IV.4.2 Course Description

ARCH 121 IA  INTRODUCTION TO DESIGN (major sections)

Credits
3 credits; 3 contact hours

Type of Course
Lecture 2 credits, Recitation 1 credit

Required or Elective
Required, designated as a University Inquiry in the Arts Core Course (IA)

Course Description
Introduction to the design and creative process through global architecture and allied professions. Exploration of the history of design. Emphasis on 20th and 21st century architecture. Individual projects where students apply and explore creative process are required.

Course Goals & Objectives
• Students will understand the methods used to discover and create the factual and theoretical knowledge of our discipline.
• Students will understand the social, cultural and aesthetic concepts that generate design strategies and values (Creative Beginnings).
• Students will explore the forces shaped design throughout history (Firmness, Commodity and Delight).
• Students will learn the relationship between use and aesthetics (Art vs. Design).
• Students will learn the theoretical positions that distinguish the post-modern habit of thought and action from modernism (The Particular vs. the Utopian).

Student Performance Criteria
A. 9. Historical Traditions and Global Culture
C. 2. Human Behavior

Topical Outline
Lecture’s regarding stylistic periods and architects 50%
Recitation discussions and production regarding digital programs & applications 15%
Reading discussions regarding allied fields 25%
Research, writing and graphic presentation regarding 20th architects/projects 10%

Prerequisites
None

Textbooks/Learning Resources
Clay, Robert, Beautiful Thing, an Introduction to Design (Berg. 2009)
Gregory, Rob, Key Contemporary Buildings (WW Norton. 2008)

Dates Offered
Fall, Spring, Summer

Past Instructors
Sean Anderson 2011-2012,

Current Instructors
ARCH 121 IA  INTRODUCTION TO DESIGN (non-major sections)

Credits  3 credits; 3 contact hours

Type of Course  Lecture 2 credits, Recitation 1 credit

Required or Elective  Required, designated as a University Inquiry in the Arts Core Course (IA)

Course Description  Introduction to the design and creative process through global architecture and allied professions. Exploration of the history of design. Emphasis on 20th and 21st century architecture. Individual projects where students apply and explore creative process are required.

Course Goals & Objectives

- Provide students with an understanding of the methods used to discover and create the factual and theoretical knowledge of the discipline of architecture.
- Expose students from all disciplines to qualitative thinking and problem-solving.
- Challenge students with no prior experience to explore ideas and express themselves in visual media.
- Explore the formation, evolution, and interaction of cultural values as expressed through architectural design internationally.
- Investigate environmental, economic, ethical, cultural/behavioral, and political forces manifest in design solutions, in addition to emerging aesthetic sensibilities.
- Recognize the dichotomy between leading architectural design during the 20th Century and the world the average person inhabited.

Student Performance Criteria

A. 9. Historical Traditions and Global Culture
C. 2. Human Behavior

Topical Outline

Reading 2-D architectural drawings as 3-D  20%
Types of spatial organization, human spatial experience  35%
Basic structural understanding  5%
Vernacular building and landscape  10%
Research and critical thought  20%
Diagramming - Translation of architectural idea  10%

Prerequisites  None

Textbooks/Learning Resources  Analyzing Architecture by Simon Unwin, Routledge

Dates Offered  Fall, Spring, Summer

Past Instructors  Sean Anderson 2011-2012,

ARCH 151RA  DESIGN FUNDAMENTALS I

Credits  4 credits; 6 contact hours

Type of Course  Lecture 2 credits, Studio 2 credits

Required or Elective  Required, designated as a University Research in the Arts Core Course (RA)

Course Description  A study of the creative design process with emphasis on two-dimensional design, basic three dimensional design concepts and introduction to the essential tools for graphic communication. Development of students' self-critical skills.

