Architecture

Sam Fox School of Design & Visual Arts

The Sam Fox School of Design & Visual Arts is a unique collaboration in architecture, art and design education, linking professional studio programs with one of the country’s finest university art museums in the context of an internationally recognized research university.

The Sam Fox School is composed of the College of Architecture, the Graduate School of Architecture & Urban Design, the College of Art, the Graduate School of Art, and the Mildred Lane Kemper Art Museum.

Architecture

Throughout history, architects have played a leading role in forming the environment and in interpreting the aspirations of societies in all parts of the world. As a practical and useful art, architecture embraces aesthetic, ethical, social and technical responsibilities. Architecture responds to the way people live and, in turn, influences their lives.

Students considering an architectural education and architecture as a potential career express an excitement about design and building, as well as a commitment to the environment. If students plan to study architecture, they should have artistic ability and a good academic base. Personal interests in such areas as drawing, painting, photography, sculpture, building and the environment suggest a possible aptitude for architecture.

Architecture reflects culture; architects must know their culture deeply. To gain an understanding of all aspects of architecture and to develop the attitudes and skills necessary to deal with them, students must have a broad liberal arts education. This base of cultural understanding and critical thinking is combined with a curriculum that focuses intensely on the study of architecture.

Architecture is an absorbing, fascinating profession. Choosing architecture as a professional career requires a major educational commitment at the undergraduate level and to further study in a professional degree program. With a professional degree in architecture, a graduate may choose to work in small or large architectural firms, in academia, in community or governmental organizations, with development teams, and in a variety of related fields.

Architecture at Washington University

Washington University established the Department of Architecture as part of the School of Engineering and Architecture in 1902. The School of Architecture became an independent division of the university in 1910.

In 1932, Givens Hall was constructed to house the school as a result of a generous gift in memory of Joseph W. and Kate Abbey Givens. The Art & Architecture Library and the Mildred Lane Kemper Art Museum are in the new Kemper Art Museum building. Steinberg Hall also houses studio and review space.

In 1967, the School of Architecture became one of the first schools in the United States to offer a pioneering six-year joint-degree (Bachelor of Arts and Master of Architecture) program. The 4+2 program now leads to a thorough four-year Bachelor of Science in Architecture degree, followed by two years of graduate study for the accredited professional Master of Architecture degree. In 2005, as part of the formation of the Sam Fox School of Design & Visual Arts, the School of Architecture was reorganized as the College of Architecture and the Graduate School of Architecture & Urban Design.

Equally, the college offers the four-year Bachelor of Design degree with a major in architecture — a strong, flexible undergraduate curriculum that also prepares students for graduate study in architecture, usually for three years. These undergraduate degree programs offer students the opportunity to gradually focus their undergraduate studies within the college and allow them to make an incremental commitment to a career in architecture.

The College of Architecture faculty are nationally and internationally renowned practitioners and researchers who are committed to students’ undergraduate experience. As academic advisers, they work with the dean and undergraduate chair to help students build an individualized curriculum, select specific courses and chart plans for their future careers.

Undergraduate Degree Programs

The College of Architecture offers course work leading to two undergraduate degrees: the Bachelor of Science in Architecture and the Bachelor of Design in Architecture. The requirements for both degrees are the same through the junior year.

Students begin with a Sam Fox School foundation drawing course taken with first-year students in the College of Art and two design courses particular to architecture. They take required courses in the College of Arts & Sciences and electives in architecture and the Sam Fox School.

For the Bachelor of Science degree, students continue to study architecture in depth through the senior year. For those in the Bachelor of Design program, the fourth year offers flexibility in studying outside of architecture or pursuing other electives in architecture and art.

Continuing for graduate study years:

Students receiving the Bachelor of Science in Architecture degree can apply to two-year Master of Architecture programs. Students receiving the Bachelor of Design degree with a major
in architecture usually apply to three-year Master of Architecture programs (see Graduate Degree Programs below).

If a student enters the College of Architecture as a first-year student, he or she may complete both the bachelor's and the master's programs in a minimum of six years, in a professional degree structure called the 4+2. Using the Bachelor of Science in Architecture degree as the initial basis, the 4+2 curriculum allows a student to spend four years as an undergraduate and two years as a graduate student in the Master of Architecture curriculum (see the 4+2 Program information).

Further information on the particular requirements and curricular structures of the undergraduate degree programs is listed below.

**Combined Studies**

Washington University offers students the option to study across disciplines and to take advantage of the wide range of courses available. Students may choose to major in architecture and minor in another subject; major in architecture and choose a second major in another area within the College of Arts & Sciences; or major in architecture and choose a second major in an area from a different undergraduate school.

**Special Programs and Resources**

**Cooperative Program in Architecture**

The Graduate School of Architecture & Urban Design has established agreements with a number of primarily undergraduate liberal arts schools in the United States to allow their students to take advantage of the Cooperative Program in Architecture. Cooperative Program students are able to begin their architectural studies at Washington University in their senior year while still enrolled as undergraduates. Their undergraduate degrees will come from the home institution where they reside for three years, yet they include within their four-year baccalaureate degree program one year of study at Washington University. For more information, contact: Cooperative Program in Architecture, Washington University in St. Louis, Campus Box 1079, One Brookings Drive, St. Louis MO 63130. Call (314) 935-6227 or (800) 295-6227 (continental U.S.) or e-mail samfoxschool@wustl.edu.

**Study Abroad**

Students have an opportunity to study in Florence, Italy, for a semester or over the summer term. These programs are based on a directed curriculum of urban and building analysis and appreciation.

Architecture students are eligible to participate in the university's study abroad programs.

**Independent Study**

Opportunities for independent study are available to all graduate and undergraduate students. Registration in an independent study course requires sponsorship by an instructor and permission of the dean. A maximum of 5 units (graduate students), 3 units (juniors and seniors), and 1 unit (freshmen and sophomores) may be taken per semester. Independent study courses cannot replace architectural design studios or other required courses. An independent study proposal sheet approved by a faculty sponsor must be submitted to the Office of the Dean at registration time.

**Summer School**

The College of Architecture offers a limited number of courses during the summer, primarily ARCH 447A Structures I and ARCH 448A Structures II.

**Graduate Degree Programs**

The Graduate School of Architecture & Urban Design's degree programs include a range of curricula for students with a variety of educational backgrounds, professional degree needs, and career ambitions.

Most states require that an individual intending to become an architect hold an accredited professional degree. The National Architectural Accrediting Board (NAAB) accredits two types of degrees: (1) the Bachelor of Architecture (not offered by this College of Architecture), which requires a minimum of five years of study, and (2) the Master of Architecture, which requires a minimum of three years of study following an unrelated bachelor's degree or two years of study following a related pre-professional bachelor's degree. These professional degrees are structured to educate those who aspire to registration/licensure as architects.

The graduate school's Master of Architecture degree (MArch 3 and MArch 2 programs) is an NAAB-accredited professional degree. The school's NAAB-accreditation status was evaluated and confirmed in the spring of 2005.

**Master of Architecture Degree**

Students holding bachelor's degrees in fields other than architecture are invited to apply to the graduate school's accredited professional MArch 3 degree program. Elementary calculus and physics are required as prerequisites for enrollment. While the curriculum typically spans seven semesters, students may complete this professional studies program in a minimum of three years including two summers.

Students with the Bachelor of Arts degree with a major in architecture, including studios at both the 300 and 400 levels, or the equivalent, are placed within the MArch 3 curriculum on the basis of their previous design studio experience and overall academic record.

The Graduate School of Architecture & Urban Design welcomes graduates of other schools with the undergraduate degrees in architecture (Bachelor of Science in Architecture) or the equivalent as candidates for the accredited professional Master
of Architecture degree program (MArch 2). This curriculum typically spans four semesters.

Postgraduate programs, for students already possessing accredited professional degrees (Bachelor of Architecture or the equivalent), include the three-term MArch 1 degree curriculum or the Master of Urban Design degree program.

**Master of Urban Design Degree**

Students with a professional degree or the equivalent in architecture, urban planning, or landscape architecture may apply for admission to the program leading to the Master of Urban Design degree. This degree is awarded upon completion of a three-term graduate curriculum devoted to urban design in metropolitan conditions.

**Master of Landscape Architecture Degree**

In the fall of 2010, the college and Graduate School of Architecture & Urban Design launched a new graduate program in landscape architecture leading to a professional Master of Landscape Architecture (MLA). Two- and three-year degree options accommodate students with design and other undergraduate degrees. The landscape program further develops cross-disciplinary connections among architecture, urban design, and visual arts in the Sam Fox School of Design to grant MLAUD and MLA/MArch degrees.

This new program in landscape architecture focuses on the three subjects of design, ecology and urbanism. The transformative process of design — linking cultural, historical and technological investigations — forms the pedagogical basis for research. Ecology informs design practice to address a multiplicity of scales and natural systems within the environment. Urbanism serves as a terrain of contemporary landscape practice. As heirs to design, ecological and urban traditions, landscape architects are uniquely suited to articulate a spatial vision for today's environment. This three-pronged approach is geared to develop the students' critical and conceptual abilities, and prepare them to become leaders within professional and academic spheres.

The curriculum is centered on studio teaching supported by instruction in technology, history and theory. Following the core sequence of design studios and classes, students are encouraged to develop their own research interests through advanced design studios and electives. Interdisciplinary and international option studios foster a multiplicity of perspectives leading to a research-based degree project (thesis or independent study). In addition, students have opportunities to further their investigations within and beyond the school through teaching and research assistantships and scholarships.

The landscape architecture program draws on a unique set of institutional, regional and international resources available at the Sam Fox School. St. Louis functions as a laboratory for understanding and testing ecological and urban theories at the local scale, from brownfield reclamation to urban agriculture systems. Washington University's outstanding programs in environmental studies, environmental engineering, and American Culture Studies expand curricular offerings in ecology, technology and landscape studies, and the internationally renowned Missouri Botanical Garden serves as an exceptional tool of research and teaching. Finally, through the extensive international offerings of the school in Barcelona, Buenos Aires, Helsinki, Seoul and Tijuana, students experience different landscapes, cultures and cultures of practice.

**Combined Degree Programs**

The Graduate School of Architecture & Urban Design offers the following combined degree programs at the graduate level:

- Master of Architecture — Master of Urban Design
- Master of Architecture — Master of Business Administration
- Master of Architecture — Master of Social Work
- Master of Architecture — Master of Construction Management
- Cooperative 3+4 Program

Information on these combined degree programs can be obtained from the respective school's Office of Graduate Admissions. In all cases, application must be made separately to each graduate or professional program.

**Information and Applications**

An application to the graduate programs should include a portfolio of student work in the visual arts (drawing, painting, sculpture, etc.) or architectural design work if the applicant has completed architectural design studio courses, along with a transcript or record from the institutions attended, and letters of recommendation. The Test of English as a Foreign Language (TOEFL) is required of international applicants along with verification of availability of funds.

For more information about graduate degree programs and requirements, contact the Director of Graduate Admissions, Graduate School of Architecture & Urban Design, Sam Fox School of Design & Visual Arts, Washington University in St. Louis, Campus Box 1079, One Brookings Drive, St. Louis, MO 63130-4899, or send an e-mail to: samfoxschool@wustl.edu.

**Endowed Professors**

**Kathryn Dean**
JoAnne Stolaroff Cotsen Professor
MArch, Oregon School of Architecture & Allied Arts
Paul Donnelly, FAIA
Rebecca and John Voyles Professor of Architecture
MS, Columbia University

Bruce Lindsey, AIA
E. Desmond Lee Professor for Community Collaboration
MFA, University of Utah
MArch, Harvard University

Adrian Luchini
Raymond E. Maritz Professor of Architecture
MArch, Harvard University

Robert McCarter
Ruth & Norman Moore Professor
MArch, Columbia University

Eric Mumford
Rebecca and John Voyles Professor of Architecture
PhD, Princeton University

Professors

Rod Barnett
PhD, University of Auckland

Stephen P. Leet
BArch, University of Kentucky

Associate Professors

Gia Daskalakis
Dipl de Postgrado, Universidad Politecnica de Catalunia

Robert Hansman
BFA, University of Kansas

John Hoal
PhD, Washington University

Sung Ho Kim
MSci, Massachusetts Institute of Technology

Zeuler Lima
PhD, Universidade de Sao Paulo

Igor Marjanovic
MArch, University of Illinois at Chicago

Heather Woofter
MArch, Harvard University

Assistant Professors

Chandler Ahrens
MArch, University of California, Los Angeles

Catalina Freixas
Dipl Arch, Universidad de Buenos Aires

Patricia Heyda
MArch, Harvard University

Derek Hoeferlin
MArch, Tulane University

Seng Kuan
PhD, Harvard University

Natalie Yates
MLA, Louisiana State University

Affiliate Associate Professors

Jeffrey Berk
Dipl Arch, Universidad de Buenos Aires
(Buenos Aires)

Gerardo Caballero
MArch, Washington University
(Buenos Aires)

Gustavo Cardon
Dipl Arch, Universidad Nacional de Rosario, Argentina
(Buenos Aires)

Fernando Williams
Dipl Arch, Universidad de Buenos Aires
(Buenos Aires)

Senior Lecturers

Janet Baum
MArch, Harvard University

Elena Canovas
MArch, Escola Técnica Superior d’Arquitectura de Barcelona

Valerie Greer
MArch, Washington University

Philip Holden
MArch, Washington University

Richard Janis
MArch, Washington University

George Johannes
MArch, Washington University

Don Koster
MArch, Washington University

Gay Goldman Lorberbaum
MArch, Washington University

Pablo Moyano
MArch, Washington University

R. Phillip Shinn
BSE, Princeton University

Lindsey Stouffer
MFA, Washington University

William Wischmeyer
MArch, Washington University
Lecturers
Charles Brown
MArch, Washington University
Kevin Le
MArch, Washington University
James J. Scott
JD, Saint Louis University

Professors Emeriti
Iain A. Fraser
Gerald Gutenschwager
James Harris
Sheldon S. Helfman
Leslie J. Laskey
Donald Royse
Carl Safe
Thomas L. Thomson

Dean Emeritus
Constantine E. Michaelides
FAIA

Majors
The Major in Architecture
Bachelor of Design Degree
The major requirements for the Bachelor of Design degree, with a major in architecture, are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 311</td>
<td>Architectural Design I</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 312</td>
<td>Architectural Design II</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 3284</td>
<td>Architectural History II: Architecture Since 1880</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 333</td>
<td>Case Studies in 20th-Century Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 346</td>
<td>Building Systems I</td>
<td>3</td>
</tr>
<tr>
<td>Capstone Course</td>
<td></td>
<td>3</td>
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</tbody>
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Electives
For additional information on current requirements, please visit the Degree Requirements page.

