

CAP Undergraduate Electives - Spring 2021

All ARCH electives require sophomore standing or higher. Some courses may have additional pre-requisites; see description for pre-requisite information. All meeting days/time are subject to change; please double-check listing in UCDAccess.

Effective Summer 2020, all classes listed in this guide will earn 3 credits toward the “Architecture Elective” degree requirement; please make special note of the additional departments included in this list: Landscape Architecture and Urban & Regional Planning.

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ARCH 3600-002 - Special Topics Cultural- Architecture and Nature

- T + Th, 2:00 pm - 3:15 pm (REMOTE)

Course Description:

Architecture and Nature: the symbiotic relationship between the built and natural environments. The emerging fusion between human needs and the natural environment is unprecedented. By exploring alternative strategies for architectural development and building technology, we can begin to frame a new discourse between the built and natural environments filled with creative possibilities. Fostering a symbiotic relationship between environment, nature, and building, may in turn enable us to reconsider how we approach design.

The course is experimental in nature rather than numerical. It is about a way of contemplating, thinking, and weaving ecological ideas with other influences. The course will focus on architecture and its relationship to the environment as a low-impact, physical intervention.

ARCH 3601-001 – History of American Architecture

- Mo + We, 9:30 am – 10:45 am (REMOTE)

Course Description:

What makes an architecture identifiably American? Is this a question of geography or culture? Is there a distinctly American outlook on architecture? What may be its distinguishing characteristics? What would be its lineages and its distinct contributions? In search of answers, this course traces the history of architecture in North America from the early colonial settlements in the late 17th century to the corporate architecture of the late 20th century. The various formal languages and theories that have shaped the history of architecture in North America since the 17th century will each be discussed in relation to and as the expression of an emerging culture in the North American continent. Greater emphasis will be placed on developments in the 20th century.

Treating the history of architecture as a history not merely of buildings, but of cultural beliefs and ideas, values and aesthetic ideals made tangible through architectural forms and experiences,

this course fosters students' ability to analyze and understand the unique formal vocabulary of architecture and its expressive potential, as well as the complex and instrumental dialogue between architecture and culture.

ARCH 3602-001 - Architecture Photography

- Tu, 5:00 pm - 7:45 pm (REMOTE)

Course Description:

Architecture Photography is an introduction to making and critically analyzing photographs in general, as well as architectural images specifically. Students will be challenged to create compelling imagery and to think critically about the ways in which images communicate. Students will complete a number of in-class mini assignments, photographic assignments, and a final photographic project.

Throughout the semester, students will learn:

- How to operate a DSLR/mirrorless system camera
- Photographic composition
- Adobe Lightroom Classic CC, and components of Adobe Photoshop
- Approaches to photographing architectural exteriors and interiors
- About photographic artists and their work

In order to successfully complete this course students will need:

- Access to a DSLR or mirrorless system camera
- Can be purchased or borrowed from a friend or family member
- A **limited** pool of cameras will be available through the college
- An external hard drive or laptop
- Access to Adobe Lightroom Classic
- Access to Adobe Photoshop

ARCH 3700-001 - Special Topics Design - Presentation: You and Your Work

- Tu + Th, 9:30 am – 10:45 am (REMOTE)

Course Description:

In this course we will focus on the multifaceted elements needed to clearly communicate your design intention in presentations. We will examine the connections between visual representation and the written/spoken word. We will address: time management, workflow tools and techniques as well as how to deal with nerves and anxiety to develop a healthy design practice. A personalized plan will be developed to reach each students goals and needs.

ARCH 3701-001 – Survival Sketching

- Fr, 11:00 am – 12:15 pm (REMOTE/ONLINE: mixed modality of synchronous remote and asynchronous online learning)

Course Description:

Architects regularly observe, analyze, and envision the future of the world around us. Drawing is our special tool. While we increasingly have sophisticated information modeling and rendering software available to us, the humble sketchbook remains a powerful asset in developing our skills in a variety of situations.

Skills development in sketching comes through understanding, practice, and critique. This class consists of asynchronous online demonstrations, mini-lectures and guest presentations; coupled with out of class drawing exercises and critique of those drawings through remote class meetings (Zoom).

The specific skills developed in this course are freehand drawing in several media (e.g., pen, pencil, brush) and the combination of that drawing with other analog and digital media (e.g., photographs, computer renderings). We will explore perspective drawing and analytic paraline projections while developing technique through the use of line/contour, tone, color as well as the development of viewpoint and image framing and composition.