Course Goals & Objectives

- Students will develop analytical skills and an ability to establish critical inquiry in drawn and made objects
- Students will develop the capacity to think spatially
- Students will explore various, natural and formal ordering systems and will apply them to 2-dimensional and 3-dimensional design projects
- Students will explore the relationship of human body to the above systems
- Students will develop graphic and model-making skills
- Students will acquire a basic understanding of graphic conventions
- Students will develop the capacity to speak and write about their ideas and work in direct ways

Student Performance Criteria  A. 8. Ordering Systems Skills

Topical Outline

- Analytical thinking and critical inquiry through drawing and making  30%
- Understanding and use of ordering systems  30%
- Drawing and model making skills and drawing conventions  25%
- Writing and speaking about students’ own work  15%

Prerequisites  Consent of Director. Restricted enrollment. Must be admitted into pre-environmental design program or be a landscape design major.

Textbooks/Learning Resources  Architecture Form, Space and Order by Francis D.K. Ching, John Wiley & Sons Inc.  
Design Drawing by Francis D.K. Ching with Steven P. Juroszek, John Wiley & Sons Inc.  
101 Things I Learned in Architecture School, Matthew Frederick, MITPress

Dates Offered  Fall, Summer

Current Instructors  Chere LeClair 2013, Elisa Renouard 2012-13, Thomas Allen 2013
ARCH 152  DESIGN FUNDAMENTALS II

Credits: 4 credits; 6 contact hours

Type of Course: Recitation 2 credits, Studio 2 credits

Required or Elective: Required

Course Description: A continuation of the study of the design process, introduction to architectonic principles and architectural graphic skills and further understanding of the creative process. Continued development of student's ability to make critical and analytical judgments.

Course Goals & Objectives:
- Students will further develop analytical skills and an ability to establish critical inquiry through drawing and making, in relation to a specific site and place.
- Students will develop an ability to understand ordering systems existing within a particular place.
- Students will explore the position of the human body within the place and its systems.
- Students will develop an ability to abstract the existing ordering system and use it in a design problem.
- Students will explore various graphic and modeling techniques and develop a repertoire of presentation techniques.

Student Performance Criteria:
A. 8. Ordering Systems Skills

Topical Outline: Analytical thinking and critical inquiry (through drawing and making) into a particular place 30%
Understanding, analysis and abstracting of existing ordering systems 45%
Drawing, modeling and presentation techniques 25%

Prerequisites: ARCH 151RA or advanced placement based on approved portfolio; pre-environmental design and landscape design majors only.

Textbooks/Learning Resources:
- Architecture Form, Space and Order by Francis D.K. Ching
- Design Drawing by Francis D.K. Ching with Steven P. Juroszek
- The Eyes of the Skin: Architecture and the Sense, Juhani Pallasmaa

Dates Offered: Spring, Summer

Past Instructors:

Current Instructors:
ARCH 241 BUILDING CONSTRUCTION I

Credits
3 credits; 3 contact hours

Type of Course
Lecture 2 credits, Recitation 1 credit

Required or Elective
Required

Course Description
Introduction to the materials of construction and an overview of building construction systems. Emphasis upon an understanding of materials and systems as a means to effective and creative design utilization.

Course Goals & Objectives
- Students will have the ability to gather, assess, record, apply and compare relevant information on building construction systems and assemblies.
- Students will understand the basic principles involved in the appropriate application of building envelope systems.
- Students will understand the basic principles utilized in making the appropriate selection of construction materials, products, components and assemblies.
- Students will collaborate with others in multidisciplinary teams.
- Students will understand the responsibility to elicit, understand and reconcile the needs of the client, owner, user groups and public/community domains.
- Students will understand the techniques and skills used to work collaboratively in the building design and construction process.