Bachelor of Science in Architecture Degree
The major requirements for the Bachelor of Science in Architecture degree are as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 311</td>
<td>Architectural Design I</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 312</td>
<td>Architectural Design II</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 411</td>
<td>Architectural Design III</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 412</td>
<td>Architectural Design IV</td>
<td>6</td>
</tr>
<tr>
<td>ARCH 3284</td>
<td>Architectural History II: Architecture Since 1880</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 333</td>
<td>Case Studies in 20th-Century Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 346</td>
<td>Building Systems I</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 447A</td>
<td>Structures I</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 448A</td>
<td>Structures II</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 438</td>
<td>Environmental Systems I</td>
<td>3</td>
</tr>
</tbody>
</table>

and completion of at least one architectural elective from the following groups:

- Urban Issues Electives group, or
- Architectural History/Theory Electives group.

For additional information on current requirements, please visit the Degree Requirements page.

Minors
The Minor in Architectural History
Minor Degree Advisor: Seng Kuan, skuan@wustl.edu
The minor in architectural history is open to all students at Washington University in St. Louis, regardless of their major.
Students interested in the minor should contact the designated Minor Degree Advisor.

Units required: 18* including:

6 units of architectural history survey:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 3283</td>
<td>Architectural History I: Premodern Encounters in World Architecture</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 3284</td>
<td>Architectural History II: Architecture Since 1880</td>
<td>3</td>
</tr>
</tbody>
</table>

3 units of methodology course work:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 4xx</td>
<td>Theories and Methods of Historical Research</td>
<td>3</td>
</tr>
</tbody>
</table>

OR

Another methodology-based course approved by the minor adviser | 3

9 units of architectural history and theory electives (300-level or above):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 3823</td>
<td>Rethinking Renaissance Visual Culture - Florence Summer Program</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 3xx</td>
<td>Elective architectural history and theory courses approved by the minor adviser</td>
<td>3</td>
</tr>
</tbody>
</table>

*12 units must be in the minor only and cannot be double-counted toward another major or minor.
# The Minor in Architecture

Minor Degree Advisor: Derek Hoeferlin, hoeferlin@wustl.edu

With a new curriculum in place, there will be changes in the minor. Please consult with the Associate Dean of Students for current requirements.

### Units required: 18

### Required courses:
- 6 units minimum of introductory design chosen from the following:
  - ARCH 111 Introduction to Design Processes I 3
  - ARCH 112 Introduction to Design Processes II 3
- 3 units minimum of history chosen from the following:
  - ARCH 3283 Architectural History I: Premodern Encounters in World Architecture 3
  - ARCH 3284 Architectural History II: Architecture Since 1880 3

### Elective courses: 9 units chosen from the following:
- ARCH 211B Introduction to Design Processes III 4.5
- ARCH 212B Introduction to Design Processes IV 4.5
- ARCH 302 Freehand Drawing 3
- ARCH 333 Case Studies in 20th-Century Architecture 3

Other elective courses as approved by the Associate Dean.

# The Minor in Landscape Architecture

Minor Degree Advisor: Natalie Yates (nyates@wustl.edu)

The minor in landscape architecture is for students who will be receiving either a Bachelor of Science in Architecture degree or a Bachelor of Arts degree with a major in architecture or a Bachelor of Design with a major in architecture. Students interested in the minor should contact the designated Minor Degree Advisors.

### Units required: 18* including:

- 6 units of foundational course work:
  - XCORE 307 Community Building 3
  - ARCH 241 Community Dynamics 3
- 6 units of design course work:
  - ARCH 312 /ARCH 412 Urban Design Focused Studio (6 units)
- 6 units of advanced course work:
  - ARCH 654D Metropolitan Landscapes 3
  - ARCH 656 Metropolitan Urbanism 3
  - Or an approved MUD track elective 3

*12 units must be in the minor only and cannot be double-counted toward another major or minor.

# The Minor in Urban Design

Minor Degree Advisor: Patty Heyda, heyda@wustl.edu

The minor in urban design is for students who will be receiving either a Bachelor of Science in Architecture degree or a Bachelor of Arts degree with a major in architecture or a Bachelor of Design with a major in architecture. Students interested in the minor should contact the designated Minor Degree Advisor.

### Units required: 18* including:

- 6 units of foundational course work:
  - XCORE 307 Community Building 3
  - ARCH 241 Community Dynamics 3
- 6 units of design course work:
  - ARCH 312 /ARCH 412 Urban Design Focused Studio (6 units)
- 6 units of advanced course work:
  - ARCH 654D Metropolitan Landscapes 3
  - ARCH 656 Metropolitan Urbanism 3
  - Or an approved MUD track elective 3

*12 units must be in the minor only and cannot be double-counted toward another major or minor.

# Additional Information

Students should check the current course descriptions carefully to verify their eligibility to enroll in courses that have specific prerequisites.

# Courses

**X10 XCORE (p. 7):** Sam Fox foundation and commons courses

College of Art and College of Architecture majors will have enrollment priority in X10 courses.

**A46 ARCH (p. 10):** Architecture
**Design & Visual Arts — Core (X10)**

Visit https://courses.wustl.edu to view semester offerings for X10 XCORE.

**X10 XCORE 101 Drawing I**
An introductory course which teaches students to recognize and manipulate fundamental elements of composition, line, form, space, modeling and color. Emphasis is placed on working accurately from observation, with an introduction to other methodologies. Students work in a variety of media. Demonstrations and illustrated lectures supplement studio sessions and outside projects.
Credit 3 units. EN: H

**X10 XCORE 102 Drawing II**
Continuing as an introductory course which teaches students to recognize and manipulate fundamental elements of composition, line, form, space, modeling and color. This course is an intensive studio course which builds on the perceptual and conceptual skills and experiences developed in Drawing I. A main objective is to develop a higher level of critical and studio practice.
Prerequisite: X10 XCORE 101.
Credit 3 units. EN: H

**X10 XCORE 181 Practices in Architecture + Art + Design**
This course offers first-year students in architecture and art an introduction to the subjects, theories and methodologies of the disciplines of art, design, architecture, landscape architecture, and urban studies. Examples, drawn from a range of historical periods as well as contemporary practice, highlight distinct processes of thinking and working in each discipline, as well as areas of intersection and overlap. Part 1 of 2.
Credit 1 unit. EN: H

**X10 XCORE 182 Practices in Architecture + Art + Design**
This course offers first-year students in architecture and art an introduction to the subjects, theories and methodologies of the disciplines of art, design, architecture, landscape architecture, and urban studies. Examples, drawn from a range of historical periods as well as contemporary practice, highlight distinct processes of thinking and working in each discipline, as well as areas of intersection and overlap. Part 2 of 2.
Credit 1 unit. EN: H

**X10 XCORE 301 From Propaganda to Decoration**
This is a studio course that is conceptually driven and anchored in the philosophical terrain of the print multiple. The fundamental attributes of the multiple, including its accessibility and repeatability, are from private to public and from political to aesthetic. Given this orientation, we examine the place where the public and private spheres meet. Considering urban communication and social space, reproduction and distribution, gifting and exchange, private practice and public intervention, this course uses the print multiple as a starting point to explore a continuum that runs from propaganda to decoration.
Credit 3 units. EN: H

**X10 XCORE 303 Visualizing Information**
This project-based studio course brings students from diverse backgrounds in Art, Architecture, and Design together to learn to compose information-rich surfaces. The course explores principles of information design on paper initially, and offers the opportunity to extend some applications to the screen. Course topics include content organization, visual structure, hierarchy, typography, color, sequencing, audience and usability. Students have the chance to select subject and media for some of their projects. Projects are supplemented with readings and lectures about contemporary information design, with some historical references. This course combines the rigor of a disciplinary classroom with the flexibility of a multidisciplinary one. Topics likely to emerge in the interdisciplinary conversation include information in three-dimensional spaces, communicating information with a particular voice or editorial perspective, analytical versus poetic information design, function, audience and programming. All of these are supported, and students develop a set of tools which can be adapted to their own disciplinary work in a meaningful way.
Credit 3 units.

**X10 XCORE 304 Data Visualization**
In this hybrid lecture/studio course, students learn basic skills to develop data visualizations focusing on clarity, relevance to the user, and visual expression. The course spans several themes within data visualization, including principles of two-dimensional design, storytelling and sequence, and interactivity and user navigation. It is organized into four units, each with a different content focus and data type, including topics as diverse as urban and rural landscapes, conditions in public health, and literary production. Students apply their own areas of interdisciplinary expertise to the final project. Students need a laptop with Adobe Illustrator and may need to acquire inexpensive or free software. This course is appropriate for sophomores through graduate students with or without visual training who are interested in data, information design, user interface, and computer programming. Course counts as a multidisciplinary course in the Humanities (IPH). Projects are supplemented with readings and lectures to compose information-rich surfaces. The course explores

**X10 XCORE 305 Topics in Visual Culture: Commercial Modernism in America, 1865–1965**
This survey course explores contributions to and expressions of visual modernism within the commercial tradition in the United States. Lectures, readings, and screenings engage the intertwined histories of commerce, technology, society and aesthetics. Topics include periodical illustration from Harper's Weekly to the Ladies Home Journal, the newspaper comic strip and the comic book, animation from vaudeville to television, and science fiction and transportation design. Context provided by the advent of industrial image production; modernist art theory and high cultural disdain for mass markets (with resulting effects on the academy); avant-garde and commercial cross-pollination; the social histories of ethnic depiction (i.e., blackface minstrelsy); consideration of women as consumers and producers of commercial images. Students make use of materials in the collections of the Modern Graphics History Library at Washington University. Three animation screenings are required. Attendance at these screenings is required.
Credit 3 units. EN: H
X10 XCORE 306 Commercial Modernism in America 1865–1965
Credit 3 units. EN: H

X10 XCORE 307 Community Building
This course looks at the intersection of the built fabric and the social fabric. Using St. Louis as the starting point, this course takes students out of the classroom and into a variety of neighborhoods — old, new, affluent, poor — to look at the built environment in a variety of contexts and through a variety of lenses. Almost every week for the first half of the semester, students visit a different area (or areas), each trip highlighting some theme or issue related to the built environment (architecture, planning, American history, investment and disinvestment, community character and values, race, transportation, immigrant communities, future visions, etc.). Running parallel to this, students are involved in an ongoing relationship with one particular struggling neighborhood, in which students attend community meetings and get to know and become involved with the people in the community in a variety of ways. Students learn to look below the surface, beyond the single obvious story, for multiple stories, discovering their complexity, contradictions and paradoxes. They also come to consider the complex ways in which architecture and the built environment can affect or be affected by a host of other disciplines. CBTL course.
Credit 3 units. EN: H

X10 XCORE 309 Convergences: Studies in Art & Architecture
This interdisciplinary course examines the convergence of artistic and architectural ideas, techniques, and practices through selected historical and contemporary studies. Emphases range from the figure of the artist/architect (Michelangelo and Leonardo, for example, to Le Corbusier and Libeskind), to critical reflections (Vasari, Gennough, Serra) to boundary-crossing practices (Whiteread, Webster, Irwin, Kir, Judd, Miss) to collaborations and collaborative works (Ando/Kelly/Serra, and the Pulitzer Foundation). The course emphasizes empathy and productive work across artistic disciplines. Field trips to the Pulitzer Foundation for the Arts (St. Louis) and the Chinati Foundation (Marfa, Texas) are planned.
Credit 3 units.

X10 XCORE 311 Materials & Mechanisms: Site Specific Design Installation
In this course students are guided to explore the nature of materials and simple mechanisms (mechanically driven kinetics) in the making of art and/or utilitarian objects. This course investigates the qualities of materials and how they might be used thoughtfully to develop a conceptual and physical experience for an audience or user. Specific materials are assigned, at times, yet students have the opportunity to self-select materials based on project needs. Throughout the semester, students balance designing with finding — the process of playfully exploring materials and methods without preconception of a final resolution. Looking for possibilities can lead to unexpected discoveries.
Credit 3 units. EN: H

X10 XCORE 313A Creative Practice and Natural Systems: An Ecology of Art
In this studio course, students learn to use basic ecological principles as a lens through which to investigate and evaluate productive, meaningful and sustainable creative practices. Ecology is community-focused, involving the study of relationships with a given community. It establishes a model by which students can establish a more complete understanding of the inspirations, expectations and ramifications of creative practice. We visit local gardens, parks, farms and neighborhoods while seeking to understand the complexity of our own role in nature and culture. This diverse range of ecological engagement allows for a broad array of creative applications in the studio arts, design and architecture. The class format challenges students with new ways of thinking while allowing them to select materials, specific topics of study, and methods of engagement appropriate to their own developing interests. The course consists of fieldwork, readings and lectures, the content of which is examined through individual and collaborative projects. At midterm students identify opportunities for focused research and production, and the course culminates with the public presentation of this work. College of Architecture and College of Art sophomores have priority. Fulfills Sam Fox Commons requirement.
Credit 3 units. EN: H

X10 XCORE 315 Cycles
Students design and build human-powered vehicles from discarded bicycles. The course collaborates with student mechanics involved with Bicycle Works (Bworks). Bworks collaborates in teams with Washington University students to design and build the work.
Credit 3 units.

