio-technical in nature. They cannot be worked on any other way. This course will recruit students from many majors.

Expected Learning Outcomes:

1. Students will use readings and project based graphic analysis to study, analyze and interpret principles about the evolution of societal form, and the evolution of thought, culture and expression tied to the evolution of societal form.
2. Through readings and precedent analysis, students will understand the underlying factors and forces that are influencing our social, material, and idea ecologies today. We will apply theories from ecology to develop a new working theory about how to have agency in today's complex environment.
3. 'Wicked problems are many-disciplinary problems. The seminar component of this course will touch on many topics, but it will also provide a working framework to hold these topics together. The studio/lab portion of this course will use methodologies from design in an applied studio setting to call on and integrate different disciplinary perspectives within the context of the 'designing your life' project. In the process, the students will gain a working understanding of the benefits and limitations of different disciplinary perspectives.
4. Students will understand the benefits of synthesizing multiple disciplinary perspectives through the work and the outcomes of their projects.
5. Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project of 'designing your life.' Projects will be worked on in small collaborative teams (2-3) and will touch on many disciplines from philosophy to social science to game design.

ASSESSMENT PLAN

- a) Description of the specific methods used to demonstrate that the aggregate of students are achieving the GE Expected Learning Outcomes.

	GE EXPECTED LEARNING OUTCOMES	DIRECT METHODS <i>(assess student performance related to the expected learning outcomes. Examples of direct assessments are: pre/post test; course-embedded questions; standardized exams; portfolio evaluation; videotape/audiotape of performance.)</i>	INDIRECT METHODS <i>(assess opinions or thoughts about student knowledge, skills, attitudes, learning experiences, and perceptions. examples of indirect measures are: student surveys about instruction; focus groups; student evaluations.)</i>
1	Students will study, analyze and interpret the evolution of societal form, thought, culture and expression	Embedded questions in the assignment for the project brief. (1) Analysis of the project brief.	Surveys will be used, especially in the first three years, to understand how students, themselves, feel the skills, tools and content provided work to achieve the expected learning outcomes <i>and</i> contribute to their capacity to do this type of multi-disciplinary project work.
2	Students will develop an understanding of how underlying ideas are influencing the character of our beliefs, perceptions of reality, and norms that guide our behavior today.	Embedded questions in the assignment for the project brief. (1) Analysis of the project brief. Video of the students' final project presentations (3) and analysis of project portfolio (4).	
3	Students will develop an understanding of the benefits and limitations of different disciplinary perspectives.	Embedded questions within the case studies analyses. (2)	
4	Students will understand the benefits of synthesizing multiple disciplinary perspectives through case studies and two projects.	Embedded questions within the case studies analyses. (2) Video of the students' final project presentations and their 'critique' by a committee of outside reviewers. (3) Embedded questions within the project portfolio framework and analysis of the project portfolio. (4)	
5	Students will synthesize and apply knowledge from diverse disciplines to their studio/lab project.	Video of the students' final project presentations and their 'critique' by a committee of outside reviewers. (3) Embedded questions within the project portfolio framework and analysis of the project portfolio. (4)	

- 1) A project brief is a document that creates the frame of conditions for a project. It includes a theoretical set-up that positions the project challenge, a deep contextualization of the issues, challenges, and constraints, and then an outline of the inputs and constraints. In the assignment instructions, several questions will be written to specifically assess student achievement of GE Expected Learning Outcomes 1 and 2. The responses to these questions will be extracted from the assignment and analyzed separately to improve the course.
- 2) For each case study, a series of targeted questions will be written to assess student achievement in GE Expected Learning Outcomes 3 and 4.
- 3) In the final project, each student will demonstrate mastery of GE Expected Learning Outcomes 1, 3, and 4. Because this is embedded learning, and because the final project is presented in public to a group of outside reviewers, assessment will be formed around video capture of the students' final presentations. Specific questions will be asked during the final review specific to achievement around the Learning Outcomes. Critical passages will be extracted, transcribed and assessed to improve the course.
- 4) At the end of the semester each student will turn in a project portfolio that documents his/her thoughts and process during the semester. These are excellent for assessing progress and mastery. Several questions will be assigned along the way specific to each of the GE Learning Outcomes. These will be collated and reviewed.

b) Explanation of the level of student achievement expected:

Student achievement will be measured on three criteria: through their response to the embedded questions and prompts; the way in which they attack, assimilate and then use the content of the course as found in the readings and lectures; and on their improvement in skills and understanding over the course of the semester. Progress will be the large view indicator. There are three places at which samplings of their work can be compared: the project brief, the game mapping project, and then their final presentation for their 'designing-your-life' project.

c) Description of follow-up/feedback process:

Information and data will be collected and compared over the years, especially the first three. Relevant information includes rank, majors, minors, course grades. It will be important to know which majors take to this easily and which struggle. Based upon this feedback and the assessment criteria in 'b)', the course will be modified in terms of content, case studies used, tools introduced and outside lecturers engaged. The

professor(s) are to be particularly attentive to the graphic and thinking tools and skills taught and how they are being assimilated because they are foundational for accomplishing GE Expected Learning Outcomes 3-5. Additionally, the course should be modified yearly to keep content fresh and updated since the design problem is dependent upon a well-constructed understanding of the world at the moment at hand.

Additionally, a productive rubric for assessing 'basic', 'intermediate', 'advanced', and 'superior' mastery of the GE Expected Learning Outcomes for this course will be developed while teaching the first version of this course.