Student Performance Criteria
A.5. Investigative Skills
B. 11. Building Service Systems
B. 12. Building Materials and Assemblies
C. 1. Collaboration
C. 3. Client Role in Architecture
C. 6. Leadership

Topical Outline
Investigative Skills 15%
Building Envelope Systems 30%
Building materials and Assemblies 30%
Collaboration 15%
Client Role in Architecture 5%
Leadership 5%

Prerequisites
None

Textbooks/Learning Resources

Dates Offered
Fall

Instructors
Tom McNab 2005-2013, Bradford Watson 2012-13
ARCH 243 (343)  ARCHITECTURAL STRUCTURES I

Credits  4 credits; 5 contact hours

Type of Course  Lecture 3 credits, Recitation 1 credit

Required or Elective  Required

Course Description  Introduction to structural design/analysis of horizontal and vertical members as applied to architectural works; basic statics, moment and shear of rigid bodies and architectural forms; strength concepts using stress and strain assessment; application of analytical and intuitive structural concepts in a design context.

Course Goals & Objectives

- Students will understand the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.
- Students will understand the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance.
- Students will be able to use structural principles to shape each structure to respond effectively to the forces that it must withstand and the human activities that it involves.
- Students will be able to work in collaboration with others and in teams to successfully complete design projects.

Student Performance Criteria  B. 9. Structural Systems

Topical Outline  
- Elements of Structures  10%
- Tension and Compression  15%
- Equilibrium  15%
- Internal Forces & Moments  25%
- Material Properties  10%
- Beams and Columns  15%
- Rigid Frames  10%

Prerequisites  M 151Q or M171Q and PHSX 205, Admission into Environmental Design Program

Textbooks/Learning Resources  
- The Structural Basis of Architecture by Bjorn N. Sandaker, Arne P. Eggen and Mark R. Cruvellier
- Structures (7th Edition) by Daniel Schodek and Martin Bechthold

Dates Offered  Fall

Past Instructors  Bruce Wrightsman 2008-2012

Current Instructors  Xuemie Li 2013
ARCH 244(344) ARCHITECTURAL STRUCTURES II

Credits 4 credits; 5 contact hours
Type of Course Lecture 3 credits, Recitation 1 credit
Required or Elective Required
Course Description Understanding of design for structural elements in wood, steel, masonry, and concrete. Lateral considerations and calculations including wind, soil and seismic loads. Understanding of structural systems; building systems; diaphragms; connections; structural engineer-architect communications.
Course Goals & Objectives
- Students will gather, assess, record, apply, and comparatively evaluate relevant information within architectural structures coursework and design processes.
- Students will examine and comprehend the fundamental principles present in relevant structures precedents and be able to make choices regarding the incorporation of such principles into the structural design of architecture and urban design projects.
- Students will comprehend the role of applied research in determining structural function, form, and systems and their impact on human conditions and behavior.
- Students will understand the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.
- Students will understand the basic principles utilized in selecting construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse with a focus on architectural structures.

Student Performance Criteria B. 9. Structural Systems
Topical Outline
Connections, Deflection 15%
Shear 10%
Lateral Resisting Systems 15%
Seismic and Wind 20%
Steel Systems 10%
Wood Systems 10%
Concrete Systems 10%
Foundations 10%

Prerequisites ARCH 243
Textbook/Learning Resources The Structural Basis of Architecture by Bjorn Sandaker
The Architects Studio Companion by Edward Allan and Joseph Iano

Dates Offered Spring
Past Instructors Bill Rea 2004-2013
Current Instructors Xuemie Li 2014
ARCH 253 ARCHITECTURAL DESIGN I

Credits 5 credits; 10 contact hours

Type of Course Recitation 1 credits, Studio 4 credits

Required or Elective Required

Course Description Small-scale design projects requiring integration of spatial, visual concepts, emphasizing relationship of architecture to its context with principles of order, constituents of form, light, structural awareness, nature of materials, architectural coherency. Includes inclusive orthographic graphics design drawing conventions.