X10 XCORE 317 Furniture Design
The seat is an intimate interface between the building and the body. It embodies a complex set of structural conditions, material opportunities and possibilities for expression. Architects, artists and industrial designers covet opportunities to make the chair. The result is that seemingly infinite perfect solutions exist — and still the seat remains a provocative challenge. In this course students design and build a chair. Emergent technologies are combined with traditional techniques of metal fabrication, woodworking and plastic forming in the design and making of the work. The course objective is for students to learn how to work directly with machinery and materials in the realization of their design. It is expected that students have basic shop skills addressed in course prerequisites. Advanced techniques are introduced in this course and students select those most appropriate to their work to build upon. There is a great deal of independent investigation required to excel in this course. Students propose ideas and then develop them using drawings, models and mock-ups in order to realize the best potential for their design.
Credit 3 units. EN: H

X10 XCORE 319 Digital Fabrications: A Primer Course in the Use of Computer Modeling for Art & Design
This course focuses on fabrications both real and virtual. The ubiquity of computers in design, studio art, communications, construction and fabrication demand that professionals become comfortable with their use. It is also important in a group of ever-specializing fields that one knows how to translate between different software and output platforms. This comfort and the
ability to translate between platforms allow contemporary artists and designers to fabricate with ever-increasing freedom and precision. This course introduces students to 3-D software with a focus on 2-D, 3-D, and physical output. Through a series of projects, students learn to generate work directly from the computer and translate it into different types of output. Starting from first principles, the course covers the basics from interface to output for each platform used. The course also familiarizes students with a range of CNC technology and other digital output for both small- and large-scale fabrication. The course is broken into three projects. In the first, students focus on computer-generated geometry and control systems. In the second, students generate physical output and line drawings. The final project focuses on rendering, context and cinematic effects. The software covered includes, but is not limited to, Rhinoceros 3-D, Maya, Illustrator and Photoshop. Additionally, students use the 3-D printer, laser cutter and/or other digital output tools.

Credit 3 units. EN: H

X10 XCORE 321 Mapping Soft Bodies
This course develops digital design skills with conceptual understanding of the transformative process of artistic production. Mapping Soft Bodies investigates artificial objects and industrial products as a basis for inspiration. Through digital modeling and scanning the human body, each student develops a transformation process that analyzes the social and cultural conditions of a new emerging design. New body armatures are modeled through CAD/CAM (laser cutting) and Rapid Prototyping (3-D printing) for physical outputs. The course is for students who are interested in emerging technologies and digital production. This course is for students interested in design, sculpture, architecture and digital media by enhancing 3-D technologies and allows each student to develop abstract thinking and making processes.

Credit 3 units. EN: H

X10 XCORE 325 Global Discourses in Art & Architecture
This course examines art, architecture and urbanism from the perspective of global production, dissemination and reception. It focuses on the global exchange of people and ideas as one of the main vehicles of visual culture, both historical and contemporary. Through a series of focused case studies, the course probes inherent dichotomies within art and architecture driven by their site-specificity, yet also by their constant global displacement across various disciplinary, cultural and geographical boundaries. The course content includes lectures, discussion sessions, readings and textual and visual projects that examine cross-cultural aspects of art and architecture.

*Enrollment limit will be set at zero and students will be enrolled from the waitlist. The course is open to all students at Washington University regardless of their major field of study. Sam Fox School sophomores will have priority.

Credit 3 units.

X10 XCORE 327 Color Systems
This course is a sustained investigation of color. Students study how color is affected by light, by space, by arrangement, by culture, and by commerce. The course aims to deepen the understanding of color’s complexity and pervasiveness as a fundamental element of shared visual culture. The course develops both technical and conceptual skills to aid in visual translation. In addition to color-specific inquiry, a goal is to expand ideas of research and enable students to integrate various methods of acquiring knowledge into their art and design practice. Throughout the course, students discuss various processes of making/constructing, the connection between color/form/concept, and strategies for idea generation and brainstorming. The course allows for much individual freedom and flexibility within varying project parameters.

Credit 3 units.

X10 XCORE 330 Cell Phones, Snapshots and the Social Network
This course is designed around the cell phone camera as a means of art production using blogs, interactive websites, social networking and mass distribution of digital images and videos. Students explore the art-making potential of the cell phone camera as a snapshot camera of the modern age. Students post daily images/videos on blogs and other social media sites. Readings and discussion topics include the culture and aesthetic of the snapshot, the vernacular image, and the role of social networks in image production and distribution. Students are required to design and maintain at least two social networking sites and to supply a cell phone with the ability to upload images to the Internet.

Credit 3 units. EN: H

X10 XCORE 332 Metabolic City: Spaces of Bodily and Environmental Wellness
Metabolic City probes bodily and environmental wellness as intertwined cultural, social, and technological constructs. From the British Archigram Group, to the Japanese Metabolists and the Dutch artist Constant, a number of visionary projects in the 1960s re-imagined our notion of the body, city and the environment. By means of individual and collective gadgets, tools and spaces they bridged the scales of the body and the city, weaving together issues of bodily and environmental performance. Through a combination of texts, discussions and projects, the course engages in a delayed conversation with these projects, proposing the concept of “metabolism” both as a bodily function, but also as an environmental mechanism that operates on a global scale. Some of the key concepts discussed in the class include global citizenry, urban imagination, networks, performance, virus, urban protest and insurgency. The course fulfills the Sam Fox Commons Course requirement and the architectural history/theory elective requirement.

Credit 3 units.

X10 XCORE 336 Urban Books
Since the beginning of the 20th century, art, architecture and urbanism together have investigated the production of images that shape the symbolic dimension of our experience of large cities. The main goal of this course is to critically embrace this tradition through the format of the artist’s book. St. Louis is the focus for our observations because it is familiar to our everyday lives and also because it provides key situations for understanding contemporary forms of urbanity and how urban space is produced and imagined. The course bridges the curricular structures of art and architecture by enhancing the collaboration between the practical and scholarly work developed in both schools, with additional support from Special Collections at Olin Library. It combines the reading, lecture, and discussion format of a seminar with the skill building and creative exploration of a studio. This course is divided into three progressive phases of development: the first consists of weekly readings, discussion and responses in the form of artist’s books. The second phase focuses on the Derive with physical activities and assignments based on interacting directly with the urban...
X10 XCORE 338 Shifting from Lines to Surfaces/Virtual to Empirical
Digital Media Design: Introduction to Exploring Digital and CAD/CAM Technology. This is a course in computing theory and techniques on 2-dimensional digital software and advanced 3-dimensional modeling software. Weekly demonstrations on software operations and individual projects are developed. This course bridges the gap between 2-D computational tools that define lines and the 3-D tools that develop complex surfaces. These surfaces explore the possibilities of creating and articulating the non-linear geometries manipulated on the digital environment. The final project consists of 2-dimensional drawings, digital models, and physical models produced by advanced CAD/CAM technology. By employing alternative techniques and emerging technologies of manufacturing, new forms of objects and perceptions will redefine multiple design processes.
Credit 3 units. EN: H

X10 XCORE 342 Florence Commons
This is a required course for all students in the Florence Study Abroad Program. Content for the course fosters the idea of collaboration, approaching how art, architecture, urbanism and design are related in Italian visual and material culture. All faculty work together to establish a shared semester theme and media and conduct collective introductory activities and reviews, as well as combined field trips. The instructor determines a specific approach to these shared goals. This framework allows for both cross-disciplinary work and increased breadth and focus regarding their semester study topics, a format that is unique to the undergraduate Florence Program. Students will be enrolled by the registrar in a section that best suits their area of study.
Credit 3 units. EN: H

X10 XCORE 343 Digital Filmmaking: City Stories
Digital Filmmaking: City Stories is a cross-university video art course for students interested in making short films through a transdisciplinary and time-based storytelling in both narrative and non-narrative formats. Whether documentary or abstract, individually produced or collaborative, all projects in this course have a required social and urban engagement component. Students meaningfully engage St. Louis, and their projects address sites of concern to explore the complex fabric of the city by way of framing and poetic juxtaposition.
City Stories merges several arts and humanities disciplines, including experimental cinema and documentary journalism, and creates an opportunity for empathic listening and inquiry as students discover stories built from collective as well as individual memories. CBTL course.
Credit 3 units. EN: H

X10 XCORE 344 Digital Filmmaking: City Stories
Digital Filmmaking: City Stories is a cross-university video art course for students interested in making short films through a transdisciplinary and time-based storytelling in both narrative and non-narrative formats. Whether documentary or abstract, individually produced or collaborative, all projects in this course have a required social and urban engagement component. In this course the city becomes a laboratory for experimentation and contribution. Students meaningfully engage St. Louis, and their projects address sites of concern to explore the complex fabric of the city by way of framing and poetic juxtaposition.
City Stories merges several arts and humanities disciplines, including experimental cinema and documentary journalism, and creates an opportunity for empathic listening and inquiry as students discover stories built from collective as well as individual memories. CBTL course.
Credit 3 units. EN: H

Architecture
Visit https://courses.wustl.edu to view semester offerings for A46 ARCH.

A46 ARCH 212B Introduction to Design Processes IV
Introduction to Design Processes IV engages design through the analysis of human behavior and scale to generate a programmatically complex project within the urban context. Prerequisites: successful completion of ARCH 111, ARCH 112 and ARCH 211B, with a grade of C– or better.
Credit 4.5 units.

A46 ARCH 111 Introduction to Design Processes I
This introductory architectural design studio engages the basic principles of architectural context, composition and experience. Through various fieldwork strategies, students explore architectural context through observation, analysis and invention. The site-specific design processes bridge two-dimensional and three-dimensional work, including drawing, drafting and making. The experiential qualities of architecture are introduced through basic considerations of scale and human interaction. The course work includes studio, work, lectures, presentations by students, readings, writing assignments and field trips.
Credit 3 units.

A46 ARCH 112 Introduction to Design Processes II
This core design studio engages the basic principles of architectural design through iterative processes of drawing and making, using a variety of tools, media and processes. The course work includes studio work, lectures, student
A46 ARCH 111 Introduction to Design Processes III
Introduction to Design Processes III engages design through the lens of perception investigating the relationship between materiality and inhabitable space situated in a natural context. Prerequisites: successful completion of Arch 111 or co-registration in Arch 111.
Credit 3 units.

A46 ARCH 211B Introduction to Design Processes III
Introduction to Design Processes III engages design through the lens of perception investigating the relationship between materiality and inhabitable space situated in a natural context. Prerequisites: successful completion of Arch 111 and 112, with a grade of C– or better; or successful completion of Arch 210, with a grade of C– or better.
Credit 4.5 units.

A46 ARCH 241 Community Dynamics
CBTL course.
Credit 3 units.

A46 ARCH 243 Design as Export
This course introduces students to the contemporary global characteristics of design in the late 20th and 21st century. The marketing, fabrication, distribution and consumption of design is global, yet the cultural and formal identity of most design products are national and regional. How do traditions of design and quality based on centuries of a national and regional design culture react and adapt to a global market? What is the culture of design? What is design identity? Italian design is the primary focus of this course, followed by Japanese and Asian design and manufacturing. Case studies include examples of industrial design, fashion design, communication design and automobile design. The course also includes presentations by design curators and representatives of various international design companies.
Credit 3 units.

A46 ARCH 2661 Semester Abroad Program Seminar
This course prepares students participating in the College of Architecture’s Spring Semester Abroad Program in Florence, Italy. The seminar meets eight times over the course of the semester. Attendance is required.
Credit 1 unit.

A46 ARCH 275 Service Learning Course: Environmental Issues
Credit 2 units.

A46 ARCH 302A Advanced Freehand Drawing
Application of the principles presented in ARCH 302 to more ambitious and individualized work. Work can include drawing, color, painting, printmaking, etc. The final target is a suite of independent works that explores a chosen medium or subject and that could constitute a small one-person show, but exploration and growth are given precedence over production. Weekly/semi-weekly critiques. Prerequisite: ARCH 302 or equivalent previous studies.
Credit 3 units.

A46 ARCH 302B Advanced Freehand Drawing (and Painting)
Credit 3 units.
isometric projection, central and parallel perspective, and usage of specific geometries, including orthographic and architectural axonometric. We see that, rather than a translation of reality, representation operates between perception and cognition as a transcription of reality and is a powerful instrument in the design and making of architecture. The relationship between the drawing forms and the tools used to produce them are brought into focus as manual, digital, photographic and physical applications driven by drawing intentions. This course is organized as a lecture/lab with emphasis on the practice of digital media and physical modeling. Emphasis is on participation and excessive absences are noted. Please note: The second half of the semester focuses on computing, for which each student is required to have a laptop computer.
Credit 3 units.

A46 ARCH 326G Digital Fabrications
Credit 3 units.

A46 ARCH 326J Digital Representations
Digital Representations introduces students to digital modeling and fabrication, parametric workflow, and various 2-D and physical output techniques. Starting from first principles, this course begins with the basics from interface to output for each platform used, developing skills in digital modeling and physical output and serving as a prerequisite for more advanced courses in design scripting and digital fabrication. Students complete a semester-long project divided into three assignments, beginning with developing a detailed digital model of a formal precedent, which introduces students to basic skills in modeling with nurbs, subdivision surfaces, and meshes. Continuing to develop a clear diagrammatic organization and hierarchy, students expand the characteristics of their original formal precedent using Grasshopper to create a set of dynamic, flexible behaviors. Drawing upon their initial understanding and analysis of organizational systems within their formal object, students transfer their observations into the construction of a spatial parametric model that has potential to serve structure, fabrication methods, and material assembly. Finally, students develop their digital model into a geometrically rationalized material system that draws upon their initial precedent, producing a physical model, renderings, and 2-D drawings presented in the format of a final review.
Credit 3 units.

