COLLEGE OF DESIGN AND ENGINEERING

TBD

Professor X

• Integrated Design, Engineering, Arts & Society Major (https://catalog.wesleyan.edu/Departments/cdes/ugrd-idea/)
• Integrated Design, Engineering, Arts & Society Minor (https://catalog.wesleyan.edu/minors/ugrd-idea-mn/)

IDEA110 Vectors to Volumes: The Fundamentals of Digital Fabrication
This project-based course will cover the fundamentals of digital fabrication in a hands-on introduction to software-driven object making. The central concern will be process rather than concept, with a firm focus on how instead of why, as well as best safety practices. Instruction will be given in four areas sequentially, each building on the last: Vector Design & Execution, 3D Modeling & Printing, CNC Wood Routing, and CNC Metal Milling. Machine setup and best practices will be taught alongside foundational knowledge of applications such as Adobe Illustrator, Adobe Photoshop, Vectric VCarve, Autodesk Fusion360, and Ultimaker Cura. Throughout the course, there will be a consistent emphasis on fabrication methods and finishing techniques.
Offering: Host
Grading: Cr/U
Credits: 0.50
Gen Ed Area: HA-ART, NSM-IDEA
Prereq: None

IDEA120 Ecological Design I: Being at Home in the World
Being at Home in the World is an introduction to the skills and thinking involved in the ecologically responsible creation of objects. This course is intended to provide a foundational understanding of the language of design, sources of materials, and energy systems. The studio encourages students to develop a rigorous, iterative working method to deeply analyze the nature of land and resources, explore options, and test ideas. This process of making is complemented and supported by an introduction to the history and theory of design, training with techniques and equipment, and active practice in keeping a sketchbook. Early exercises and projects in the course build familiarity and confidence with analytical drawing, making, and modeling techniques, which build toward the creation of a novel piece of design work presented at the final review.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART
Identical With: ARST220, ENV5232
Prereq: None

IDEA154 Working with MATLAB
The content of this course focuses on learning the basics of utilizing MATLAB to program and solve basic problems. We will operate on the assumption that students have no prior experience with programming. The goals of the course will be to develop algorithmic thinking, problem solving, and quantitative skills within the context of MATLAB. The course will cover essential mechanics of programming, many of which are common to all programming languages, as well as some selected advanced topics. With the expectation that students with a broad background with various motivating factors lead them to enroll in the course, students will be invited to apply the skills learned in the course to completing the culminating final project related to their specific interests.
Offering: Crosslisting

IDEA160 Product Design I
In this introductory product design course, students will experience basic design processes such as problem identification and possible resolutions; the use of design development and communication skills via design observation and research; iterative process and prototyping; and representation and presentation in two and three-dimensional forms. Students will explore how design can play a role in our community and how it can impact our society. Students will work both individually and collaboratively in a studio environment. Field trips to New York City fabricators, galleries, and workshops may be expected as part of this course.
Offering: Host
Grading: OPT
Credits: 0.50
Gen Ed Area: NSM-QAC, SBS-QAC
Identical With: QAC154, CIS154
Prereq: None

IDEA170 Introduction to Mechanical Design and Engineering
This course will provide a hands-on introduction to design and engineering. Students will engage in individual and team projects in a studio environment where we seek to develop a shared practice and understanding of the engineering design process. We will study biological organisms to find inspiration for design of hoppers, swimmers, and climbers. Students will build skills using computer-aided design (CAD) software and using tools for fabrication and prototyping including laser cutting and 3D printing. We will also hone skills in identifying which scientific and engineering principles need to be understood to achieve design goals.
Offering: Host
Grading: Cr/U
Credits: 1.00
Gen Ed Area: NSM-CIS
Identical With: PHYS170, CIS170
Prereq: None

IDEA170Z Introduction to Design and Engineering
This course will provide a hands-on introduction to design and engineering. Students will engage in individual and team projects in a studio environment where we seek to develop a shared practice and understanding of the engineering design process. We will study biological organisms to find inspiration for design of hoppers, swimmers, and climbers. Students will build skills using computer-aided design (CAD) software and using tools for fabrication and prototyping including laser cutting and 3D printing. We will also hone skills in identifying which scientific and engineering principles need to be understood to achieve design goals.
Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: NSM-CIS
Identical With: CIS170Z, PHYS170Z
Prereq: None

IDEA173 Introduction to Sensors, Measurement, and Data Analysis
This course is an engineering fundamentals course supporting the Integrated Design, Engineering, and Applied Science (IDEAS) minor. It will involve a sequence of hands-on projects that introduce students to basic measurement devices and data analysis techniques using inexpensive modern sensors, a microprocessing platform (Arduino), and a computational software package (Matlab). The course will provide foundational knowledge of available resources and techniques that allow students to more confidently implement...
measurement systems in subsequent courses of the IDEAS minor and better understand experimental devices used in scientific research activities.