Course Goals & Objectives

- Students will have the ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.
- Students will have the ability to effectively use basic architectural and environmental principles in design
- Students will have the ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design
- Students will have the ability to respond to site characteristics such as soil, topography, vegetation, and watershed in the development of the project.
- Students will have an understanding of how to apply the basic principles of life-safety systems with an emphasis on egress.
- Students will have an understanding of the basic principles of structural behavior in withstanding gravity and lateral forces

Student Performance Criteria

A. 6. Fundamental Design Skills
B. 4. Site Design
A. 7. Use of Precedents

Topical Outline
Lecture’s regarding life safety and structural systems 5%
Reading & discussions regarding architectural methods and philosophy 10%
Site analysis and precedent research 10%
Design 75%

Prerequisites ARCH 152, Admission into the environmental design program.

Textbooks/Learning Resources
Building Construction Illustrated, by Francis D.K. Ching
Diagramming the Big Idea by Jeffrey Balmer and Michael Swisher
In Praise of Shadows by Junichiro Tanizak

Dates Offered Spring

Past Instructors

Current Instructors
Ralph Johnson 2009-13, Faith Rifki 2012-13, Elisa Renouard 2013, Xuemei Li 2013
ARCH 261 ARCHITECTURAL GRAPHICS I

Credits 3 credits; 5 contact hours

Type of Course Lecture 1 credit, Studio 2 credits.

Required or Elective Required

Course Description Fundamental techniques in architectural graphics. Course utilizes observation and design drawing studios supplemented by design drawing lecture/demonstration sessions. Topics include freehand observation drawing and constructed multi-view, paraline, perspective and shade/shadow drawing leading towards the formal graphic presentation of architectural intentions.

Course Goals & Objectives

• Students will learn and explore various techniques in drafted drawing with focus on orthographic and oblique projection
• Students will use orthographic and oblique drawing as design tools, in direct application to a design project
• Students will explore various free-hand drawing techniques and media
• Students will apply free-hand drawing as a tool of inquiry and analysis

Student Performance Criteria A. 3. Visual Communication Skills

Topical Outline Orthographic and oblique drawing 25%
Design Drawing 25%
Sketch Perspective 25%
Free-hand drawing 25%

Prerequisites Admission into Environmental Design Program

Corequisites Arch 243

Textbooks/Learning Resources Drawing from the Mind’s Eye by Henry Sorenson
ARCH 261 Course Reader by Henry Sorenson

Dates Offered Fall

ARCH 262 ARCHITECTURAL GRAPHICS II

Credits 3 credits; 5 contact hours

Type of Course Lecture 1 credit, Studio 2 credits

Required or Elective Required

Course Description Basic techniques in architectural graphic expression. Course emphasizes observation drawing studio supplemented by design drawing lecture/demonstration sessions. Topics include freehand, perspective, and shade and shadow drawing techniques. Two and three-dimensional digital applications introduced. Notebook computer required.

Course Goals & Objectives
- Students will utilize drawing as a means for communication, speculation and generation in the design process
- Students will understand and be able to utilize drawing conventions and architectural graphic techniques
- Students will develop observation drawing skills
- Students will be able to develop 3D digital models
- Students will learn to operate digital fabrication tools: laser cutter and 3D printer.
- Students will develop digital diagrams using vector based software, desktop publishing software and image processing software.

Student Performance Criteria A. 3. Visual Communication Skills

Topical Outline
- Exterior line drawings 10%
- Exterior tone drawings 10%
- Exterior wash drawings 15%
- Exterior design drawing 15%
- 3D modeling 25%
- Digital Fabrication 15%
- Digital Diagramming 10%

Prerequisites ARCH 261

Corequisites ARCH 253

Textbooks/Learning Resources Drawing from the Mind’s Eye by Henry Sorenson
ARCH 261 Course Reader by Henry Sorenson
On-line video tutorials by Steve Juroszek

Dates Offered Spring

ARCH 313 (413)  PROFESSIONAL PRACTICE

Credits  3 credits; 4 contact hours
Type of Course  Lecture 2 credit, Studio 1 credits
Required or Elective  Required
Course Description  Architecture as a process by which social, economic, and environmental ideas are realized. Topics include: marketing, business planning, project management, legal issues, delivery methods, technology, regulation, ethics, accessibility, interdisciplinary relations, community relations, client relations, and trends of practice. Notebook computer required.