A46 ARCH 3283 Architectural History I: Premodern Encounters in World Architecture
This course explores the history of architecture from its origins until the beginnings of the modern period from a global perspective, focusing on patterns of interaction and exchange between and within both elite and vernacular building cultures. Using selected examples from Eurasia, sub-Saharan Africa and the Americas, the course traces the major elements of change and development in the design of the earth’s built environment, including technologies and materials, typology, the organization of labor and capital systems to the profession and the public. Course requirements include a mid-term, final exam and research paper.
Credit 3 units. EN: H

A46 ARCH 3284 Architectural History II: Architecture Since 1880
An introductory survey of the history and theory of architecture and urbanism in the context of the rapidly changing technological and social circumstances of the past 120 years. In addition to tracing the usual history of modern architecture, this course
A46 ARCH 333 Case Studies in 20th-Century Architecture
Through a series of analytical, critical and interpretative studies of singular works of architecture in the 20th century, this course focuses on the manifold processes and contexts of their production. Each work is examined as a physical and cultural artifact with precise formal, intellectual and ideological intentions and meanings. The architectural object, understood as a synthesis of multiple criteria and frameworks, is explored from its conception through its realization based on certain principles (fundamental precepts of the discipline of architecture) and a broad range of concepts (abstract ideas understood as the products of speculative and reflective thought).
Credit 3 units.

A46 ARCH 336D Biomimicry: A Biokinetic Approach to Sustain(Able) Design
There is a conceptual similarity between the way an organism and a building engage their respective environments. A biological system responds to the unique condition of its ecosystem; architecture responds to the unique conditions of the site. Building on this principle are the fields of biomimicry, the study of design and process in nature, and biokinetics, the study of movement within organisms, and their ability to address architectural problems with elegant, technologically advanced, sustainable solutions. Biomimicry: A Biokinetic Approach to Sustain(Able) Design focuses on kinetics as an essential element of biomimicry in the context of architecture and employs the study of the kinetic aspects of biological systems — structure, function and movement — to inform the design and engineering of buildings. A systematic approach to researching and translating the kinetic function of organisms leads to a successful bridging of biological and architectural concepts.
Credit 3 units.

A46 ARCH 336E Biomimicry, Teleology and Organic Architecture
This seminar is intended to develop an understanding of the history and evolution of biomimicry as a significant design tool from the emergence of biology as a science in the early 19th century to the present. Biology was the first discipline to confront the problem of teleology, of design in nature. For the past 100 years, biological references and ideas are present in the work of architects and in the writings of architectural theorists. Biomimicry, a term coined by Janine Benyus, has developed into a new discipline that studies well-adapted organisms' designs and processes and then imitates life's genius to design human applications, aiming at a sustainable development. The intent of this seminar is to establish a systematic approach to research and analysis of the history and theory of this biological analogy and its influence on the history of environmental architecture, as seen through the lens of biomimicry. In addition to a historical analysis, students analyze case studies that exemplify the relationship of architecture to biology, focusing not only on built work, but on the writings and the designer's positions in terms of this relationship. Classes consist of a combination of formal lectures and facilitated discussion periods. In addition, each student chooses a particular architect and, through research and analysis, assesses the influence of biomimicry in his or her work and presents these results in a paper that includes a critical analysis and a proposal on how to advance the architect's work to the highest level of biomimicry.
Credit 3 units.

A46 ARCH 339 Concepts and Principles of Architecture I
This weekly seminar course addresses issues of Western architectural thought through a focused series of readings and discussions. The necessity and role of architectural theory in general is examined. Issues of tectonics, historicism, typology, regionalism, modernism, postmodernism and other critical frameworks for the consideration of architecture are thematic subjects of discussion. Selected readings include Vitruvius, Alberti, Laugier, Semper, Ruskin, Le Corbusier, Gropius, Kahn, Rossi, Venturi, Eisenman, Libeskind and Koolhaas. Weekly reading assignments, attendance, participation, one summary and discussion introduction based on a reading topic, final paper. Required for first-semester MArch 3 students. Fullfills history/theory elective for MArch 2 students.
Credit 3 units.

A46 ARCH 343A Design As Export
This course introduces students to the contemporary global characteristics of design in the late 20th and 21st century. The marketing, fabrication, distribution and consumption of design is global, yet the cultural and formal identity of most design products are national and regional. How do traditions of design and quality based on centuries of a national and regional design culture react and adapt to a global market? What is the culture of design? What is design identity? Italian design is the primary focus of this course, followed by Japanese and Asian design and manufacturing. Case studies include examples of industrial design, fashion design, communication design and automobile design. The course also includes presentations by design curators and representatives of various international design companies.
Credit 3 units.

A46 ARCH 343X Digital Filmmaking: City Stories
Same as XCORE 343
Credit 3 units.

A46 ARCH 346 Building Systems I
The first of a two-course building systems sequence. The course progresses from a survey of the physical and structural properties of building materials through an analysis of building assemblies and systems. Structural systems are examined relative to their performance characteristics and issues related to manufacturing and construction. Structural systems in wood, steel and concrete along with masonry systems are reviewed in this class. Additionally, the primary and secondary performance characteristics of enclosure systems are identified and analyzed in this course. This course also covers the design of egress systems and vertical transportation systems in buildings. Though the course focuses primarily on the underlying principles associated with these building systems, industry standards and building code requirements are an integral part of the review.
Credit 3 units.
A46 ARCH 347 Building Systems II
Building Systems II is a lecture/workshop course. It is the capstone course in the technology sequence. The course is composed of a series of lectures related to technical theory, an analysis of technical precedent, and an integration exercise. The lectures focus on structure and enclosure systems, active and passive climate control systems, natural and artificial lighting systems, mechanical and electrical services for buildings. The lectures take place over the course of the semester. During the first half of the course, students conduct analysis of technical precedent in architecture exercise. Technical precedents are analyzed relative to their performance characteristics and their relationship to other technologies in the building. During the second half of the semester, students conduct an integration exercise. Technical systems are selected based on architectural issues, performance characteristics and systems integration. Credit 3 units.

A46 ARCH 347A Building Systems II
Credit 3 units.

A46 ARCH 350 Service Learning Course: Environmental Issues
This service learning experience allows Washington University students to bring their knowledge and creativity about the many subjects they are studying to students at the Compton-Drew Middle School, adjacent to the Science Center, in the City of St. Louis. This course is for arts and sciences students of differing majors and minors, business, architecture and art students, and engineering students from all engineering departments. In the first third of the semester students: (1) begin learning the creative process of lateral thinking (synthesizing many variables, working in cycles); (2) work with a teammate to experiment with the design of 2-D and 3-D hands-on problem-solving workshops about exciting environmental issues, for small groups of students at Compton-Drew Middle School; 3) devise investigations for the workshops about environmental issues embracing the sciences, the humanities and the community; (4) work with the professor individually and in their team, as well as seeking advice of faculty from a specific discipline, through the semester in the preparation of their evolving curricular plan. During the last two thirds of the semester, WU students are on-site during the Compton-Drew school day, once a week on each Monday from noon to 1:30 p.m. to teach small group workshops for some of the sixth- and seventh-grade students. There is also a one-hour class meeting on Wednesday at a time to be finalized later. CBTL course. Credit 3 units.

A46 ARCH 355 Interdisciplinary Ecosystems Principles Integration
Credit 1 unit.

A46 ARCH 363 Architectural Photography
This course offers a technical and theoretical understanding of architectural photography. Basic operation and orientation of digital and analog cameras are covered, as well as best practices for photographing interior and exterior spaces with both natural and artificial lighting. Students learn how to document artwork and architectural models/structures for portfolio presentation purposes, preparing them for working relationships with professional photographers in the industry. This course emphasizes 4x5 view camera skill, use of DSLR and digital input, studio lighting, and development of individual projects. Digital camera required; 4x5 camera provided by photography department. Same as ART 363
Credit 3 units. EN: H

A46 ARCH 375B STL City Studio Programming: Understanding, Engaging and Organizing Columbus Square Citizenry
This class dedicates itself to designing programs for future community projects in the Columbus Square neighborhood. Programming occurs organically through understanding, engaging and organizing the neighborhood. These projects are cross-disciplinary, not limited to any particular practice or discipline. They are realized in future semesters (or in certain cases, this semester) through the support of STL City Studio. The class builds on relationships established during last year’s City Studio design/build project, Learning Landscapes at Patrick Henry Elementary School, a series of gardens at the center of the neighborhood. To define and develop projects, we use narrative to clarify both our own values and the values of the neighborhood. Students regularly visit Columbus Square and its adjacencies, particularly Downtown St. Louis, uncovering visible and invisible stories. We listen to what residents, officials, experts and planners have to tell us about the place and what the place could become. Throughout the semester, students present their findings through narratives, diagrams and other representations. Projects emerge out of this collaborative, narrative-based process. All students, from any discipline or at any level, may take this class. Credit 3 units.

A46 ARCH 376 Design Thinking for Science, Engineering, Business and the Liberal Arts
This introductory course outlines strategies and methodologies drawn from a wide range of creative design practices, including architecture, landscape architecture, urban design, industrial design and others. The course explores how these ideas and techniques are similar to practices in science, engineering, business and the liberal arts and how they might be applicable to multidisciplinary problem solving. Topics include perception, representation, technology, group intelligence, bio-mimicry and context-based learning, among others. Emphasis is given to the intersection of design thinking with environmental problems and the relationship between design thinking and innovation. The course includes lectures, guest lectures with case studies, and design projects. Open to all undergraduate students. Credit 1 unit.

A46 ARCH 3822 Architecture as Experience
Credit 3 units.

A46 ARCH 3824 The Italian Renaissance in the City of Florence
This course encompasses the Renaissance from Giotto through the High Renaissance. Students examine first-hand the works they are studying. Included are field trips to Rome and Venice. Same as ART 3824
Credit 3 units. EN: H

A46 ARCH 394 New Topic (Sam Fox School)
Same as ART 394
community, and begin to foster a mindset of architectural entrepreneurial ideas that are innovating the architectural discipline. From sustainability, to urbanization and localism, to emerging global growth engines, and the future structure of the architectural network, each lecturer brings new insight to what it is to be an architectural entrepreneur.

Credit 3 units.

A46 ARCH 404D For Purpose: Art & Design as an Ethics-based Model of Entrepreneurship

Working from the premise that art and design have the ability to enrich and transform lives and communities in a tangible way, students redefine social, environmental and cultural problems as opportunities. Students are encouraged to bring ideas that have the potential to address these problems through the creative processes of art and design. Students work in teams to develop a proposal for a project, product or service-based organization with the potential to address a specific issue. Students draw lessons from researching established individuals, companies and not-for-profit organizations that are involved in the production of culturally significant, creative work that also supports a larger social mission, and students apply this research to their own proposal. Each proposal is developed into a business/sustainability plan that demonstrates the value of the proposal and explains the resources required to meet specific goals. This course introduces students to the uncertainty that is inherent in the entrepreneurial process. Students work to develop skills to evaluate ideas in relation to their personal values, the idea’s ability to address a specific problem, and the resources required to implement a sustainable solution. The process helps students navigate the uncertainty and assess the risk associated with implementing their proposal through morphing the idea concept, seeking advice, and building a coalition of stakeholders. This course is open to disciplines outside of architecture. Students in Art, Social Work and Engineering are encouraged to register. CBTL course.

Credit 3 units.

A46 ARCH 404E Design: Urban Ecosystem Principles

In today’s world, your discipline has grand challenges whose solutions often lay in other realms. How will you train yourself to leverage the interdisciplinary partnerships required to innovatively solve and evolve in a rapidly changing world? The mission of this interdisciplinary course is to “Advance the interrelationships of ecological and human systems toward creating a healthy, resilient, and biodiverse urban environment,” and brings together experts and students in ecology, urban design, architecture/landscape architecture, economics, social work, and engineering, drawing from inside and outside the WU community. Building from our knowledge of ecosystem principles and function, a diverse group of leaders in their fields provides lectures, readings, and student project leadership to understand and test Healthy Urban Ecosystems Principles among human and ecological (nonhuman) systems and the range of sociopolitical processes entailed with their implementation. Class content is developed by Washington University leaders in their disciplines as well as external organizations such as the Missouri Botanical Garden, the Field Museum in Chicago, and others. This course builds upon a 1-unit fall seminar (not a prerequisite) that introduces challenges and solutions to achieving healthy urban ecosystems, and entrepreneurship that has the potential to be widely beneficial to the profession. Each week the course welcomes a guest speaker who, as the owner of a firm or innovator of a new business proposal in the design field, provides case studies to show students what type of entrepreneurial ideas are shifting the architectural discipline. From sustainability, to urbanization and localism, to emerging global growth engines, and the future structure of the architectural network, each lecturer brings new insight to what it is to be an architectural entrepreneur.

Credit 3 units.

A46 ARCH 404C Topics in Architectural Entrepreneurship

Entrepreneurship has become a very important issue for businesses small and large. What can the profession of architecture learn from these ideas? This course, offered in partnership with the Skandalaris Center for Entrepreneurial Studies, offers students a chance to gain exposure to the entrepreneurial ideas that are innovating the architectural community, and begin to foster a mindset of architectural entrepreneurship.
provides students an opportunity to more deeply engage and manipulate the interrelationships of symbiotic urban systems and apply those concepts in multidisciplinary project applications. Projects leverage student-defined challenges in the evolving laboratory of urban St. Louis using Healthy Urban Ecosystems Principles to develop multidisciplinary integrated solutions to challenges encountered in urban areas such as climate change and resilience, security of ecosystem services, social inequity, economic strife, and community vitality. Students present their work in a public forum at semester's end.

