

# DESIGN TECH (DESIGN)

## DESIGN 4197 - Special Topics in Design (3 Credits)

This course addresses pertinent issues relative to the subject of design. The instructor(s) of the course are drawn from the permanent and visiting faculty who may either broadly or narrowly define the course's scope and content. Topics vary each semester.

**Last Four Terms Offered:** Spring 2025, Fall 2024, Spring 2022, Spring 2021

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 4297 - Coding for Design I (3 Credits)

This course addresses pertinent issues relative to the subject of design and coding. The instructor(s) of the course are drawn from the permanent and visiting faculty who may either broadly or narrowly define the course's scope and content.

**Prerequisites:** second-year standing, or permission of instructor.

**Last Four Terms Offered:** Spring 2024, Spring 2023, Spring 2022, Fall 2021

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 4680 - Introduction to Urban Data Science: Data, Interpretation, and Presentation (4 Credits)

Crosslisted with CRP 4680

This course will cover tools for more spatiotemporally dynamic and granular analyses of cities through data, code, statistics, and visualization. Using open-source data and computational tools based in Python and the Jupyter Notebook environment, topics may include data cleaning, linking, and management, open data portals and APIs, exploratory and descriptive spatial data analysis, visualization, both unsupervised clustering and regionalization techniques using machine learning, and supervised techniques such as regression, classification, and model selection. Students will also learn how to design testable research questions, apply relevant data and analytical techniques, present our process and results in an engaging and informative way, and identify the limitations of quantitative analysis. A personal laptop will be required. A lab led by the TA will accompany this course.

**Prerequisites:** CRP 4080 or CRP 5080 (or similar introductory GIS course).

**Distribution Requirements:** (MQR-AAP)

**Last Four Terms Offered:** Spring 2025, Spring 2024, Spring 2023, Spring 2022

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 5680 - Introduction to Urban Data Science: Data, Interpretation, and Presentation (4 Credits)

Crosslisted with CRP 5680

This course will cover tools for more spatiotemporally dynamic and granular analyses of cities through data, code, statistics, and visualization. Using open-source data and computational tools based in Python and the Jupyter Notebook environment, topics may include data cleaning, linking, and management, open data portals and APIs, exploratory and descriptive spatial data analysis, visualization, both unsupervised clustering and regionalization techniques using machine learning, and supervised techniques such as regression, classification, and model selection. Students will also learn how to design testable research questions, apply relevant data and analytical techniques, present our process and results in an engaging and informative way, and identify the limitations of quantitative analysis. A personal laptop will be required. A lab led by the TA will accompany this course.

**Prerequisites:** CRP 4080 or CRP 5080 (or similar introductory GIS course).

**Last Four Terms Offered:** Spring 2025, Spring 2024, Spring 2023, Spring 2022

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 6151 - Design and Making Across Disciplines I (6 Credits)

This course is an introduction to fundamental concepts and methods in design and emerging technologies across architecture, engineering, and science to prepare students with the necessary tools and knowledge for iterative, hybrid, and synthetic thinking in design & making across disciplines.

**Last Four Terms Offered:** Fall 2024, Fall 2022, Fall 2021, Fall 2020

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 6152 - Design and Making Across Disciplines II (6 Credits)

This course is part two of an introduction to fundamental concepts and methods in design and emerging technologies across architecture, engineering, and science to prepare students with the necessary tools and knowledge for iterative, hybrid, and synthetic thinking in design & making across disciplines.

**Last Four Terms Offered:** Spring 2025

Schedule of Classes (<https://classes.cornell.edu/>)

## DESIGN 6197 - Special Topics in Design (3 Credits)

This course addresses pertinent issues relative to the subject of design. The instructor(s) of the course are drawn from the permanent and visiting faculty who may either broadly or narrowly define the course's scope and content. Topics vary each semester.

**Enrollment Information:** Primarily for: graduate students, or permission of instructor.

**Last Four Terms Offered:** Spring 2025, Fall 2024, Spring 2022, Spring 2021

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 6297 - Coding for Design I (3 Credits)**

This course addresses pertinent issues relative to the subject of design and coding. The instructor(s) of the course are drawn from the permanent and visiting faculty who may either broadly or narrowly define the course's scope and content.

**Prerequisites:** graduate standing, or permission of instructor.

**Last Four Terms Offered:** Fall 2024, Spring 2024, Fall 2023, Spring 2023

**Learning Outcomes:**

- Demonstrate introductory understanding of computational design, including key techniques, theory, and concepts.
- Develop introductory skills in coding.
- Demonstrate ability to develop digital tools for design applications.
- Demonstrate introductory understanding of computational geometry and computer graphics.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 6298 - Coding for Design II (3 Credits)**

The course is a continuation of DESIGN 6297. Students continue to explore and develop fundamental concepts and techniques for the integration of coding within design workflows at intermediate levels. The emphasis of the course is on the practical applications and design potential within such techniques while helping students understand the theoretical background and conceptual implications behind them. From a technical point, students will be introduced to XR technologies and material simulations and will handle both discrete and continuous forms. The aim is to develop intermediate skills and knowledge in order to be able to represent, analyze, synthesize and act upon spatial structures at various scales and levels of abstraction. The course is structured as a series of lecture/workshops accompanied by practical tutorials that will help students develop their coding skills.