Course Goals & Objectives

- Students will understand the fundamentals of building costs, such as acquisition costs, project financing and funding, financial feasibility, operational costs, and construction estimating with an emphasis on life-cycle cost accounting.
- Students will understand the responsibility of the architect to elicit, understand, and reconcile the needs of the client, owner, user groups, and the public and community domains.
- Students will understand the methods for competing for commissions, selecting consultants and assembling teams, and recommending project delivery methods.
- Students will understand the basic principles of architectural practice management such as financial management and business planning, time management, risk management, mediation and arbitration, and recognizing trends that affect practice.
- Students will understand the techniques and skills architects use to work collaboratively in the building design and construction process and on environmental, social, and aesthetic issues in their communities.
- Students will understand the architect’s responsibility to the public and the client as determined by registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, and historic preservation and accessibility laws.
- Students will understand the ethical issues involved in the formation of professional judgment regarding social, political and cultural issues in architectural design and practice.

Student Performance Criteria

C. 3. Client Role in Architecture  C. 7. Legal Responsibilities
C. 5. Practice Management

Topical Outline

Building Costs and Financial Considerations  15%
Client Role in Architecture  15%
Project Management  15%
Business Management, Leadership and Collaboration  35%
Legal Responsibilities, Ethics and Professional Judgment  20%

Prerequisites  None
Textbooks/Learning Resources  The Architects Handbook of Professional Practice, Student Edition. The American Institute of Architects, Edited by Joseph A. Demkin (required text)
Ethics for Architects: 50 Dilemmas of Professional Practice (Architecture Briefs) by Fisher
Professional Practice: A Guide to Turning Designs into Buildings by Paul Segal

Dates Offered  Fall
Instructors  Mike Everts
ARCH 322IA  WORLD ARCHITECTURE I

Credits  3 credits; 3 contact hours

Type of Course  Lecture 3 credits

Required or Elective  Required, designated as a University Inquire in the Arts Core Course

Course Description  A survey of world architectural history from primitive developments to the Gothic.

Course Goals & Objectives

Upon completion of this course, students will:

• Demonstrate an understanding of the connection between architecture and social, cultural, and environmental contexts;
• Demonstrate an understanding of how architectural works reflect the philosophies, religions, politics, and societal needs of various cultures;
• Demonstrate the ability to conduct independent historical research and analysis of architectural works;
• Demonstrate the ability to communicate analytical ideas both through writing and graphics;
• Be able to identify major works of architecture by key stylistic elements, tectonic character, time period, and geographic location;
• Employ the correct technical terminology in speaking and writing about historic works of architecture;
• Demonstrate an understanding of tectonic evolution as a response to cultural and environmental needs.

Student Performance Criteria

A. 9. Historical Traditions and Global Culture
A. 10. Cultural Diversity
C. 2. Human Behavior

Topical Outline

Primitive and Ancient  35%
Asian and Persian  10%
Greek and Roman  30%
Early Christian, Byzantine, Romanesque and Gothic  15%
Islamic  10%

Prerequisites  Junior standing for non-majors, sophomore standing for majors, ENGL 121W.

Textbooks/Learning Resources

A History of Architecture: Settings and Rituals by Spiro Kostof, Gregory Castillo and Richard Tobias
Sir Banister Fletcher's A History of Architecture. ( Twentieth Edition ) by Dan Cruickshank, Sir Banister Fletcher, Andrew Saint and Kenneth Frampton

Dates Offered  Fall

Past Instructors  Jack Smith 2008-2010, Sean Anderson 2011,

Current Instructor  Elisa Renouard 2012-13
ARCH 323IA  WORLD ARCHITECTURE II

Credits  3 credits; 3 contact hours

Type of Course  Lecture 3 credits

Required or Elective  Required, designated as a University Inquiry in the Arts Core Course

Course Description  A survey of world architectural history from the Renaissance to Industrial Revolution.