Same as InterD 406
Credit 3 units. A&S IQ: SSC EN: S

A46 ARCH 405A Furniture Design for the Architect
Students design and fabricate furniture. The box and chair are used as vehicles to study historic examples of furniture design, structure, fabrications and finishing techniques. Other issues that are addressed are: material awareness and craftsmanship. Evaluation of the final products is based on design, structure, craftsmanship, material use, beauty and finish. CBTL course.
Credit 3 units.

A46 ARCH 405D Furniture Design
The course focuses on the design of tables using wood as the primary material in response to “rational and irrational strategies” (systematic and emotional). Each student designs, develops and builds prototypes of two tables using the same material. One table is the product of a systematic analysis of material qualities, production procedures and other constructivist principles. The other table is the product of more explicitly intuitive, emotional and interpretive responses to the nature of the material and its production. Course limited to 10 students.
Credit 3 units.

A46 ARCH 405F Furniture Design (Study Abroad)
Credit 3 units.

A46 ARCH 405G Furniture Design in Finland
Credit 3 units.

A46 ARCH 406J Woodworking
The content of this workshop is woodworking technique and appropriate design for this material.
Credit 1 unit.

A46 ARCH 406L Perspective Drawing
A study in perspective drawing methods, using the traditional construction methods as a starting point, and then exploring alternative approaches. The fundamentals of one-point and two-point are covered along with rendering techniques for formal and informal representations. A variety of rendering techniques are presented depending on situation of design and time allowed.
Credit 1 unit.

A46 ARCH 406M Mold-Making and Casting
Credit 1 unit.

A46 ARCH 406N GIS Workshop
Credit 1 unit.

A46 ARCH 405P 3-D Digital Tools for Studio
Credit 1 unit.

A46 ARCH 406R Model Making
Credit 1 unit.

A46 ARCH 406S Real Estate Workshop
Credit 1 unit.

A46 ARCH 406W Simple Book Structures
Students investigate the form of the visual book through construction of several different book structures, among them the accordion, the flag book, the tunnel, simplified case binding and a portfolio case. This class investigates the organization of the visual book through the sequencing of images and the structure of the book as a reflection of content. It is hoped that the class permits the student to pursue new approaches to presenting visual information in book form.
Credit 1 unit.

A46 ARCH 406Y The Diagram
The purpose of this workshop is to fully understand how we can exploit the concept and method of the diagram in order to better access ideas, reveal themes, discover underlying processes and relationships, and ultimately, to better represent our final design intentions. The goal of the workshop is: to understand the position of the diagram in the architectural design process by looking at examples of architect's drawings/other diagrams; to understand what diagrams can mean, and specifically how to use them in design; to test methods of drawing and diagramming through a series of targeted exercises; and to be able to further exploit ideas and designs through their representation — skills for the larger context of the architecture studio and for future analyses.
Credit 1 unit.

A46 ARCH 406Z Vertical and Horizontal Structures
Designing with advanced digital modeling and CAD cam output through laser cutting and CNC milling. Students develop complex structural systems through virtual design tools and translate them into physical objects that can be programmed for human interaction.
Credit 1 unit.

A46 ARCH 407A Digital and Analog Fabrication
Credit 3 units.

A46 ARCH 408A Digital Visualization Workshop: 2-D Representation
This workshop is an introduction to basic Auto CAD drawing layout and organization with printing process. The workshop introduces students to importing and exporting into other graphic softwares (Photoshop and Illustrator) allowing a basic understanding of resolution and line types with articulated graphic awareness to develop complex 2-D drawing capabilities. Required for all 317-level MArch 3 students, who are given priority in enrolling. Open to all other architecture students as space allows.
Credit 1 unit.
A46 ARCH 408B Digital Visualization Workshop: Advanced 3-D Modeling  
Credit 1 unit.

A46 ARCH 408C Digital Visualization Workshop: Advanced Rendering  
This workshop is an introduction to complex digital rendering in Rhino 4.0 with plug-ins Flamingo, VRay, Maxwell and Fry Rendering Engines. These skills are needed for sophisticated rendering outputs for more hyper-real visualization. The workshop introduces students to material, lighting, camera and global illumination processes. This workshop is required for all MArch students at the 419 level, who are given priority for registration in this course. Open to other upper-level undergraduate and graduate architecture students as space allows.
Credit 1 unit.

A46 ARCH 408D BIM 101 Workshop  
Credit 1 unit.

A46 ARCH 408H #technology.today.tomorrow  
The design industry is changing and the need to understand this change is critical. Before students graduate, they should make themselves aware of the way technology is impacting the process of delivering projects today and tomorrow. This evening workshop exposes students to various technologies within different parts of the building industry. We review technology used in design and construction with special guests, from leaders in the industry demonstrating how they are using these tools today. We explore technology on the horizon and hear from those developing tools for the future. This workshop is not meant to be a software instruction class, but more of a window into the profession. #BIM #technology #future #AEC #design #construction #cloud #knowledge #parametric #computation #collaboration.
Credit 1 unit.

A46 ARCH 408J Performance Enhancing  
The term "performance" has many meanings that are either quantitative, qualitative, or both simultaneously through a range of design professions. The suggested goal of performance is an optimistic enhancement to a designed entity or idea and holds the potential to be highly provocative relative to the method it is deployed when arguing for a particular design procedure or effect. The double entendre suggested by the term performance relates to both how the system technologically improves a functional aspect along with a more theatrical act of performing. Design in both architecture and fashion relies on both interpretations to create a multidimensional discourse necessary to advance conceptual design investigation. The seminar class explores issues of performance of complex surfaces at the scale of the human body. The class consists of lectures, discussions, readings, physical material manipulation, and 3-D digital modeling and digital fabrication. The use of Rhino (with T-splines and/or Grasshopper) or Maya is deployed for the digital design of the skin systems. Material systems are explored initially through manual experimentation and then combined with the digital investigation for the final digital fabrication using tools such as 3-D printing, lasercutting, CNC milling, and thermoforming, resulting in a final garment for the human body. The class is offered to both fashion and architecture students and the investigations occur in teams of two where ideally one from each discipline is represented.
Credit 3 units.

A46 ARCH 408M Atmospheric Animations  
This course explores the capacity of modifying perception, as a way of thinking and making in design process. We recognize the ambient complex environment base on the concept of each element in space as a figure of motion, being sensitive to a specific period of time. Each student begins with selecting a certain way of observing, and developing a method to document and analyze a piece of dynamic perception which is then re-constructed through drawings or models, primarily focusing on one aspect of the experience, such as material performance, light reflections, air flow, etc. Final part of the project is representing the synthetic perception, by creating the atmospheric imagery in motion. Students are introduced to various techniques of recording perceptions with the aid of digital tools, 2-D representation, 3-D modeling and animation rendering throughout the course, both as general workshops and individual project basis.
Credit 3 units.

A46 ARCH 409B Material Drawings, Unforeseen Drawings, Expanding Drawings  
Credit 1 unit.

A46 ARCH 409C Watercolor Painting for Architects, Urban Designers and Landscape Architects  
Credit 3 units.

A46 ARCH 4102 Lively City: Behavioral Studies & Public Space Design  
During this three-day masterclass in Berlin, Germany, 20 students have the opportunity to learn about behavioral studies and the design of public spaces. Working alone and in small groups, students acquire new perspectives and skills that put people and their needs at the heart of the creative process of re-imagining and transforming cities. Livability, lively cities, public life and other concepts describing inviting, vibrant and stimulating urban environments are frequently communicated in new visions for the future of cities today. This focus on "urban life" is a direct reaction to the urban realities created in the 20th century, where increases in our standards of living and the associated city building processes have created areas in which large and increasing numbers of people have become isolated from each other, socially and geographically. Despite our new awareness for the need to plan for a shared and intensified urban life in sustainable cities, we continue to have difficulties in understanding exactly what this "urban life" is, how much of it we truly want and need, and how we can reconcile the often conflicting and simultaneous needs of people for privacy and social stimulation. Employing the examples of University City and the Gateway Arch/Archgrounds the class studies behavior in accessing and using defined sections of both urban areas as a way of dealing with complex urban design challenges in St. Louis. Through field studies and observations each student explores cost-effective and culturally sensitive solutions that can improve the integration of these important urban assets in the City of St. Louis. Open to all graduate students, with priority given to MUD studio and seminar students. Visas are required to travel to England, depending on the passport country of the student. Preparation for visa applications begins on the first
day of classes during the spring semester. There is a minimum enrollment of eight by February 1st. Same as MUD 4192
Credit 1 unit.

A46 ARCH 410X Special Topics Workshop
Credit 1 unit.

A46 ARCH 411 Architectural Design III
Prerequisite: satisfactory completion of Arch 312.
Credit 6 units.

A46 ARCH 412 Architectural Design IV
Prerequisite: satisfactory completion of Arch 411.
Credit 6 units.

A46 ARCH 418P Realizing: Pulitzer Foundation for the Arts
A transdisciplinary, material-based workshop providing insight into the process, dedication and collaboration required to realize a signature work of architecture. Design, construction and management team representatives serve as primary sources. Construction of an architectural concrete wall-corner is central to the workshop effort. Attendance and involvement with the associated spring Colloquia is required. Working in conjunction with the Pulitzer Foundation for the Arts, the workshop includes two types of instruction: active participation and topic discourse. A colloquium celebrating the 10-year anniversary of the Pulitzer Foundation’s opening divide the workshop’s calendar with the Pulitzer Foundation for the Arts, the YMCA, the playground and the model home — or by a retreat from the city in the form of utopian settlements. This seminar examines the history of environmentalist thinking and social reform in the United States and to some extent, Europe, from the Enlightenment to World War II, including the work of Andrew Jackson Downing, Frederick Law Olmstead, Ernest Flagg and Frank Lloyd Wright and critics such as Jane Jacobs and Prince Charles. The class becomes familiar with reform architecture and its context and assesses the effectiveness of this strategy as a solution to social problems. Open to graduate and upper-level undergraduate students. Fulfills history/theory requirement.
Credit 3 units.

A46 ARCH 421J Building a Better World: Architecture and Social Reform in America
Architects, planners and social reformers have addressed urban issues of poverty, crime, delinquency, labor unrest and class and ethnic tensions through activist models of the public library and school, the YMCA, the playground and the model home — or by a retreat from the city in the form of utopian settlements. This seminar examines the history of environmentalist thinking and social reform in the United States and to some extent, Europe, from the Enlightenment to World War II, including the work of Andrew Jackson Downing, Frederick Law Olmstead, Ernest Flagg and Frank Lloyd Wright and critics such as Jane Jacobs and Prince Charles. The class becomes familiar with reform architecture and its context and assesses the effectiveness of this strategy as a solution to social problems. Open to graduate and upper-level undergraduate students. Fulfills history/theory requirement.
Credit 3 units.

A46 ARCH 421K Modern vs. American: Rethinking the Architectural Relationship
What is American about American architecture? Architects, historians and theorists have asked this question throughout our nation’s history, but it gains renewed importance in this age of globalization. Can we, should we, continue to apply national labels to our architecture? This seminar examines the architectural culture of the United States in the 20th century, with special attention to the relationship between national identity and the internationalizing forces of modernity, particularly European modernism. Through analysis of theoretical writings, developments in education and practice, and key projects such as the Chicago Tribune Tower Competition, the Illinois Institute of Technology and U.S. embassies around the world, students gain insight into the dynamic between the local and the global in the design of the built environment. Course requirements include in-class presentations, field trips and a substantial research paper. Fulfills history/theory elective requirement.
Credit 3 units.

A46 ARCH 421P Marina City: Bertrand Goldberg and the Aura of Chicago Modernism
Credit 3 units.

A46 ARCH 421R Gender, Race and Architecture in the American City, 1865–1960
Credit 3 units.

A46 ARCH 421S American and International Urbanism
This advanced history and urban issues seminar explores the history of urbanism as it developed in the United States in the late 19th and early 20th centuries and trace some of its international outcomes. We examine changing theories of how urban environments should be shaped, placing efforts by designers to transform the built environment within the context of major social, cultural and political changes. These include public urban parks and parkways, City Beautiful neo-classical
urban environments, regional planning, auto-based planned communities and shopping centers, high-rise hotels, theme parks, and megastructural airports. We explore the relationships between the built environment, social change, political struggle and design theory. We, in addition, track the establishment, professionalization, growth and contests over the fields of architecture, landscape architecture, urban planning and design. We pay close attention to shifting conceptions of, conflicts over, definitions of the urban public, the boundaries of the “public sphere,” the relationship between public and private spaces, and the role of government in shaping and policing the urban landscape. By using historical methods to analyze documentary evidence, the course facilitates greater understanding of the complexity and layering of the urban landscape and critical urban design and landscape practices. Fulfills History/Theory and Urban Issues elective requirements.

Credit 3 units.

A46 ARCH 421T Urbanism: Cambridge MA
Credit 3 units.

A46 ARCH 421U Urbanism: Chicago
This design research seminar focuses on the urban infrastructure and associated buildings of central Chicago, in and around the areas near the Loop. The Chicago metropolitan area is the third largest in the United States, and from 1870 until the 1950s, Chicago was America’s “second city,” surpassed in size only by New York City. It remains the densest and most “urban” of the cities of the Midwest, with many examples of complex interconnections between rail lines, highways, and various kinds of pedestrian-oriented urban environments. This seminar combines historical and field research on some of the many architectural urban design interventions in Chicago. Students choose among several topic areas to produce detailed drawings and digital models of specific urban interventions. There will likely be a publication of the work. Topic areas for digital documentation include the pedestrian relationships between transit lines and various buildings and urban complexes, including the large Millennium Park interventions by SOM and others over the Illinois Central railway lines adjacent to Lake Michigan, and Wacker Drive, a 1920s underground limited access highway along the Chicago River, and other projects. Fulfills History/Theory and Urban Issues elective requirements.
Credit 3 units.