ARCH 3705-001 – Human Centered Design, Innovation, & Prototyping

- Tu + Th, 12:30 pm – 1:45 pm (REMOTE)
- This course is taught by InWorks faculty, and does not focus on architectural design; it counts as Architecture Elective credit for the BS ARCH program.

Course Description:

Introduces collaborative interdisciplinary design and innovation from a human perspective. Using the wide array of InWorks prototyping facilities, teams of students will design and implement human-oriented projects of increasing scale and complexity, in the process acquiring essential innovation and problem-solving skills. No previous design or prototyping experience is expected or required!

ARCH 3706-001 – 3D Design, Computation, and Prototyping

- We, 3:30 pm – 6:20 pm (REMOTE, check class description in UCDAccess for meeting schedule)

Course Description:

Introduces the design and computer-controlled fabrication of three dimensional objects using both additive (3D printing) and subtractive (laser cutter, CNC router / milling machine) processes. Various commercial and open-source software tools for 3D design (CAD), manufacturing (CAM) and visualization will be explored. Increasingly complex projects throughout the semester will be used to illustrate fabrication techniques. The course will culminate in a final project.

ARCH 3707-001 – Color Theory + Application

- Fr, 12:30 pm – 3:15 pm (REMOTE)
- NOTE: This course was previously numbered ARCH 3700 (Special Topics Design: Color Theory). If you took this ARCH 3700 course previously, do not enroll in ARCH 3707; you cannot earn credit for both.
- *Suggested pre-requisite: Junior standing, and completion of Studio II at minimum.*

Course Description:

This course will explore Color perception and theory; media/medium technique/application and landscape/built-environment drawing preparation, composition and presentation. The objective is to develop your understanding of color interaction and interrelationship especially, as it pertains to the use of color in the design and implementation of the built environment.

ARCH 3708-001 – Introduction to the Essentials of Biomimicry

- Mo + We, 9:30 am – 10:45 am (REMOTE)

Course Description:

Biomimicry is a collaborative field that brings biologists and ecologists to the design table. In addition to learning about the topic from lectures and readings, students will participate in group projects, take field trips around Denver (virtually/optional/outdoors), and listen to guest lectures from leaders in the natural sciences. This class will review the (3) Essential Elements of Biomimicry: Emulate which is to look to the 30million other species on this planet as teachers on how to survive and thrive on this planet, Ethos which is an ethical approach to working *with* nature as opposed to controlling it, and (Re) Connect which is to start feeling a part of nature instead of separate from it. We will review the (26) Life's Principles that represent the overarching patterns found in nature. Life integrates and optimizes these strategies to create conditions conducive to life. And after learning these foundational aspects of Biomimicry, we will analyze the Biomimicry Thinking Methodology which consists of (4) phases that compliment a more traditional design approach: scoping, discovering, creating, and evaluating.

ARCH 3800-001 – Special Topics Technical - Grasshopper

- Tu, 6:30 pm – 7:45 pm (REMOTE/ONLINE: mixed modality of synchronous remote and asynchronous online learning)

Course Description:

This course will cover the basic operations and methods of using Grasshopper to create parametric workflows. The course will begin with a 3-4 introduction/refresher in Rhino and then will move into how Grasshopper operates. From there students will move into how to create Grasshopper files that automate processes in Rhino, explore how to rapidly iterate designs in Grasshopper, and lastly produce a script independently that focuses in on an area of student interest.

Students will need access to both Rhino and Grasshopper. Grasshopper comes pre-installed in Rhino 6. Students may use either a Mac or PC, but the course will be taught from a PC. Students will meet once a week as a class via Zoom for both lectures and discussions. Tutorials and assignments will be housed on Canvas. Graduate students will be expected to display a higher degree of understanding and mastery in their final projects.

ARCH 3801-001 – Introduction to Digital Media

- We, 6:30 pm – 7:45 pm (REMOTE/ONLINE: mixed modality of synchronous remote and asynchronous online learning)

Course Description:

This course introduces students to digital drawing and representation through the lens of a precedent study. We will work through multiple drawing techniques and skills within Rhino 3D, starting in two dimensions and eventually building a 3D model of the precedent project. The workflow will also teach how to bring Rhino drawings into the Adobe Suite to represent the project through diagrams, images, and research - resulting in the skills to build a project portfolio. Weekly reading assignments will help situate this work within the broader context of architectural theory and representation.

Students should have an understanding of architectural drawings and drawing techniques. Experience with Rhino will be helpful, but is not required as a prerequisite. Skills in hand-drawing and model making will help inform the digital tools that we will be teaching in the course.