**Prerequisites:** DESIGN 6297.

**Last Four Terms Offered:** Spring 2025

**Learning Outcomes:**

- Demonstrate intermediate understanding of computational design, including key techniques, theory, and concepts.
- Develop intermediate skills in coding.
- Demonstrate intermediate to advanced ability in the development of digital tools for design applications.
- Demonstrate introductory understanding of XR technologies & material simulations.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 6397 - Design for Physical Interaction I (3 Credits)**

This course provides an introduction to the human-centered and technical workings behind interactive devices ranging from cell phones and video controllers to household appliances and smart cars. This is a hands-on, lab-based course. Topics include electronics prototyping, interface prototyping, sensors and actuators, microcontroller development, physical prototyping, and user testing.

**Last Four Terms Offered:** Fall 2024

**Learning Outcomes:**

- Demonstrate understanding of key computation, sensing, actuation, and communication components that make up modern interactive devices.
- Develop skill in designing and prototyping interactive systems.
- Demonstrate ability to test interactive systems with users.
- Demonstrate ability to integrate software, embedded hardware, sensing, display, actuation, and communication devices to make functioning systems.
- Apply open-source software libraries to control system operation, obtain user input and provide interactive response.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 6398 - Design for Physical Interaction II (3 Credits)**

This course provides intermediate instruction on the human-centered and technical workings behind interactive devices ranging from cell phones and video controllers to household appliances and smart cars. This is a hands-on, lab-based course. Topics include electronics prototyping, interface prototyping, sensors and actuators, microcontroller development, physical prototyping, and user testing.

**Prerequisites:** DESIGN 6397.

**Last Four Terms Offered:** Spring 2025

**Learning Outcomes:**

- Demonstrate intermediate understanding of key computation, sensing, actuation, and communication components that make up modern interactive devices.
- Develop intermediate to advanced skills in designing and prototyping interactive systems.
- Demonstrate intermediate to advanced ability to test interactive systems with users.
- Demonstrate intermediate to advanced ability to integrate software, embedded hardware, sensing, display, actuation, and communication devices to make functioning systems.
- Apply open-source software libraries to control system operation, obtain user input and provide interactive response.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 6999 - Independent Study in Design Technology (1-3 Credits)**

This course is intended for students to study a Design Tech topic not covered in a standard course.

**Last Four Terms Offered:** Spring 2025

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 8131 - Specialization Project I (3 Credits)**

Take a deep dive into a project that explores the frontiers of design and technology. Students will work closely with Cornell Tech and AAP faculty and research staff to conduct research on a critical design and technology question or problem and develop an implementable design tech solution for a real human need. Specialization projects take various forms but every project results in tangible, marketable experience and a completed project that will stand out on your resume. The class focuses on the development of a project question, literature review, team building, research methods, and identifying your audience.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 8151 - Design Topic Research Studio III (9 Credits)**

Pre-thesis research on an independent design project on a topic selected and developed by the student in preparation for DESIGN 8905.

**Prerequisites:** DESIGN 6152.

**Learning Outcomes:**

- Demonstrate understanding of research methods and writing.
- Develop a focused thesis question.
- Demonstrate collaborative skills.
- Demonstrate understanding of your audience and the field that you are contributing to through literature review and interviews.

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 8905 - Independent Design Thesis (9 Credits)**

An independent design project on a topic selected and developed by the student and researched in DESIGN 8151. Marking the transition between academic and professional practices, the objective of the thesis project is for each student to define an individual position with regard to the discipline and practice of design + technology.

**Prerequisites:** DESIGN 8151.

**Learning Outcomes:**

- Develop rigorous thesis project methods through process and iteration.
- Develop a focused thesis project design argument.
- Demonstrate collaborative skills.
- Demonstrate understanding of experimentation and prototyping.
- Develop an applied design & technology thesis project.
- Develop a rigorous technical paper documenting the thesis process and project (introduction, background, methods, results, discussion, conclusion).

Schedule of Classes (<https://classes.cornell.edu/>)

**DESIGN 8935 - Specialization Project II (6 Credits)**

Take a deep dive into a project that explores the frontiers of design and technology. During this two-semester requirement, you will work closely with Cornell Tech and AAP faculty and research staff to conduct research on a critical design and technology question or problem and develop an implementable design tech solution for a real human need. Specialization projects take various forms but every project results in tangible, marketable experience and a completed project that will stand out on your resume. The second semester focuses on the development of a design argument, process and iteration, team building, experimentation and prototyping, and application of your design & technology solution, product, or project.

**Prerequisites:** DESIGN 8131.

**Learning Outcomes:**

- Develop clear design & tech methods through process and iteration.
- Develop a focused specialization project design argument.
- Demonstrate team-building and collaborative skills.
- Demonstrate understanding of experimentation and prototyping.
- Develop a refined design & technology solution, product, or project.

Schedule of Classes (<https://classes.cornell.edu/>)