A46 ARCH 422G GIS for Site Design
This course module introduces GIS mapping software and its application to methods used in site planning and design. The focus of this half-semester course is to understand the potential of GIS to analyze, visualize and utilize complex data. Students learn techniques and tools in ArcGIS software and explore how these can be applied to projects specific to individual sites. This course introduces new skills and analytical complexity while building upon previously learned representation techniques. Same as LAND 422
Credit 1.5 units.

A46 ARCH 422H Urban Topographies
Credit 3 units.

A46 ARCH 423 History of Landscape Architecture
This seminar reviews the history of gardening in the Western tradition from the Renaissance to the present and in the Chinese and Japanese traditions. Park-making, neighborhood design, and the rise of landscape architecture as a profession receive attention, including several classes held at notable St. Louis examples. Course requirements include readings, a design or research project, and a final exam. Fulfills History/Theory elective.
Credit 3 units.

A46 ARCH 423D Videography for Designers
This seminar course examines the practice of capturing, producing and analyzing moving images as a method of inquiry for design. We focus on the analytical and communicative qualities of time-based media (recorded sequences, video, slideshows, animation, simulation, remote sensing, etc.) as a human-landscape intermediary that has the ability to alter understanding and evaluation of the environment. We explore techniques from a range of disciplines — art, design, sociology, anthropology, etc. The course meets weekly for brief lectures/presentations to direct our inquiries, discussion of foundational readings and ideas, media workshops, screenings, local field trips, and/or student presentations of work. Throughout the semester, students generate brief, exploratory work that focuses on methods and techniques, and a larger, final project that engages the themes of the course. Open to all graduate and upper-level undergraduate students, a goal of the course is to blur boundaries between art and design, and to capitalize on their various approaches. No experience with video, animation, or other software is required — only the desire to explore and incorporate time-based methods into individual processes.
Same as LAND 423D
Credit 3 units.

A46 ARCH 424L The Chinese City in Historical Perspective
This seminar examines the development of urban centers in China through history. The city is approached from formal, territorial, political, and socio-economic perspectives, situated in the broader landscape of cultural and environmental changes. Key themes are continuity and change, citizenship and public life, urban form and structural transformations, and infrastructure and the hinterland. The course begins with archaeological and textual origins of the earliest cities and ends with the staggering growth and globalization of Chinese cities today.
Credit 3 units.

A46 ARCH 425D Meso-American Architecture
Credit 3 units.

A46 ARCH 426F Discover Latin America: Literature, Culture and Cinema
Credit 3 units.

A46 ARCH 426G Latin American Literature
Credit 3 units.

A46 ARCH 4280 Architectural History I: Antiquity to Baroque
This lecture course introduces major historical narratives, themes, sites and architects from ancient Greece to the end of the Baroque period. We take an extended look at the dawn of the modern period in the 15th and 16th centuries through a global perspective, turning eastward from Renaissance Europe to the Ottoman, Mughal, Chinese and Japanese empires. The great chronological and geographic span of this course is pulled
A46 ARCH 4284 Architectural History II: Architecture Since 1880
An introductory survey of the history and theory of architecture and urbanism in the context of the rapidly changing technological and social circumstances of the past 120 years. In addition to tracing the usual history of modern architecture, this course emphasizes understanding of the formal, philosophical, social, technical and economic background of other important architectural directions in a global context. Topics range from architects’ responses to new conditions in the rapidly developing cities of the later 19th century, through early 20th-century theories of perception and social engagement, to recent efforts to find new bases for architectural interventions in the contemporary metropolis. This course is required for all MArch 3 students.
Credit 3 units.

A46 ARCH 4285 Architectural History I: Premodern Encounters in World Architecture
This course explores the history of architecture from its origins until the beginnings of the modern period from a global perspective, focusing on patterns of interaction and exchange between and within both elite and vernacular building cultures. Using selected examples from Eurasia, sub-Saharan Africa and the Americas, the course traces the major elements of change and development in the design on the earth’s built environment including technologies and materials, typology, the organization of labor and capital systems, and the codification and transmission of architectural knowledge and symbolism to the professions and the public. Course requirements include a mid-term, final exam and research paper.
Credit 3 units.

A46 ARCH 4286 Architectural History I: Antiquity to the Enlightenment
This course addresses the development of architecture and urbanism from Greco-Roman antiquity to the European Enlightenment, while also paying close attention to contemporary developments in the non-Western world, especially in the Islamic world and East Asia. The course's objective is to set the stage for major ideological pursuits of modern architecture as they developed in the 19th and 20th centuries, examining how these ideas evolved out of longer-term historical processes. We focus on issues of classicism, tectonic culture and historicity, and discuss commonalities and differences toward them across time and cultures in the premodern world.
Credit 3 units.

A46 ARCH 430 The Design of Practice in America
Credit 3 units.

A46 ARCH 430A Special Topics
Credit 3 units.

A46 ARCH 430B Special Topics
Credit 3 units.

A46 ARCH 430D Special Topics: Beyond Words, Beyond Images: Representation After History
Same as ART 430D
Credit 3 units. EN: H

A46 ARCH 434L Materials Study: History, Technology and Design
Credit 3 units.

A46 ARCH 434M Materials Research Seminar
Credit 3 units.

A46 ARCH 434N Materials Research Seminar
Credit 3 units.

A46 ARCH 434P Materials Research Seminar
Credit 3 units.

A46 ARCH 434Q Materials Research Seminar
Credit 3 units.

A46 ARCH 434R Decoding Sustainability
This course engages worldwide conversations regarding current global environmental issues in relation to the production of building materials. Students begin by defining dilemmas faced by designers and architects in the selection of materials, followed by introductory information on biomimicry, natural capitalism, true cost and lifecycle analysis. This course then looks at national, international and industry environmental standards that govern building materials with respect to the triple bottom line: environmental impact, economic impact and social equity. By analyzing specific “certified” building materials, students see how much or how little is being measured and how transparent the certification processes are. Building materials and the environmental standards that govern them will continue to evolve throughout the entirety of a designer’s life. Therefore, developing a thinking/filtering process to employ in the selection aids each designer in his or her career. This course seeks to develop design thinking in relation to the environment while developing tools to understand how building materials can be evaluated for sustainability.
Credit 3 units.

A46 ARCH 435C Site Works
Credit 3 units.

A46 ARCH 435D Surface It, With Pieces
The seminar focuses on the in-depth understanding and development of ideas based on the technical, experiential and aesthetic exploration of one material: concrete, into a specific application; pavers. The students design a module and then explore different pattern options. The pattern modules consider the limitations of the material in terms of strength, weight, size, etc. The goal is to make a single piece or pieces that can be lifted by a single person without much effort and combine them in different ways in order to create an artificial topography.
Students learn about the material itself as well as the act of construction, assemblage and mass production, which include methods and technology, ranging from tools to form work. The forms for the concrete pieces are built through a process of CNC milling and/or vacuum-formed plastic. The challenge is to define environmentally sensitive strategies for problem solving, conceptual development and poetic expression at both levels of the design process, conceptual and real. Sustainable principles, such as the use of recycled materials as an aggregate in the concrete mix, are an important consideration for this class. Students also are asked to investigate water run-off in a given area and alter the percentage of open grids as a way to create a pervious, though walkable surface. Construction is the ultimate goal.
Credit 3 units.

A46 ARCH 435E Furnish It, With Pieces
Public space is a key constituent that determines the character of a neighborhood and a city. It is embedded in the urban fabric and it can mediate the relationship between people and their particular surrounding landscape. Urban furniture and hardscape can play an important role in offering a wide range of uses for public spaces. The design of such pieces affects the way people live and experience a particular environment. The ultimate goal of this course is to design, fabricate and install a set of repeatable units to equip a vacant urban lot in order to offer opportunities for social interaction. The seminar focuses on the in-depth understanding and development of ideas based on the technical, experiential and aesthetic exploration of one material: concrete, into one specific application: urban furniture. This seminar builds up on the scope of the Creative Activity Research Grant awarded by the Sam Fox School of Design & Visual Arts where five porous concrete pavers were designed for a vacant plot in North St. Louis. The challenges are: to adapt the given pavers to a new site condition and to propose new urban furniture made out of concrete. It involves the construction of pieces able to equip a gathering space as well as sidewalks that can offer local residents the opportunity to interact with others. This provides not only aesthetic appeal to the residents and visitors, but also allows the possibility of implementing an actual project in an abandon plot in Old North. We will enrich the community with a wide range of training opportunities as each step in the process of making the plaza is used for teaching purposes, from making pavers and other pieces, to salvaging, reusing or repurposing recycled material. Students are asked to design and build concrete urban furniture necessary for the gathering area. The pieces can encompass a wide range of uses: chairs and benches, tables, raised beds, planters, litter bins, modular fencing and mobility-related pieces such as bike racks, bollards and car stoppers. This is an opportunity for hands-on experience. These pieces have to consider the limitations of the material in terms of strength, weight, size, etc.; learning about the material itself as well as the act of construction, assemblage and mass production, which includes methods and technology, ranging from tools to molds. The formwork for the concrete pieces will be built through a process of CNC milling and rubber molds or vacuum formed plastic. The challenges are to define environmentally sensitive strategies for problem solving, conceptual development and poetic expression at both levels of the design process, conceptual and real. Sustainable principles such as the use of recycled materials as an aggregate in the concrete mix are an important consideration. Construction is the ultimate goal of this class. We work in collaboration with Anova, a local manufacturing company dedicated to the design and production of site furnishings. Anova provides some materials and brings their expertise to the project.
Credit 3 units.

A46 ARCH 436 Mapping Soft Bodies/Constructing Complex Objects
Theory and research on digital design and manufacturing. "Body and soul are thus constructed in the same manner, at the intersection of a cluster of radii of curvature. Both are then simply effects of convergence that are constituted in space, on either side of the surface of the work that envelops them. It follows that the body is no less ideal than the mind" (Bernard Cache, Earth Moves). This course explores the complex systems of geometries that compose the human body. The students invent techniques of digital-mapping the contours of the soft bodies and define the potential for developing new forms of spatial effects uncovered through the digital representation. The mapping procedures are developed to trace and project the human scale and material interface imposed by the fluctuating movements of the bodies in dynamics. Through the making of these forms, each student manufactures new objects through alternative prototyping techniques.
Credit 3 units.

A46 ARCH 4362 Advanced Grasshopper
Credit 3 units.

A46 ARCH 436A Information Modeling and Technology
Credit 3 units.

A46 ARCH 436B BIM in Practice
Building Information Modeling (BIM) is a developing method of creating, sharing and managing project data through a visualized 3-D or 4-D model. While it continues to deliver on an initial promise to increase design consistency and efficiency while minimizing errors, the focus of attention is shifting to the use of BIM to facilitate integrated methods of project delivery. The course explores the use of the BIM platform and the development of data exchange methods in architectural design through a case study and subsequent design project. Students are provided instruction in Revit covering the creation, management and extraction of data from a model, but also look at the technology more broadly, discussing the changes advanced by the deployment of BIM processes in practice. Credit 3 units.

A46 ARCH 436C Coding Growth: Scripting and Computational Methods for Design
The course covers an array of advanced design techniques using scripting within the rhino/grasshopper environment. Although, thorough knowledge of grasshopper is not required, it helps to ease the transition away from graphic algorithm creation and into the C# scripting language. While C# is slightly more difficult than its technical equal, VB, the language can be used in a wide variety of other programs and applications, such as Processing and the Arduino microcontroller, which students have the opportunity to explore should they feel comfortable in those environments. The foundation of the class is based around three major categories: mathematical systems, agent-based systems and simulated growth. Before covering the base material, a three-week intensive overview of grasshopper covers nearly everything students need to know in order to proceed successfully. We begin basic scripting exercises by duplicating existing grasshopper components and proceed to the advanced categories from there. In the first category,
mathematical systems, students learn how to create and control useful L-Systems such as branching, fractals and generational scaling. We then move into topological algorithms, in order to learn how to sort and search through the scripted results to quantify their success or failure. Once single codes can be executed relatively successfully, the course progresses into agent-based systems. The topic is introduced through simple investigations in basic geometrical relationships such as circle packing and mesh relaxation. We then study the behaviors of birds, ants, fish and termites in order to extract the necessary parameters to mimic their behavior. Building complexity yet again, students investigate the ways in which one can code growth. This ultimately leads to an architectural project at the pavilion scale for which students are asked to design a single unit that will mutate and deform itself iteratively in order to achieve explicit performance criteria that have been laid out for them. Students learn how to use genetic and generative algorithms, (a combination of the previous lessons) to design the building unit and appropriate transformation criteria and, hopefully, by the end of all of this, each student has designed a site-adaptable, feasible pavilion without knowing what that pavilion will look like in any given application.
Credit 3 units.

A46 ARCH 436D Advanced BIM in Practice
Credit 3 units.

A46 ARCH 438 Environmental Systems I
Credit 3 units.

A46 ARCH 4381 Environmental Systems I: Site Planning
Credit 1 unit.

A46 ARCH 438A Digital Diversions
Credit 3 units.

A46 ARCH 439 Environmental Systems II
Credit 3 units.

A46 ARCH 4391 Environmental Systems II: Acoustics
Credit 1 unit.

A46 ARCH 439H Environmental Systems II (Helsinki)
Credit 3 units.

A46 ARCH 440 Explorations in Structural Principles
This course begins with a series of presentations (lectures) about primary systems in an effort to familiarize students with basic structural principles. This is a non-mathematical exploration of how structures "work" and why. We attempt to become conversant in "the language of structures." Students identify a particular system and do case studies exploring its characteristics and how, where and why the system has been used. These explorations ultimately lead to the development of large-scale (testable) models.
Credit 3 units.

A46 ARCH 444A Lightweight Prototyping
Credit 3 units.

A46 ARCH 445 Building Systems
Credit 3 units.