**Offering:** Host  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** NSM-CIS  
**Identical With:** CIS173  
**Prereq:** None

**IDEA175 Introduction to Electrical Design & Engineering**

Students will learn about engineering mechanics, electronic control systems, and physical actuators (e.g., for movement) using a microprocessor platform, sensors and motors. The final project will require a student team to ideate, design, analyze, and optimize a mechatronic system. This course will allow students to better understand components, methods, and challenges in mechatronics systems commonly found in automation and robotics.

**Offering:** Host  
**Grading:** Cr/U  
**Credits:** 1.00  
**Gen Ed Area:** NSM-CIS  
**Identical With:** CIS175  
**Prereq:** None

**IDEA180 Design Studies**

This course examines the human dimensions of engineering and design by looking at the ways artifacts are designed, produced, circulated, and used in context. Rather than a comprehensive survey of movements or paradigms in the history of design, this course employs a thematic approach to understanding the ways objects can articulate and reflect social and cultural concerns. Through a series of readings, projects, lectures, and seminars, we will study the surprising ways everyday objects influence and articulate our identities, desires, biases, and experiences.

This course is intended to support students in developing a critical toolkit for use as designers, users, consumers, and citizens. Throughout the term we will seek to challenge our assumptions about the politics of design and interrogate the ways its products mediate and are changed through human activity. We will write about and visualize these relationships, thinking critically how objects are made, what makes them relevant, and whether things have the power to change our economic, environmental, and social realities.

**Offering:** Host  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** SBS-IDEA  
**Prereq:** None

**IDEA185Z Form and Code**

This introductory survey explores practices in design and digital media through a sequence of design exercises, workshops, and hands-on projects. Advancing towards an independent final project, participants will hone their skills as makers and thinkers while developing a portfolio of original work for both print and web. While primarily concerned with visual experimentation and expression, this course exposes students to critical topics in media and design through readings, seminars, and student presentations. Techniques surveyed in this course include: digital graphics, creative coding, and digital fabrication (if taught in person).

**IDEA185Z Form and Code**

Students will require access to a personal computer and Adobe Creative Cloud. If the course runs remotely, students are responsible for locating these resources individually.

**Offering:** Host  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** NSM-CIS  
**Identical With:** CIS185Z  
**Prereq:** None

**IDEA190 Digital Foundations**

This course introduces the foundations of digital art through contemporary artistic practice. Students will research the history of digital art and examine relationships of digital media and contemporary art. The class has a theoretical focus on machine use within the process of art making while building foundational digital skills. Projects will focus on four key areas including: Digital Imaging, 3D Modeling and Virtual Design, Time Based Media, and Digital Fabrication. Building on these four areas the course will culminate in an individualized research based final project and presentation. Through experimentation, critical analysis, critique and peer review; students will generate a unique portfolio of digital art works.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST190  
**Prereq:** None

**IDEA190Z Digital Foundations**

This introduction to the digital studio engages software and electronic media as an expanded field of creative production in contemporary art and design. Through a sequence of workshops, exercises, and hands-on digital projects, students will develop their critical and creative toolkits and learn to conceive, refine, and present original work. Open to all skill levels, this course prioritizes sustained and rigorous engagement with digital practice as well as conceptual and formal problem-solving.

Workshops in image manipulation, compositing, motion graphics, and visual communication will be led synchronously online by the instructor. This will be complemented with weekly online studio sessions, discussions, screenings, and reviews. Students will be provided access to all course materials using Google Drive and other digital platforms. Access to Adobe Creative Cloud software will be provided by Wesleyan, but individual licensing is also encouraged. Course assistants will offer peer mentoring and technical support in person through the DDS and online through Zoom.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST190Z
IDEA203 The Secrets of Ancient Bones: Discovering Ancient DNA and Archaeology

New analyses of ancient DNA preserved for millennia in bones and soils have revolutionized the field of archaeology. Suddenly, archaeologists have gained new insight into human origins, past human diets and health, ancient socioeconomic systems, and the emergence of early cities. How can we preserve archaeological sites and artifacts for future generations? This course will introduce students to the interdisciplinary field of archaeology. We will discuss key methods and principles that archaeologists use to study the human past while covering a survey of world prehistory from the earliest stone tools to the archaeology of contemporary material culture. Students will have the opportunity to examine real archaeological artifacts—including artifacts excavated from historic Middletown—and will be encouraged to think critically about the ways that archaeology informs our understanding of both the past and the present.