Course Goals & Objectives

• Students will understand the historical development of architecture from a global and diverse perspective.
• Students will understand the divergent canons and traditions of architecture from the dawn of the Renaissance to the early landmarks of Modernity.
• Students will explore the historical moments that take place in this time period through critical reflection and discussion.
• Students will analyze how architecture history unfolds, how it is written, by whom and why interpretation is essential.
• Students will construct a timeline of significant events and landmarks during this time period.

Student Performance
Criteria
A. 9. Historical Traditions and Global Culture
A. 10. Cultural Diversity
C. 2. Human Behavior

Topical Outline

Gothic & Renaissance 20%
Palladio, Baroque, Rococo 15%
17th/18th Century
(Enlightenment, Boullee, Soane, Piranesi) 15%
Non-western architecture 15%
19th Century
(Beaux Arts, Eclecticism, Technology 15%
Early Modernism/Modernism 20%

Prerequisites  Junior standing, ENGL 121W.

Textbooks/Learning Resources

Architecture from Prehistory to Post-Modernism, by Marvin Trachtenberg and Isabelle Hyman,
The Seven Lamps of Architecture, by J. Ruskin

Dates Offered  Spring

Current Instructor  David Fortin 2009-13

Current Instructor  Elisa Renouard 2014
ARCH 331 ENVIRONMENTAL CONTROLS I

Credits
4 credits; 4 contact hours

Type of Course
Lecture 4 credits

Required or Elective
Required

Course Description
Analysis and design of basic heating, ventilating, and air-conditioning systems. Analysis and design of water supply, sanitation, and vertical transportation systems. Notebook computer required.

Course Goals & Objectives
- To gain an awareness and understanding of the local and global energy impacts of buildings and the affect of design decisions on energy use patterns.
- To understand human thermal comfort requirements and the basic heat flow mechanisms that occur in buildings as the result of design decisions and construction practices.
- To understand the passive heating and cooling strategies available to the designer which help to minimize energy consumption and contribute to a sustainable future.
- To be able to calculate basic heat loss and heat gain through the complete building envelope.
- To understand the general heating and cooling systems available today and to be able to preliminarily size the systems.
- To gain enough of an understanding of HVAC and water systems that you will be able to effectively communicate with mechanical and plumbing consultants and installers.
- To understand the importance of water quality and conservation practices in building design.

Student Performance Criteria
B. 8. Environmental Systems
B. 11. Building Service Systems

Topical Outline
HVAC 56%
Plumbing 24%
Vertical Transportation 20%

Prerequisites
M150Q or M170Q

Textbooks/Learning Resources
Mechanical and Electrical Equipment for Buildings by Stein, Reynolds, Grondzi and Kwok

Dates Offered
Fall

Past Instructors
Tom Wood 1994-2012

Current Instructors
Gretchen Miller 2013
ARCH 332 ENVIRONMENTAL CONTROLS II

Credits 4 credits; 4 contact hours

Type of Course Lecture 4 credits

Required or Elective Required

Course Description Analysis and design of architectural lighting systems, acoustics, electrical systems, fire protection, and signal-systems. Notebook computer required.

Course Goals & Objectives
- To understand both the physics and psychology of light so that your designs might be enlivened and enhanced by the proper use of daylight and electric light.
- To understand the characteristics of the available light sources so that the proper balance of color rendering, illumination, and energy conservation may be achieved.
- To understand the elements and design of electrical power distribution systems commonly used in buildings today.
- To understand the behavior of sound within and between rooms and to design spaces that properly reinforces sound and/or blocks noise.
- To understand the basic fire detection and suppression systems available today and to understand the role of design in occupant safety.

