

**Electives List**  
**Fall 2021**  
**Hillier College of Architecture & Design**  
**4/8/21**

**Undergraduate Electives**

In addition to the electives below you may also take advantage of the graduate electives (see for procedure below).

\*\* There are also courses that are regularly offered under *AD, ARCH, DD, ID, and INT* course numbers which students may opt to take to fulfill design and/or arch elective requirements (with director approval). The schedules for those courses can be found on the Registrar's Course Schedule website under the course prefixes noted above.

<b><u>Course #</u></b>	<b><u>Title</u></b>	<b><u>Instructor</u></b>
<b><u>Art + Design Electives:</u></b>		
AD 490	UI-UX Design	H. Kum-Biocca
AD 490	Diagramming Economy - Hybrid	A. Penalba
<b><u>History / Theory Electives:</u></b>		
Arch 335	Digital Tectonics	M. Hurtado
Arch 536	Landscape and America Culture	T. Navin
Arch 574	Urban Morphology: Cities by Design	C. Harp
<b><u>Technology Electives:</u></b>		
Arch 423	Construction III: Resilient Structural Design	R. Taher
Arch 429	Structures III: Advanced Structures	R. Taher
Arch 538	Sustainable Architecture	H. Kim
Arch 545	Case Studies in Arch Technology	H. Kim

### **Graduate Electives**

Qualified undergraduate students are encouraged to take 600-level graduate electives. To do so, first that apply for the [Dual Degree Program here](#) and complete this BS/MS [approval form](#) for submission to the Registrar's Office. This would allow you to apply up to 12 credits of graduate courses toward both your undergraduate and graduate degree requirements, while paying undergraduate tuition for those graduate courses.

Masters students are also encouraged to take 700-level doctoral electives. For special permission to do so, contact the course instructor. Once this approval is conveyed to the graduate advisor, you will be given permission to enter the course.

<b><u>Course #</u></b>	<b><u>Title</u></b>	<b><u>Instructor</u></b>
Arch 626	Building Dynamics	V. Parlac
Arch 636	History and Theory of Urban Planning and Design	G. Theodore
Arch 677	Geographic Information Systems	TBD
Arch 679	Envisioning Newark	T. Schuman
DD 622	Visual Storytelling and Storyboarding	J. Ross

**Course Descriptions:**

**AD 490: UI-UX Design (Kum-Biocca)** Application of theories, research methods, ethics, and design processes of User Interface/Users Experience (UI/UX) for designers. Students will research, develop, UI Design, and test UX designs. Design strategies will be discussed as they apply to physical, virtual, and hybrid solutions for desktop and mobile computer interfaces.

**AD 490: Diagramming Economy (Penalba) DIAGRAMING ECONOMY** This class is designed to explore new representational techniques to unveil the socio-political, economical, environmental and cultural forces behind the design of our very productive built environment. This class is designed to give students the intellectual tools to think critically and innovatively at the same time that training their creativity to communicate their beliefs and thoughts through the production of visual statements; we will work simultaneously in both, the thinking and the making. Students will be invited to explore different topics that examine the relationship between production and our built environment and will represent some of those concerns and thoughts exploring different representational formats with a variety of techniques in analog and digital media (e.g., video, three dimensional models, animations, graphics, etc.) to create novel and hybrid forms of representation that visually discuss, communicate and materialize their conclusions and concerns about the future of a more caring city.

**Arch 335: Digital Tectonics (Hurtado de Mendoza)** This course, design oriented, investigates ordering systems and the relationship of digital tools to physical construction, and of mathematics and abstract ideas to the built environment. The term digital tectonics refers to an idea regarding the qualities of works of contemporary architecture that seem to be influenced by the use of digital tools and system thinking. In this course, students are asked to investigate the theoretical and geometrical reasons behind this digital tools. A series of lectures and exercises will help the students to achieve a more rigorous approach to their conception of architectural space by analyzing, drawing and producing original ideas for structures, skins, assemblages, form and space making methodologies that are aided by digital tools and rationalized through digital operations.

**Arch 423: Construction III: Resilient Structural Design (TaHER)** Damages from hurricanes, earthquakes and floods amount to many billions of dollars in the US and around the world every year. These hazards also claim the lives of many people in the affected areas. The quality of building design and construction for these hazards can be improved, and building professionals have an important role to play by improving their knowledge in the field, and by designing better and safer buildings and structures. This course discusses the topic of structural building design for various hazards such as earthquakes, high winds/hurricanes and floods. Each type of hazard is discussed separately. First, the nature of the hazard, expected damages and the corresponding response of a structure are outlined; then the structural design process is developed based on the requirements of the latest codes and standards. The course also includes a discussion of some of the most recent research findings. Design examples are used to illustrate the various design methods, and students apply the knowledge acquired in this course to a practical building design project. At the end of the course, students are introduced to some of the standard procedures used in the safety assessment and evaluation of damaged buildings in the aftermath of hurricanes and earthquakes.