ARCH 3805-E01 - Beginning Revit

- ONLINE (asynchronous learning)
- Prerequisite coursework: ARCH 3110 Design Studio II and ARCH 3130 Construction Prac I

Course Description:

This course covers the fundamental operation and use of Autodesk's Revit Architecture software. In this course, students will learn how to operate and navigate the program and will produce drawing sets and renderings for a simple building. The course will closely follow the "Revit Architecture 2019 Essential Training (Imperial)" and other tutorials available on Lynda.com. To access Lynda.com, students will need to purchase a subscription for the duration of the class or obtain free access through the Denver Public Library. This will be in lieu of purchasing a text book. Students who work for the university may have access to a free Lynda.com subscription.

By the end of the course, students will be capable of producing full architectural drawing sets including title blocks, floor plans, elevations, sections, details, renderings, and 3D models. The course will cover basic rendering techniques and a limited amount of Adobe Photoshop skills so that students can apply their knowledge of Revit to produce materials for their studio courses as well as in their careers as architects.

ARCH 6375-001 & ARCH 6376-001 – Green Tech Eco-Furniture Fab I & II

- Tu + Th 9:30 am – 12: 15 pm (This class is taught in person, on campus)
- **Instructor permission required for enrollment: please contact Julee Herdt (julee.herdt@ucdenver.edu) for permission.** ARCH 6375 and ARCH 6376 are *co-requisite classes*: to enroll in this class, you must register for both classes simultaneously.

Course Description:

Green Tech is a real-build course in which students design and fabricate eco-furniture and architectural elements, clothing, or other objects using salvage, material surplus, and discards as creative inspiration. In Green Tech, powerful, creative work is produced by adhering to the rule: ***Find, don't buy.***

In the course, students design by investigating and integrating their own unique ideas, philosophies, and cultural experiences as creative guides. Results from this class demonstrate projects of beauty, highest quality, and personal meaning for the individuals. Students learn first-hand that enjoyment of work yields the highest quality project.

In Green Tech students --

- Consider that mistakes and odd ideas are often the most valuable design paths.
- Build real joints, details, and connections. No construction background is needed.
- Apply green techniques in all phases of work, from modelbuilding to project finishing.
- Learn local sources for salvage and construction waste.
- Work fearlessly and without inhibition.

LDAR 3601-E01 – Introduction to Landscape Architecture

- ONLINE (asynchronous learning)
- This course is taught by CAP's Department of Landscape Architecture, and counts as Architecture Elective credit for the BS ARCH program

Course Description:

Landscape architecture is the design of almost everything under the sky! Landscape architects most often strive to achieve a balance between the built and natural environment. They often design flexible solutions anticipating change over time.

Professionals, as well as policy makers and educators in the design industry, now more than ever, strive to use holistic design thinking to arrive at integrated design solutions. This online course will give you an overview of the social, cultural, environmental, historic, and aesthetic aspects of landscape architecture, and help you discover, explore, map, and investigate the many important ways landscape architecture integrate with architecture. This includes landscapes on structure (such as green roofs, green walls, and urban agriculture), as well as urban and rural landscapes at all scales (such as open space, regional parks, pocket parks, and residential backyards).

Landscape architects continuously strive to find responsible and renewable Nature Based Solutions (NBS) to the development of the built environment. More than often, landscapes are designed to optimize system based performances and benefits, such as mitigating Urban Heat Island (UHI) effect, securing government buildings, mitigating flood, removing toxins from rainwater, and ensuring safety and mental health for city dwellers. To do that successfully, an intimate understanding of context, ecologies, and the integration of landscape architecture and architecture (and more), is essential.

Students in this course will : 1) gain an understanding of the technical aspects of landscape design (on, as well as off structure), 2) gain familiarity with the tools and materials used in landscape architectural practice, 3) identify, explore and analyze the factors that affect the design of outdoor spaces/spaces between/above/and alongside buildings, 4) gain an understand of the creative design process, and 5) understand how ecological processes factor into the design of buildings, urban and open landscapes, to create a sustainable built environment.

LDAR 4430-002 – Site, Society, and Environment

- We 1:00 pm – 3:45 pm (REMOTE)
- This course is taught by CAP's Department of Landscape Architecture, and counts as Architecture Elective credit for the BS ARCH program.

Course Description:

Sites are defined by relationships within environmental and social settings. Therefore site design should be primarily ethical and secondarily technical. This course examines the implications of this idea through site methodologies, conceptual construction of site, site analysis and site typologies