A46 ARCH 447A Structures I
Statics and strength of materials through beam and column theory. Loads are defined and states of stress are identified and analyzed. The context of structural behavior is identified and optimal structural behavior and material efficiency structural design is reviewed. Form-active, bulk-active and vector-active structural options are explored relative to the transference of load along the length of structural members. The course applies structural theory to the analysis and design of structural members — beams, trusses, arches and columns.
Credit 3 units.

A46 ARCH 448A Structures II
Continuation of Arch 447A with consideration of the effects of forces on structural members of various materials. Introduction to the design of structural members in steel, reinforced concrete and wood. Prerequisite: Arch 447A.
Credit 3 units.

A46 ARCH 450B Readings in Architecture
This weekly seminar course addresses issues of Western architectural thought through a focused series of readings and discussions. The necessity and role of architectural theory in general are examined. Issues of tectonics, historicism, typology, regionalism, modernism, postmodernism and other critical frameworks for the consideration of architecture are thematic subjects of discussion. Selected readings include Vitruvius, Alberti, Laugier, Semper, Ruskin, Le Corbusier, Gropius, Kahn, Rossi, Venturi, Eisenman, Libeskind and Koolhaas. Weekly reading assignments, attendance, participation, one summary and discussion introduction based on a reading topic, final paper. Fulfills history/theory requirement.
Credit 3 units.

A46 ARCH 452G Modern Architecture in Japan
Credit 3 units.

A46 ARCH 452H Tokyo: Destruction and Renewal of Japan's Capital
Tokyo was leveled twice over the course of the 20th century, first by the Great Kanto Earthquake in 1923 and then in the final months of World War II. One of the world's largest and most technologically advanced cities, Tokyo is also an agglomeration of neighborhoods and still manifests the unique heritage of its Edo-past. In this seminar, we examine themes of continuity and change, local and global, through these cycles of destruction and renewal. In addition to the built environment, we also incorporate other visual and artistic media, such as literature and film. Enrollment in the course does not require prior knowledge of Tokyo or the history of modern Japan. Fulfills History/Theory elective requirement.
Credit 3 units.

A46 ARCH 452J Empires in Distress
This seminar examined the processes of modernization to building cultures and cities in the non-Western world, focusing on major imperial regimes such as China, Japan, India and Ottoman and Austro-Hungarian empires. We critique the idea of modern architecture emanating from the West as a hegemonic
phenomenon and identify localized points of resistance and appropriation. Among the themes are nationalism, regionalism, technology, historiography, institutions of the building industry and culture, vernacular and preservation. MArch students should have completed the Architectural History I & II sequence. The course is open to graduate students and advanced undergraduates. Fulfills the History/Theory elective requirement. Credit 3 units.

A46 ARCH 452k The Ambiguity of Scale: Japan’s Landscape Tradition
Credit 3 units.

A46 ARCH 454A Contemporary Discourses on Public Space
Since the 1980s, public space has been a subject of intense theoretical debate and the key to urban revitalization strategies in cities such as Barcelona, Amsterdam, Berlin, London, Jerusalem, Curitiba, Toronto, New York, etc. Evident from the investigation into this theory and practice is the notion that the design of public space according to the typology of either the 19th century or modern city does not suffice and that the domain of contemporary public space demands a new discourse. This seminar investigates the theoretical framework and practice of various contemporary discourses on public space in order to reveal the implicit intellectual frameworks and practices. Discourses investigated include public space as the mimicry of history to public space as non-place; and from public space as the envelope of fear and marginality to public space as the theater of economic and social exchange. The seminar also situates the design discourse in the broader political, social and philosophical discourses of the public sphere. Credit 3 units.

A46 ARCH 455A Urban Books
Since the beginning of the 20th century, art, architecture, and urbanism together have investigated the production of images that shape the symbolic dimension of our experience of large cities. The main goal of this course is to critically embrace this tradition through the format of the artist’s book. St. Louis is the focus for our observations because it is familiar to our everyday lives and also because it provides key situations for understanding contemporary forms of urbanity and how urban space is produced and imagined. The course bridges the curricular structures of art and architecture by enhancing the collaboration between the practical and scholarly work developed in both schools, with additional support from Special Collections at Olin Library. It combines the reading, lecture, and discussion format of a seminar with the skill building and cultural appreciation. Among the themes are nationalism, regionalism, technology, historiography, institutions of the building industry and culture, vernacular and preservation. MArch students should have completed the Architectural History I & II sequence. The course is open to graduate students and advanced undergraduates. Fulfills the History/Theory elective requirement. Credit 3 units.

A46 ARCH 455C DuBois Meets Churchill: Social Justice and the Built Environment
Winston Churchill famously stated, “We shape our buildings and afterwards, our buildings shape us.” W.E.B. DuBois equally famously stated, “The problem of the 20th century is the problem of the color-line.” This course is about what happens (and has happened, and perhaps could happen) at the intersection of those two quotes. With the built environment always in the middle of the table, but never in isolation, students in this course consider its role relative to social justice as viewed through a multitude of lenses. Schedules permitting, faculty from other schools in the university also might offer their perspectives on how their respective disciplines touch on issues of social justice and the built environment. There also might be field trips to a few selected locations around St. Louis where some of these issues have played out or are playing out. This course deals with many of the issues that the fall course, Community Building/Building Community, deals with, but in a lecture format. This is partly the result of weather constraints (the spring semester is not as amenable to extensive field trips as the fall semester is), but it also allows students who can only take a spring course to do so, and in a more traditional lecture format, without as many tours and without the community service requirement. Credit 3 units.
ecology. In this context, pattern is understood as a performative expression of an ecological system, distinct from historical issues of ornament and representations. Informed by the analysis, students then digitally produce an original pattern, both graphically operative and spatially materialized. Credit 3 units.

A46 ARCH 463A Emerging (Re)Development Strategies
Credit 3 units.

A46 ARCH 463B Emergent Urbanisms
This course surveys emergent models of urbanization in globalizing cities that thus far defy categorization or exist peripherally in studies of urban form. The goal of the course is to equip students with the theoretical and historical background, the analytical tactics, and the critical awareness necessary to reposition themselves as designers in these increasingly challenging contexts. Through case study examples and supporting readings, the course deciphers the formal, social and environmental effects of particular processes defining new urban spatial configurations in city-regions around the globe. Most of these processes are driven by discourses of “efficiency,” such that urban forms are increasingly inflected by economic operating systems as they are subsequently detached from traditional concerns of livability and public interest. Emerging urban assemblages include: massive manufacturing warehouse landscapes or logistical distribution centers and “aerotropolis” transit hubs as well as those spaces left behind by regional restructuring; de-urbanizing (or deliberately erased) environments that contradictorily “enable growth” in other areas (or over the same areas); and the informal settlements that emerge more spontaneously on the margins of mainstream urban policy. Students use their understanding of these spatial and logistical configurations to project creative models for re-direction or engagement. Sources and analytical tactics are drawn from across fields including design, sociology, geography and history. Fulfills Urban Issues elective requirement, MUD-Track elective requirement. Same as MUD 463B Credit 3 units.

A46 ARCH 464A Architecture and Photography
Seminar deals with issues raised by use of photography by architects, historians and critics. Seminar confronts the assumption that our knowledge of notable buildings and architectural space is based primarily on the photographic image. Photographs are tacitly accepted as objective facts, and the pervasiveness of photography in magazines, books and exhibits as substitute for direct experiences is rarely questioned. Goal of seminar: to foster a healthy skepticism of this confrontation is to develop skills to articulate individual critiques of design as a mediation between discourse and practice. Required work: The seminar activities take place in the form of reading and discussion of texts, and analyses of current examples of architecture and urban practices. Each student must investigate an individual case study to be presented in the form of a seminar as well as a final paper. Prerequisite: ARCH 222 or ARCH 223. Fulfills history/theory elective. Credit 3 units.

A46 ARCH 464B Drawing and Urbanism
Credit 3 units.

A46 ARCH 464C Art, Design and Entrepreneurship: Creative Placemaking Beyond The City
This course invites students from diverse areas of interest to engage with the cultural landscape of Marion County and Hannibal, Missouri — a region that, through the work of Mark Twain, popularly epitomizes both rural life and the allure of the Mississippi River. While a quarter of a million tourists visit this area each year to follow in Tom Sawyer’s footsteps, the work of local artists, designers and entrepreneurs is innovating the narrative of this place and opening up room for consideration of African-American experience, local food systems, and the complex series of social and economic connections within life along the Mississippi. This course pursues that spirit of collaboration and imagination in the hands of students, challenging them to think beyond the borders of their disciplines to create projects that present new connections between place, community and culture to both rural and urban audiences. The National Endowment for the Arts defines creative placemaking as an opportunity when “public, private, not-for-profit, and community sectors partner to strategically shape the physical and social character of a neighborhood, town, tribe, city, or region around arts and cultural activities.” Through fieldwork, research and idea-creation, students collaborate with mentors on the ground to create locally-appropriate projects that address questions of culture and design in the region. Occasional off-campus visits are joined in the classroom to a wide range of readings, case studies, and webstreamed conversations with national leaders across fields. The course concludes with small teams designing a specific plan, event, or project that could later be implemented in the community.
work on many of our most influential practitioners, such as Le Corbusier, Kahn, Moneo and Zumthor, as well as in the realm of painting and sculpture including Cubism, Suprematism and Expressionism.

Credit 3 units.

A46 ARCH 467 The Visible and the Invisible
A seminar on philosophy, criticism and architecture providing an intellectual framework for making architecture, by investigating the development of thought and ideas in other disciplines and the effect they have had in the arts. Specific assigned readings are presented and discussed by the class weekly. Emphasis placed on the discussion and the formulation of personal interpretations developed after careful and thoughtful reading. Offers an arena in which theory and practice, often seen as irreconcilable, can be understood as inseparable aspects of the same realm, informing both the author and the work. Fulfills history/theory requirement.

Credit 3 units.

A46 ARCH 469B Appraising the Opaque: Studies of Architectural Opacity
Credit 3 units.

A46 ARCH 470D The Description of Place
The means by which we come to an understanding of a place profoundly effects any subsequent action taken in that place — specifically the action of building. The possibility for place to gather and hold, not only things, but also ourselves, our memories and our imaginations — the event of place — is defined as place becomes concretely defined and choreographed as a static background for action, rather than as a fluid and dynamic action itself. In order to reassert the active reflecting and gathering power of place and, subsequently, of architecture, the process of knowing and describing where we build needs to be reconsidered. This seminar focuses on the potential for visual description to effect alternative readings of place that are otherwise obscured, and speculate regarding the implications of such readings on the making of architecture. The course is divided equally between theory and making. In addition to discussions surrounding assigned readings, students select a specific place of study in St. Louis from which they develop different methodologies for observation and description over the course of the semester. Students have a choice of submitting either a final paper or project, which speculates as to what new understandings have emerged and what possible actions could result from their study.

Credit 3 units.

A46 ARCH 470E History of the Modern Art Museum
This seminar explores the development of the modern art museum as an architectural type, measured against evolving nature of display objects, curatorial practices, and demands of the viewing public. Since the consolidation of the type in the early 19th century, the art museum has been the primary site where the symbiotic trajectories between artistic and architectural development have played out. Also examined is the importation of this program into non-Western countries, which responded with their own canons and classifications of fine art. The course ends with recent case studies in which architecture has made new, often aggressive, commentaries on objects it is designed to display. The course is open to graduate students and advanced undergraduate Architectural History minors. Fulfills history/theory elective requirement.

Credit 3 units.

A46 ARCH 470F Extreme Architecture
Credit 3 units.

A46 ARCH 471A Continuity and Transformation
Throughout history and across cultures, certain ideas, concepts and organizational strategies have persisted in architecture, despite advances in social ideals and technological capabilities. The seminar explores the phenomenon of this continuity with the goal of uncovering the manner in which these ideas and strategies are transformed. Whether classified by use, characteristic form or compositional device, the continuity of these notions is clearly traceable as a body of knowledge waiting to be revealed, understood, assessed and, when valid, built upon. The transformation of ideas and strategies is one of the most fundamental activities of the designer, but relies on careful study. We discover evidence of this phenomenon in vernacular architecture, patterns of settlement and habitation, and in the work on many of our most influential practitioners, such as Le Corbusier, Kahn, Moneo and Zumthor, as well as in the realm of painting and sculpture including Cubism, Suprematism and Expressionism.

Credit 3 units.

A46 ARCH 472 Sustainable Development
Credit 3 units.

A46 ARCH 475D Landscapes Through Time: The History of St. Louis’ Built Environment
Credit 3 units.

A46 ARCH 475E History of the Modern Art Museum
This seminar explores the development of the modern art museum as an architectural type, measured against evolving nature of display objects, curatorial practices, and demands of the viewing public. Since the consolidation of the type in the early 19th century, the art museum has been the primary site where the symbiotic trajectories between artistic and architectural development have played out. Also examined is the importation of this program into non-Western countries, which responded with their own canons and classifications of fine art. The course ends with recent case studies in which architecture has made new, often aggressive, commentaries on objects it is designed to display. The course is open to graduate students and advanced undergraduate Architectural History minors. Fulfills history/theory elective requirement.

Credit 3 units.

A46 ARCH 476 Approach: A Studio in Publication Design
Credit 3 units.

A46 ARCH 477 Contemporary Landscapes
This course examines current practices in landscape architecture and the discourses that shaped the field during the last 20 years. Organized thematically around the topics of ecology, infrastructure and sustainability, the course aims to provide a number of critical perspectives on the relevance of landscape architecture as a cultural practice. Readings and discussions supplement lectures to trace back contemporary ideas to the late 19th and early 20th centuries. The course also incorporates field trips and presentations by visitors, as well as applied research. The seminar is open to all graduate students. Undergraduates can enroll with the instructor's permission. Same as LAND 477

Credit 3 units.