**Arch 429: Structures III (TaHER)** This course covers advanced topics in structural analysis, reinforced concrete structures, steel, wood and masonry structures. The course also includes design examples in relation to various types of foundation systems. It focuses on indeterminate structures in structural analysis and integrated structural systems in designing structures. Case studies of some well-known buildings are covered. Some BIM applications are included in the main project.

**Arch 536: Landscape and American Culture (Navin)** The course combines the viewing of film clips and other forms of visual media with weekly readings that address a variety of thematic topics about the images of the American landscape. These topics will explore our attitudes about nature and the vast landscape of the United States and come to understand how the multi-cultural traditions of this country's formation frame these viewpoints.

**Arch 538: Sustainable Architecture (Kim)**: This course introduces the students to Building Energy Modeling (BEM) and energy optimization techniques using the EnergyPlus whole-building energy simulation program to develop student competency with whole-building energy simulation. Students will practice whole-building energy simulation, including

the hourly modeling of dynamic thermal envelope loads and system simulations; and explore various green and sustainable design strategies and systems to optimize the envelope and system performance of their projects. This will allow them to be better prepared for interdisciplinary collaboration and integrated design practice for energy efficiency.

**Arch 545: Case Studies in Arch Technology (Kim)**: This course explores principles and technologies governing high performance green building design to achieve outstanding performance that goes beyond minimum green requirements. Case studies of existing high performance green buildings around the world will be analyzed in terms of their design, system integration, renewables, and environmental performance, which will be accompanied by lectures about the principles and tools applied to the projects. The use of existing high performance energy standards will be also discussed. Using the techniques and tools learned in this class, students will practice how to design/redesign a high performance green building, which will form the final project of the class.

**Arch 574: Urban Morphology: Cities by Design (Harp)** What constitutes the urban? How are urban constructs begun, developed, and given their characteristic forms? What conditions and values conspire to influence the making of memorable and lasting towns, cities, and urban places? Against a contemporary backdrop of rapid urbanization, densification, branded images of urban living, struggles between globalization and localization, and threats inherent in climate change, a focused look at patterns, processes, and examples of the distant and the more recent past can serve as guides toward building a more enlightened and sustainable future for both the man-made and the natural environments.

**Arch 626: Building Dynamics (Parlac)**: In this class we are looking beyond sustainability and towards a goal of making the built environment more productive and more aligned with dynamics of their surroundings and availability of resources. The emphasis on dynamics presents exciting opportunities for students to think how architecture as a discipline can expand its practice and integrate knowledge and technologies from diverse fields. Future architects and young professionals will be called upon to design spaces and places that must address climate change and resource depletion. In this course students find relevant arguments, useful references and cutting-edge projects that can introduce them to possible architectural futures and expand their own imagination.

**Arch 636: History and Theory of Urban Planning and Design (Theodore)** Prerequisite: Graduate status The seminar examines methods for conducting historically driven, interdisciplinary research on the built environment (with a focus on cities and suburbs) through the lens of architecture, landscape, geography, and material culture. Methodology is studied to inform the production of urban history and to frame historical perspectives on contemporary urban issues. Historiography and critical theory are key aspects of the study of urban history's methodologies. In addition to traditional historical methodologies, the course examines emerging digital humanities methodologies.

**Arch 677: Geographic Information Systems (tbd)**

**Arch 679: Envisioning Newark (Schuman)** This field seminar course has two objectives: to inform students about the redevelopment process underway in Newark; and to use the city as a springboard for a broader investigation of the theory and practice of urban development, including competing planning paradigms (from the master plan to community-based planning); the interplay of downtown and neighborhood; the relationship between economic development and other sectors; and the play between market forces as government policy. The vehicle for this exploration is classroom seminars based on historical, analytical, and literary texts; field visits to Newark's districts and neighborhoods; and meetings with leaders in government, business, the arts, education, and community development. Student work includes keeping current with Newark issues as reported in the daily press; essays conveying their own perceptions of Newark; and a research paper on historical topics or contemporary issues that may be a service-learning assignment with a community-based organization.

**DD 622: Visual Storytelling and Storyboarding (Ross)** Prerequisites: [DD 601](#), [DD 602](#). Storyboarding is the preparation of a conceptual and thematic graphic plan to tell a story using animations, video games, interactive media and experiences, advertisements, music videos, or graphic novels. This course will cover the fundamentals of visual storytelling and the

various applications possible in a visual narrative. Techniques for art direction are covered including the use of storyboards, concept art, and animatics to communicate. Students will translate a written narrative into a visual experience in this project-based class with the use of camera framing, camera angles, gesture, and expression. Issues of lighting, color, and mood will be included resulting in a student developed full-story pitch.