Offering: Crosslisting
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-ARCP
Identical With: ARCP203, ENVS203, ANTH212, SISP203
Prereq: None

IDEA204 Introduction to Archaeology

What can fragments of pottery, stones, and bones reveal about the lives of people who lived thousands or even millions of years ago? What does the archaeological record reveal about human evolution, past human diets and health, ancient socioeconomic systems, and the emergence of early cities? How and why do archaeologists seek evidence of the human past? This course will introduce students to the interdisciplinary field of archaeology. We will discuss key methods and principles that archaeologists use to study the human past while covering a survey of world prehistory from the earliest stone tools to the archaeology of contemporary material culture. Students will have the opportunity to examine real archaeological artifacts—including artifacts excavated from historic Middletown—and will be encouraged to think critically about the ways that archaeology informs our understanding of both the past and the present.

Offering: Crosslisting
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-ARCP
Identical With: ARCP204, ANTH214, ENVS207
Prereq: None

IDEA209 Educational Gaming Lab: Project-Based, Game-Based Pedagogy Approaches

In the past two decades, crowdfunding and renewed interest in games—board games, role-playing games, digital games, and instructional games—have created an increased and diverse gaming production, which has become the subject of several studies, articles, and projects related to all areas of education, from hard sciences to language learning and the arts. In an effort to explore how a game-informed pedagogy can work in various types of courses and to highlight analog and/or digital gaming approaches that have worked inside and outside the language classroom, this course will explore the basics of game-based learning (GBL) and discuss how games of all kinds can inform pedagogical discussions and the creation of learning materials.

Educational Gaming Lab is designed as a project-based gaming laboratory that will focus on why and how analog games can be effective tools for pedagogy. Examples will include board games, tabletop role-playing games, escape games, and puzzles. Participants will discuss the application of gaming principles to various subjects and types of classrooms; then, they will engage in a final project in which they will either adapt existing games for specific learning outcomes or create brand new educational games. The course will be conducted in English and games will be created in English.

Offering: Crosslisting
Grading: OPT
Credits: 1.00
Gen Ed Area: SBS-EDST
Identical With: EDST210
Prereq: None

IDEA210 How Things Fall: Mechanics and Materials

This lab/lecture engineering course is a foundational cornerstone of structural analysis and mechanical design. It will provide students with a theoretical and practical understanding of static equilibrium force systems, material response to loading, and analysis of failure modes for each of the fundamental types of stress and strain (axial, flexural, and torsional). These skills are vital for students from a range of disciplines, including mechanical engineering and architecture. The final project will require the design, implementation, and performance testing of an optimized structural system model, such as a truss bridge, building, or other structure.

Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: NSM-IDEA
Identical With: CIS210, PHYS210
Prereq: IDEA170 AND (PHYS111 OR PHYS113)

IDEA215 Introduction to Sensors, Measurement, and Data Analysis

This course is an engineering fundamentals course supporting the Integrated Design, Engineering, Arts, and Society (IDEAS) minor. It will involve a sequence of hands-on projects that introduce students to basic measurement devices and data analysis techniques using sensors, a microprocessing platform, and computational software. The course will provide foundational knowledge of available resources and signal processing techniques that allow students to more confidently implement measurement systems in subsequent courses of the IDEAS minor and better understand experimental devices used in scientific research activities. Students will complete a final team project of their choice (with approval) exploring areas of interest in measurement, data analysis, machine learning or other avenues. Some previous programming experience is expected. Prior experience in IDEA175 or with Arduino, Raspberry Pi or other physical computing platforms are preferred, but not required.

Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: NSM-CIS
Prereq: None

IDEA221 A Thousand Years of Iteration: Design for an Uncertain Future

The climate emergency is a product of design. Centuries worth of aesthetic and industrial innovation have created extractive infrastructure, efficient machines, and disposable products that make it increasingly easy to consume energy and resources on a global scale. As new conversations about just transitions, a circular economy, and a Green New Deal have begun to proliferate among designers, the discipline’s troubled relationship to notions of “progress” remains largely unquestioned.

This reading- and research-intensive studio asks students to examine this history of technology and to critically evaluate shifting theoretical perspectives on nature and human development as they relate to design. Topics will include the lifespan of buildings and products, relationships with and obligations to materials and resources, and strategies for de-growth in indigenous and vernacular design precedents. These will be studied through assigned readings and in-class
### IDEA235 Activism and Theories of Change

In this course we will explore strategies and theories of change that shape social justice movements, with particular reference to recent movements in the United States. We will discuss the benefits and risks of the many available strategies including direct action, grassroots mobilization, impact litigation, legislative campaigns, electoral campaigns, artistic protest, and public education. What strategic, ethical, or moral questions are raised by various types of protest and communications? The instructor will draw on her own experiences as an activist for women's rights, queer rights, and economic justice. In addition, the course will feature a guest teacher for a segment of the semester: Beverly Tillery, Executive Director of the Anti-Violence project in NYC will look at the ways BIPOC and Queer BIPOC communities are reshaping the social justice landscape by addressing the safety of trans women, challenging the gender binary and reforming and ending the carceral legal system. We will allow time to discuss events that may occur in real time over the course of the semester. This course will be relevant to students interested in public policy, feminism, gender and sexuality studies, and other social sciences, and will provide useful insight for future organizers and activists, lawyers, and public policy makers.

**Offering:** Crosslisting  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST233  
**Prereq:** None

### IDEA261 Science Materials For a Malagasy Classroom

Students will design and produce a variety of educational science materials to be used in a fifth grade classroom in Madagascar. These items include a science logo, bookmarks, educational science games, posters, and a comic book with conservation themes for children. Students who are interested in design and wildlife endemism, evolution, and climate change would be appropriate for this course. Students will design and produce a variety of educational science materials to represent, model, and realize a series of design projects.

**Offering:** Crosslisting  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST243  
**Prereq:** None

### IDEA222 Fluid Mechanics: Theory and Applications

This course focuses on the behavior of fluids under various conditions. Students will develop a framework to analyze situations involving stationary (fluid statics) or moving fluids (fluid dynamics), discover tools used to predict fluid behavior, and learn how to interpret aspects of this behavior. Homework problems and examples reviewed in class will help students connect theory with real-world applications, particularly in the areas of mechanical, structural, civil, and aerospace engineering. At the end of this course, students should have the ability to solve simple fluid problems and apply those solutions in complex engineering situations.

**Offering:** Host  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** None  
**Prereq:** None

### IDEA220 Fluid Mechanics: Theory and Applications

This course focuses on the behavior of fluids under various conditions. Students will develop a framework to analyze situations involving stationary (fluid statics) or moving fluids (fluid dynamics), discover tools used to predict fluid behavior, and learn how to interpret aspects of this behavior. Homework problems and examples reviewed in class will help students connect theory with real-world applications, particularly in the areas of mechanical, structural, civil, and aerospace engineering. At the end of this course, students should have the ability to solve simple fluid problems and apply those solutions in complex engineering situations.

**Offering:** Host  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** None  
**Prereq:** None

### IDEA233 Studies in Computer-based Modelling and Digital Fabrication

This course operates at the intersection of design and production, introducing students to digital tools critical to contemporary architecture and design. Throughout the semester, students will develop a series of projects that fluidly transition between design, representation, and fabrication with an emphasis on understanding how conceptual design interfaces with material properties. The course will offer a platform for students to research, experiment, and, ultimately, leverage the potential of digital tools toward a wide array of fields and disciplines. Students will be expected to utilize the Digital Design Studio’s resources, including 3D printers, laser cutter, and 4-Axis CNC mill, as well as a selection of fabrication equipment housed in the school’s metal and wood shops to represent, model, and realize a series of design projects.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST233  
**Prereq:** None

### IDEA262 Fast & Furious

Fast and Furious is a class which explores the power of the multiple through the production of zines, posters, t-shirts, tote bags, pins and more. Beginning in the 1930s, the production of zines mainly in the sci-fi fan world became popular after the advent of the mimeograph—the first widely available duplicating machine. This way of making content was able to circumvent mainstream and institutional publishing models creating channels for more creatives to distribute their work. Today, there are even more technologies that can be used in the production of zeitgeist material. In this class, we will learn how to create with a Xerox machine, silkscreen, letterpress, polymer, and more. In each assignment we will contend with the power of quantity. What does it mean to make five of something? Ten? Fifty? One hundred? We will also experiment with format. How can a message be told through a wearable garment? How does the narrative change when it’s a tote bag? And finally, we will explore the poetics of distribution. What are the artistic possibilities of a zine when it can be sent through the mail or left in a pile for the public?