A46 ARCH 478A Mid-Century Modernism in St. Louis 1930–1965
Credit 3 units.

A46 ARCH 4782 Modern Architecture in St. Louis
Credit 3 units. EN: H

A46 ARCH 480B Mapping the Metropolitan Mississippi
This seminar explores the relationship of city to river through reading, recording and mapping. Students document their research, create proposals and develop simulations and/or prototypes for a site on the St. Louis riverfront. Methods of inquiry combine hand-recording, photography, GIS techniques and DIY devices. The course alternates discussion sessions,
field research and lab. Open to all graduate students; undergraduates require the instructor's approval. Same as LAND 480B. Credit 3 units.

A46 ARCH 484B Notations on Florentine Architecture
This seminar proposes a historical survey of significant buildings and urban spaces in Florence through the graphic documentation and spatial analysis of selected sites and buildings from antiquity to the Renaissance and to modernism. The general framework of our analysis is to understand the relationship between the historic development of the city and its most symbolic architecture. This approach is based on the work of Italian scholars, such as Giulio Carlo Argan, who define the history of architecture as the history of the city. The course is methodically divided into two blocks of exercises. In the first part of the semester, we focus on readings, site visits, sketches, analytical drawings and photos, as well as the mapping of the urban development of Florence. In the second part of the semester, students focus on the tectonic study of specific buildings through the construction of representational and experimental models. Each student's individual work contributes to a collective 2-D and 3-D final project to be presented as an exhibition in the Florence Studio during the spring and to be shown at the College of Architecture in the fall. Credit 3 units.

A46 ARCH 484C Metabolic City: Drawing and Urbanism
Credit 3 units.

A46 ARCH 484D Space, Society and the Digital
Credit 3 units.

A46 ARCH 484F Monte Carlo Seminar: Drawing the Body, Imagining the City
In 1969, Archigram released one of its most iconic, yet probably also most enigmatic projects — Features: Monte Carlo. A mixed-use proposal for a performance and recreational space, it was both a building blueprint and a discursive device that operated on the scale of the human body and the city. It wove together issues of bodily and environmental wellness and performance, critically engaging the complexities of emerging global culture; mass media, entertainment industry and various environmental issues. The seminar revisits these questions through a combination of theoretical texts and projects, challenging the students to unpack the environment as a complex cultural, social and technological construct. The rich cultural history of Monaco serves as a springboard for these conversations — from the projects by Charles Garnier, Le Corbusier, Archigram and Yona Friedman to the wide-reaching experiments in modern art, design and dance of the Ballet Russe, including its avant-garde choreography by Serghei Diaghilev, stage set designs by Pablo Picasso and costume designs by Leon Bakst, Monaco sustained a highly innovative level of cultural production that was often eclipsed by its socioeconomic peculiarities. By unpacking these innovations within a larger historical and theoretical context informed by the texts of Walter Benjamin, Reyner Banham, Dean MacCannell and others, the seminar draws together bodily experiences and global cultures in modern cities. Open to graduate and upper-level undergraduate students. Fulfills history/theory elective requirement. Credit 3 units.

A46 ARCH 486A NOMA National Design Competition
CBTL course. Credit 3 units.

A46 ARCH 487 American Architectural Culture Since 1945
This seminar focuses on new ways of thinking about American architecture in the postwar period, to develop new conceptual frameworks to better understand American architecture in the postwar years in its larger context of social, political and urbanistic change. Unlike a history survey course, it not only focuses on the canonical works of well-known designers such as Mies van der Rohe or Louis Kahn, but also situates such work within the various new spatial, technological and social directions of the postwar era. It begins by examining how American architecture changed from the neo-Classical- and Arts and Crafts-inspired directions of the prewar years into the more fragmented and complex situation after 1945. This course also considers the complicated ways that American cities in that period were transformed from dense, streetcar-based industrial environments into sprawling suburban metro areas, typically also becoming racially divided in this process. It also looks at some of the complexities within modern architecture itself, some of which developed directly into postmodernism. These included important innovations in spatial organization, environmental planning and new building technologies, as well as fundamental changes in landscape design, campus design and public school design that have since become part of mainstream practice. Important changes in building technology in this era, which have also tended to be undervalued in the shadow of later concerns about building imagery, also are addressed. Open to graduate students and advanced undergraduates in architecture, art, art history and history. Prerequisite: ARCH 4284 Architectural History II or equivalent course taken elsewhere. Fulfills history/theory elective requirement. Credit 3 units.

A46 ARCH 488 Architecture Service Learning Practicum
The Sam Fox School of Design & Visual Arts, College of Architecture and Graduate School of Architecture & Urban Design give a problem-solving studio workshop about architecture, community and the environment. Fourth- through 10th-grade students from schools in the St. Louis Public School District do 2-D and 3-D hands-on problem-solving projects, use the libraries and computer labs on campus, and be introduced to the field of architecture through lectures and discussions about design projects they undertake. Architecture faculty member Gay Lorberbaum leads the curriculum. Washington University graduate and undergraduate students in architecture participate in the important responsibility of being teaching assistants. Credit variable, maximum 2 units.

A46 ARCH 490 Architecture Service Learning Practicum
The Sam Fox School of Design and Visual Arts, College of Architecture and Graduate School of Architecture & Landscape Architecture & Urban Design, give a problem-solving studio workshop about architecture, community and the environment. Fourth through 10th grade students from schools in the St. Louis Public School District do 2-D and 3-D hands-on problem-solving projects, use the libraries and computer labs on campus, and are introduced to the field of architecture through lectures and discussions about design projects they undertake. Architecture faculty member Gay Lorberbaum leads the curriculum. Washington University graduate and undergraduate students in
architecture participate in the important responsibility of being teaching assistants. CBTL course. Credit 2 units.

A46 ARCH 490A Explore and Contribute: Collaboration between Washington University and Henry Elementary School
CBTL course. Credit 3 units.

A46 ARCH 499 Senior Capstone in Architecture
Credit 3 units.

Landscape Architecture
Visit https://courses.wustl.edu to view semester offerings for A48 LAND.

A48 LAND 317 Architectural Design I (Landscape)
The first of a three-semester sequence that introduces students to architectural design, focusing on conceptual, theoretical and tectonic principles. First-semester MArch 3 students only. Same as ARCH 317 Credit 6 units.

A48 LAND 401 Landscape Architecture Design Studio I
This core studio explores design principles common to architecture and landscape architecture as well as their own specificity. A series of problems focuses on the relation of component to space through conceptual, analytical, formal and perceptual investigations. Credit 6 units.

A48 LAND 402 Landscape Architecture Design Studio II
In this core studio course, students develop a spatial understanding of landscape architecture through a series of exercises of varying scale and complexity. Building design skills incrementally, students acquire facility with the manipulation of ground plane and the elaboration of vegetation and material strategies at both site and urban scales. The studio fosters an appreciation of landscape architecture as a systemic construct with formal, ecological and social implications. Credit 6 units.

A48 LAND 421 Landscape Representation I: Hand Drafting, Drawing and Sketching
The beginning course in the representation sequence introduces students to freehand and mechanical representation as a means for developing and communicating design ideas. Students build a basic understanding of orthographic drawing typologies and traditional drawing materials. Emphasis is placed on development of observational skills, building a design vocabulary, basic drawing skills, and the techniques of landscape architecture and architectural representation. Credit 3 units.

A48 LAND 422 GIS
This course module introduces GIS mapping software and its application to methods used in site planning and design. The focus of this half-semester course is to understand the potential of GIS to analyze, visualize and utilize complex data. Students learn techniques and tools in ArcGIS software and explore how these can be applied to projects specific to individual sites. This course introduces new skills and analytical complexity while building upon previously learned representation techniques. Credit 1.5 units.

A48 LAND 423D Videography for Designers
This seminar course examines the practice of capturing, producing and analyzing moving images as a method of inquiry for design. We focus on the analytical and communicative qualities of time-based media (recorded sequences, video, slideshows, animation, simulation, remote sensing, etc.) as a human-landscape intermediary that has the ability to alter understanding and evaluation of the environment. We explore techniques from a range of disciplines — art, design, sociology, anthropology, etc. The course meets weekly for brief lectures/presentations to direct our inquiries, discussion of foundational readings and ideas, media workshops, screenings, local field trips, and/or student presentations of work. Throughout the semester, students generate brief, exploratory work that focuses on methods and techniques, and a larger, final project that engages the themes of the course. Open to all graduate and upper-level undergraduate students, a goal of the course is to blur boundaries between art and design, and to capitalize on their various approaches. No experience with video, animation or other software is required — only the desire to explore and incorporate time-based methods into individual processes. Credit 3 units.

A48 LAND 431 Landscape on Structure
This course examines materials and technologies for landscapes on structure — green roofs and vertical gardens, among others. Through a series of case studies, students gain an understanding of the relationships between structure (architecture and infrastructure) and substrate, soil, water and plants. Topics covered include innovative planting and urban streetscape systems, and infrastructural adaptation and reuse. Exercises range from analytical diagrams of construction methods to design concepts for living systems adapted to a variety of structural and environmental conditions. Open to students in architecture, landscape architecture and urban design. Credit 3 units.

A48 LAND 431 Plants & Environment
Credit 1.5 units.

A48 LAND 451 Plants & Environment
Credit 1.5 units.

A48 LAND 452k The Ambiguity of Scale: Japan's Landscape Tradition
Same as ARCH 452k Credit 3 units.

A48 LAND 453 Advanced Planting Design
This course focuses on both the cultural, environmental, scientific and the technical aspects of planting design. The course is taught in three modular sessions: horticulture and the science of plants; typologies and design such as bosque, grove, glade, allée, meadow, wetlands, hedgerow, etc., and their origins
in productive landscapes, application to contemporary landscape architecture; and the practical hands-on experience in the field with both design documentation to installation techniques. The course offers several field trips to experience urban revitalization, various design typologies, sustainable land use, reclamation and restoration. Credit 3 units.

A48 LAND 461 Grading + Landform
Credit 1.5 units.

A48 LAND 462 Landscape Materials
Credit 1.5 units.

A48 LAND 465 Landscape Technology
Throughout the world of spatial design, there has been a strong resurgence of interest in landscape methods as a comprehensive and innovative approach toward defining and engineering sites. Techniques of working the land engage dynamic processes, molding conditions and creating forms in order to control erosion, conserve water, and minimize human impacts. As such, landscape methods have created new standards of performance for sites of all sizes and circumstances. Accordingly, this course, intended for students across disciplines, presents an integrated approach to site planning through the intensive study of applied landscape systems. The material covers the spatial and functional systems of designed landscapes and their associated computational and technical aspects: micro- and macrograding, path alignment, and drainage calculation. Through studying these techniques, students learn to implement and quantify water management, microclimate manipulation, and low-impact circulation, parking and servicing. The principles and methods are presented through short lectures and supported by case studies, class workshops and design exercises, tying theory to practical applications. Credit 3 units.

A48 LAND 477 Contemporary Landscape
This course examines current practices in landscape architecture and the discourses that shaped the field during the last 20 years. Organized thematically around the topics of ecology, infrastructure, and sustainability, the course aims to provide a number of critical perspectives on the relevance of landscape architecture as a cultural practice. Readings and discussions supplement lectures to trace back contemporary ideas to the late 19th and early 20th centuries. The course also incorporates field trips and presentations by visitors, as well as applied research. The seminar is open to all graduate students. Undergraduates can enroll with the instructor's permission. Credit 3 units.

A48 LAND 480A New Landscapes: Current Projects and Practices
This course explores current practice through the examination of built landscapes. Recent projects by leading practitioners are analysed within the context of their own body of work and compared to that of others to identify and evaluate their specific agendas and design signatures. Students learn how to "read" built landscapes in order to identify underlying design intent. New landscape architectural projects in America, Europe and the Asia Pacific are investigated to identify and explain critical concerns of contemporary practice. Recent built projects not only exemplify current practice but also tell us much about contemporary society — the projects have been funded, frequently with the use of public funds. Decision makers, always wary of their responsibility to use funds in a manner acceptable to their constituents, and despite any inclination to be forward-thinking, reflect what society deems "acceptable" design. What is acceptable, however, is rapidly changing as society negotiates new environmental and social challenges. The employment of visual and verbal techniques to clearly, logically and concisely present research is an important component of this course. Credit 3 units.

A48 LAND 483A Emergence in Landscape Architecture
This course investigates the roles of emergence theory in landscape architectural discourse. For the purposes of the course, emergence is considered as the development of new and/or different conditions as a result of disturbance. Disturbance can take many forms, and the phenomena that are subject to disturbance are many and varied. Landscapes are continually disturbed by social, economic and physical irritations, but cognitive structures, perceptual frameworks and cultural values are also subject to turbulence that, as with landscape disturbance, often leads to innovation, novelty and resilience. The course explains what emergence theory is, where it comes from, how it relates to environmental design in general, and how it has — or could — change the way we design human and nonhuman inhabitations. Through readings, presentations and discussions, students are able to connect the rise of emergence theory in cultures of contemporary thought to its application in practice. The main theme of the course is the potential for emergence theory to enable us to relate qualitatively different modes of existence (human; nonhuman) to each other and through the connections thus established improve the lifeworlds of all. The structure of the course is based around ten key concepts of emergence, as follows: open systems, situation, initial conditions, assemblage, nature cultures, difference, field theories, disturbance, morphogenesis, formless. Each student investigates one of these concepts and presents their findings to the class. Credit 3 units.

A48 LAND 481A New Landscapes: Current Projects and Practices
This seminar explores the relationship of city to river through reading, recording and mapping. Students document their research, create proposals and develop simulations and/or prototypes for a site on the St. Louis riverfront. Methods of inquiry combine hand-recording, photography, GIS techniques and DIY devices. The course alternates discussion sessions, field research and lab. Open to all graduate students; undergraduates require the instructor's approval. Credit 3 units.