Student Performance Criteria
B. 8. Environmental Systems
B. 11. Building Service Systems

Topical Outline
Lighting 44%
Acoustics 24%
Electrical 18%
Photovoltaic 2%
Signal 4%
Fire Protection 8%

Prerequisites M151Q or M171Q, ARCH 331

Textbooks/Learning Resources Mechanical and Electrical Equipment for Buildings by Stein, Reynolds, Grondzi and Kwok

Dates Offered Spring

Instructors Tom Wood
ARCH 340  BUILDING CONSTRUCTION II

Credits  4 credits, 6 contact hours

Type of Course  Lecture 2 credits, Studio 2 credits

Required or Elective  Required

Course Description  Development and integration of building materials and assemblies, construction costs and building systems into the construction documents, specifications and design of a small project. Building systems to be investigated include: structural environmental and enclosure, life safety and sustainability. Notebook computer required.

Course Goals & Objectives  Within the structure of the course each student will demonstrate an:
- Ability to assess, select, configure and detail building materials, components, assemblies and systems within the context of a small commercial building design.
- Ability to create an abbreviated set of construction documents and outline specifications with appropriate drawing conventions including building models illustrating the assembly of materials and systems.
- Understanding of the environmental impacts and energy resources inherent to various building materials and systems.


Topical Outline  Design  10%
Reading Assignments  10%
Research  30%
Drawing Techniques  30%
Presentation Skills  20%

Prerequisites  ARCH 241, ARCH 244, ARCH 331 and ARCH 363

Textbooks/Learning Resources  Modern Construction Handbook, 2nd edition, by Andrew Watts

Dates Offered  Spring

Instructors  Chris Livingston
ARCH 354 (254)  ARCHITECTURAL DESIGN II

Credits  5 credits; 10 contact hours

Type of Course  Recitation 1 credit, Studio 4 credits

Required or Elective  Required

Course Description  Small-to medium-size projects extending the development of the design process to site and adjacency analysis, diagramming, fundamental relationship to landscape and context. Topics include hybrid uses of hand and digital graphic communication including 2D and 3D drawing, and modeling. Field trip required.

Course Goals & Objectives
- Students will demonstrate the ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.
- Students will develop a comprehensive program for an architectural project
- Students will develop a site design for a project that responds to the specific site conditions
- Students will design and present a small to medium scale architectural project located within an urban context.

Student Performance Criteria
A. 7. Use of Precedents
B. 2. Accessibility
B. 5. Life Safety

Topical Outline
- Research 10%
- Precedents – SPC A.7. 10%
- Site analysis 10%
- Conceptual design 15%
- Design development 25%
- Accessibility – SPC B.2. 10%
- Life safety – SPC B.5. 10%
- Presentation 10%

Prerequisites  ARCH 253
Corequisites  ARCH 241 and ARCH 363

Textbooks/Learning Resources
- The Architect's Studio Companion: Rules of Thumb for Preliminary Design by Edward Allen and Joseph Iano
- The Diagrams of Architecture: AD Reader by Mark Garcia
- Materials, Structures, and Standards: All the Details Architects Need to Know But Can Never Find by Julia McMorrough

Dates Offered  Fall


Current Instructors  John Brittingham, Zuzanna Karczewska 2011-2013, Bradford Watson, Xuemei Li
ARCH 355 ARCHITECTURAL DESIGN III

Credits 5 credits; 10 contact hours

Type of Course Lecture 1 credits, Studio 4 credits

Required or Elective Required

Course Description Further exploration of ecologically-sound design with emphasis on the integration of structures, building envelope service systems, and building materials, including design for life safety and accessibility. Building scale and program complexity increases, utilizing long-span structural systems. Notebook computer required. Field trip required.

Course Goals & Objectives

- Students will investigate and apply relevant information related to a design project
- Students will develop a comprehensive program for an architectural project
- Students will develop a site design for a project that responds to the specific site conditions
- Students will apply basic principles of life-safety systems with an emphasis on egress.
- Students will design and present a small to medium scale architectural project located within an urban context.
- Students will understand the ethical issues involved in forming professional judgment regarding architectural design and practice and the architect’s responsibility to respect resources and improve the quality of life.