**Offering:** Crosslisting  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST226  
**Prereq:** None

### IDEA220 Introduction to Graphic Design

Introduction to Graphic Design is a course that aims to open a window of understanding and communication through the visual language. It will serve as a beginner’s guide to an abundant artistic tool box, while attempting to expand your perceptions of graphic design and offering innovative outlooks to convey your ideas visually. The course will guide students through the fundamentals of designing programs as well as traditional art methods. This will be an active making and researching time for students to be exposed to the potential of the medium, as well as broadening its boundary.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST243  
**Prereq:** None

### IDEA243 Introduction to Graphic Design

Introduction to Graphic Design is a course that aims to open a window of understanding and communication through the visual language. It will serve as a beginner’s guide to an abundant artistic tool box, while attempting to expand your perceptions of graphic design and offering innovative outlooks to convey your ideas visually. The course will guide students through the fundamentals of designing programs as well as traditional art methods. This will be an active making and researching time for students to be exposed to the potential of the medium, as well as broadening its boundary.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST243  
**Prereq:** None

### IDEA246 Fast & Furious

Fast and Furious is a class which explores the power of the multiple through the production of zines, posters, t-shirts, tote bags, pins and more. Beginning in the 1930s, the production of zines mainly in the sci-fi fan world became popular after the advent of the mimeograph—the first widely available duplicating machine. This way of making content was able to circumvent mainstream and institutional publishing models creating channels for more creatives to distribute their work. Today, there are even more technologies that can be used in the production of zeitgeist material. In this class, we will learn how to create with a Xerox machine, silkscreen, letterpress, polymer, and more. In each assignment we will contend with the power of quantity. What does it mean to make five of something? Ten? Fifty? One hundred? We will also experiment with format. How can a message be told through a wearable garment? How does the narrative change when it’s a tote bag? And finally, we will explore the poetics of distribution. What are the artistic possibilities of a zine when it can be sent through the mail or left in a pile for the public?

**Offering:** Crosslisting  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST226  
**Prereq:** None

### IDEA243 Introduction to Graphic Design

Introduction to Graphic Design is a course that aims to open a window of understanding and communication through the visual language. It will serve as a beginner’s guide to an abundant artistic tool box, while attempting to expand your perceptions of graphic design and offering innovative outlooks to convey your ideas visually. The course will guide students through the fundamentals of designing programs as well as traditional art methods. This will be an active making and researching time for students to be exposed to the potential of the medium, as well as broadening its boundary.

**Offering:** Crosslisting  
**Grading:** OPT  
**Credits:** 1.00  
**Gen Ed Area:** HA-ART  
**Identical With:** ARST243  
**Prereq:** None

### IDEA261 Science Materials For a Malagasy Classroom

Students will design and produce a variety of educational science materials to be used in a fifth grade classroom in Madagascar. These items include a science logo, bookmarks, educational science games, posters, and a comic book with conservation themes for children. Students who are interested in design and natural history as a means through which to communicate science themes on wildlife endemism, evolution, and climate change would be appropriate for this course. All students will need to conduct independent research into science topics, distill down the salient features, and use that information to design elementary school materials. Working both individually and in teams, students will conceive, design, critique, and move into product production (MakerSpace). In addition, prototypes of the materials will be reviewed and rated by fifth graders in a Middletown elementary school for feedback.

**Offering:** Crosslisting  
**Grading:** A-F  
**Credits:** 1.00  
**Gen Ed Area:** NSM-BIOL  
**Identical With:** BIOL161, ENV5261  
**Prereq:** None
IDEA267 Engineering Biology: Cells and Tissues
This course explores the intersection of biology, medicine, and engineering, where scientists are developing novel platforms to promote understanding, diagnosis, and treatment of human diseases. We cover modern techniques for manipulating biological systems, spanning single molecules to ensembles of cells. We will examine the trajectory of the field from studying cells in a plastic dish to the advent of organ-on-a-chip and organoid models and discuss how this transition from 2D to 3D biology has propelled increased understanding of both normal physiological homeostasis and also the pathophysiology of disease. Topics will include controlling behavior of cells through cell-matrix interactions, learning through building via synthetic biology, and advances in regenerative medicine. These topics will be explored through the thematic lenses of transport processes (supply of nutrients and removal of waste) and mechanoreciprocity (the sensing of and response to the physical properties of the cellular microenvironment). Lectures will review fundamental concepts in cell biology and physiology before delving into topical examples from current literature. Lectures and assessments will include opportunities to develop skill in thinking analytically and critically about using engineering tools to study fundamental questions in human disease, formulating original ideas and experiments, and communicating science through written and oral formats.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: NSM-BIOL
Identical With: BIO1267
Prereq: MB&B181 AND MB&B182

IDEA271 Biodegradable Design: Soft and Hairy
In this course, we will develop an understanding of soft materials and how softness is explored in design. We will explore the notion of softness in design with particular focus on how soft, biodegradable materials can form our experience of a product. We will study how soft materials, plants, and living organisms can be utilized as a living material to form a built ecology. In particular, we will learn how mycelium used in novel ways can produce experiential affect in spaces, especially in relation to the human body. We will study how to design for impermanence—sometimes using waste materials—and develop an understanding for material recovery. The goal of the course is to introduce students to bio and living materials used in design as well as zero-waste design methodology, and develop digital and physical skills associated with the making of soft products. Students will work both individually and collaboratively in a studio environment. Field trips to New York City museums, fabricators, and galleries may be expected as part of this course.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART
Identical With: ARST271, ENVS271
Prereq: ARST131 OR IDEA110 OR IDEA180

IDEA285 Digital Projects Lab
This intermediate course in design engages form and process as vital lineaments in digital images, systems, and objects today. Through a series of short, hands-on, thematic projects, students will move past the basics of digital technique and challenge themselves to articulate how and why things appear as they do. Rather than focus on specific tools or software, assignments will straddle creative platforms and media, incorporating methods such as live signal processing, data moshing, remixing, and interaction design. Early assignments will address narrow thematic concerns while a long-term final project driven by students' own directives will be developed and executed in the second half of term.
Offering: Host
Grading: OPT
Credits: 1.00
Gen Ed Area: HA-CIS

IDEA291 East Asian Archaeology
This course will introduce students to remarkable archaeological discoveries from East Asia, focusing on the archaeology of ancient China, but also including finds from Japan, Korea, and Mongolia. Beginning with "Peking Man" and Asia's earliest hominin inhabitants, we will explore the lives of Paleolithic hunter gatherers, the origins of domestic rice and pigs, the emergence of early villages and cities, the origins of writing, ancient ritual systems, long-distance interactions through land and maritime Silk Roads, and the archaeology of Chinese diaspora populations living in the 19th-century United States. We will also consider the current state of archaeological research in East Asia, focusing on site preservation, cultural heritage management, and the political roles of archaeology.
Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: SBS-ARCP
Identical With: ARCP291, ANTH291, CEAS291, ENVS291
Prereq: None

IDEA292 Interdisciplinary Project Lab
Our world is largely governed by abstract systems and invisible forces. Consider the internet, evolution, or the Earth's climate. What drives these systems? How do they work? While it's hard to imagine such large concepts, breaking such big ideas down into manageable pieces is a skill practiced by scientists, engineers, and designers every day. How we translate ideas into knowledge can take many forms. In this interdisciplinary project-based course, students will work in collaborative teams to translate big ideas into something people of all ages and backgrounds can manipulate, interact with, and understand. Throughout the term we will explore how designers, engineers, and subject-specific experts work together in museums, zoological and botanical parks, science centers, and other public spaces to create interactive and engaging environments for learning. Students will apply what they learn about the creation of these spaces in their own self-directed projects. In doing so, students will expand their knowledge of materials and fabrication, develop skills for effective communication through visualizations and physical objects, and evaluate the efficacy of their designs.
Offering: Host
Grading: Cr/U
Credits: 1.00
Gen Ed Area: NSM-IDEA
Prereq: IDEA170 OR ARST190 OR IDEA285 OR IDEA175 OR ARST235

IDEA301 Unsettling Times: Clocks for Ghosts, Monsters, and Aliens
Tracking the rhythms, cycles, and ruptures of collective life is essential for studies of sociocultural and environmental dynamics. Yet such studies are mostly undertaken with the unquestioned assumption that Western apparatuses of time reckoning and historical periodization can be applied as universal and stable frames of reference for all kinds of phenomena. Temporal units of years, months, days, minutes are used, rendering insensible relations that do not align with such metrics. These simplifying moves limit our capacity to understand continuity and change, and places countless lives and landscapes at great risk.

This seminar draws from the social and natural sciences, humanities, and arts to unsettle these simplifications. Through readings and audio/video screenings, we will consider how apparatuses for time keeping (or clocks, broadly defined) become power tools, creating haunted, monstrous, and alienated subjects. Through exercises and field walks throughout the semester, students are invited to notice, record, and engage with multiple temporalities of more-than-human worlds. The final project will involve research and design of a speculative clock for futures otherwise.
IDEA308 Comparative Urban Policy
Cities are home to more than half of the world’s population, generate more than 80% of world GDP, and are responsible for 75% of global CO2 emissions. Once viewed as minor political players with parochial concerns, they are now—individually and collectively—major players on the global stage. This course will examine how cities are coping with the major policy issues governing our lives—from waste management and public safety to energy and housing policy. We will be examining how policies differ between big cities and small cities, what cities in the global north are learning from the cities in the global south, and how cities are bypassing toxic partisan politics in their nations’ capitals to form global networks promoting positive change. The class will involve local field trips and participant observation to see how some of these urban issues are playing out in the city of Middletown.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART
Identical With: SISP301
Prereq: None

IDEA320 Ecological Design II: Worn Out/Broken In
This course will function as a design studio that examines the afterlife of material production. While designers have traditionally focused their attention on the creation, distribution, and consumption of new products, this course asks students to carefully consider everything that follows those acts. By scrutinizing the use, care, maintenance, repair, and eventual demise of designed objects, students come to understand the intended and unintended consequences of making. Rigorous observation and research lead to the creation of analytic drawings and models for presentation at project reviews.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART
Identical With: GOVT308, CEAS308, ENV5308
Prereq: None

IDEA330 Computational Media: Videogame Development
This course examines the interplay of art and science in the development of contemporary videogames using the Unity development platform and commercial artistic game tools. Students develop a comprehensive understanding of computational media, including legal and commercial aspects, combined with hands-on experience in a creative process that integrates design, art, and coding. There will be discussions with invited industry leaders in various subject areas. Students will have the opportunity to work as part of development teams and create working prototypes to better understand the challenges and rewards of producing graphic interactive software within a professional context.

Offering: Host
Grading: A-F
Credits: 2.00
Gen Ed Area: NSM-IDEA
Identical With: FILM250, COMP350, CIS350
Prereq: None

IDEA350 Media for Performance
This course examines the use of media and technology as it relates to dramaturgy and design for performance. Class time will be used for lecture, discussion, and experimentation, during which we will explore new technologies used in the industry, including projections, motion tracking, and software such as After Effects and Isadora. Throughout the semester, students will use the skills learned to create their own digital performances.

Offering: Crosslisting
Grading: OPT
Credits: 1.00
Gen Ed Area: HA-THEA
Identical With: THEA360, DANC364
Prereq: None

IDEA370 Product Design II
This course builds on the exploration and knowledge learned in Product Design I to discover opportunities for systems thinking in product design. Students will study systemic challenges related to aging, education, food, and mobility to investigate potential opportunities through the lens of product design. The course will support students in developing digital modeling skills as well as rapid prototyping and fabrication techniques. Students will work both individually and collaboratively in a studio environment. Field trips to New York City design ateliers, fabricators, and workshops may be expected as part of this course.

Offering: Crosslisting
Grading: A-F
Credits: 1.00
Gen Ed Area: HA-ART
Identical With: ARST370
Prereq: ARST270 OR ARST235

IDEA390 Teaching Apprentice Tutorial
The teaching apprentice program offers undergraduate students the opportunity to assist in teaching a faculty member’s course for academic credit.

Offering: Host
Grading: OPT

IDEA391 Teaching Apprentice Tutorial
The teaching apprentice program offers undergraduate students the opportunity to assist in teaching a faculty member’s course for academic credit.

Offering: Host
Grading: OPT