Student Performance Criteria

<table>
<thead>
<tr>
<th>A.5. Investigative Skills</th>
<th>B. 5. Life Safety</th>
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<tbody>
<tr>
<td>B.1. Pre-Design</td>
<td>C. 8. Ethics and Professional Judgment</td>
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</table>

Topical Outline

<table>
<thead>
<tr>
<th>Research + precedents</th>
<th>5%</th>
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</thead>
<tbody>
<tr>
<td>Investigative skills - A.5.</td>
<td>5%</td>
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<tr>
<td>Pre-design - B.1.</td>
<td>10%</td>
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<tr>
<td>Conceptual design</td>
<td>10%</td>
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<tr>
<td>Site design - B.4.</td>
<td>20%</td>
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<tr>
<td>Design development</td>
<td>20%</td>
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<tr>
<td>Life safety - B.5.</td>
<td>10%</td>
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<tr>
<td>Ethics – C.8</td>
<td>5%</td>
</tr>
<tr>
<td>Community – C.9</td>
<td>5%</td>
</tr>
<tr>
<td>Presentation</td>
<td>10%</td>
</tr>
</tbody>
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Prerequisites ARCH 354

Textbooks/Learning Resources

- History of Cohousing-Internationally and in Sweden by Dick Vestbo
- Reality Check by Laura Cooper, Master’s Project Research, 1996

Dates Offered Spring


ARCH 363  ARCHITECTURAL GRAPHICS III

Credits 3 credits; 5 contact hours

Type of Course Lecture 1 credit, Studio 2 credits.

Required or Elective Required

Course Description Advanced principles of computer-aided design and hand applications in architectural practice, including three-dimensional computer-aided design, hand and digital delineation, and presentations. Topics provide foundation for graphic applications in ARCH 354 design studio.

Course Goals & Objectives
- Students will utilize drawing as a means for communication, speculation and generation in the design process
- Students will understand and be able to utilize drawing conventions and architectural graphic techniques
- Students will develop observation drawing skills
- Students will develop a building information model
- Students will create presentation renderings and presentation boards
- Students will prepare an abridged set of construction drawings

Student Performance Criteria A. 3. Visual Communication Skills

Topical Outline
- Interior line drawings 10%
- Interior tone drawings 10%
- Interior wash drawings 15%
- Interior design drawing 15%
- Building Information Modeling 35%
- Rendering 15%

Textbooks/Learning Resources
ARCH 363 Course Manual by Henry Sorenson
On-line video tutorials by Steven P. Juroszek

Prerequisites ARCH 262

Corequisites ARCH 354

Dates Offered Fall

Past Instructors Josh Vernon 2009, Jessica Jellison 2010, Lindsay Shack 2012

ARCH 456 (356)  ARCHITECTURAL DESIGN IV

Credits
5 credits; 10 contact hours

Type of Course
Lecture 1 credit, Studio 4 credits

Required or Elective
Required

Course Description
Senior capstone course. Architectural design integrating building, landscape, and urban context using multi-story projects of medium scale and complexity with particular focus on mixed-use. Integrated topics include programming, structural and mechanical integration, ecologically-sound design, building envelope systems and building codes.

Course Goals & Objectives

• Students will have the ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

• Students will understand the role applied research plays in determining function, form, and systems and their impact on human conditions and behavior.

• Students will prepare a comprehensive program for an architectural project, such as preparing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions (including existing buildings), a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.

• Students will be able to design projects that optimize, conserve, or reuse natural and built resources, provide healthful environments for occupants/users, and reduce the environmental impacts of building construction and operations on future generations.

Student Performance Criteria
A.1. Communication Skills
A.11. Applied Research
B. 3. Sustainability

Topical Outline
Lectures on urban responsibilities, energy, building enclosure, structural systems 5%
Readings on characters and impact of tall building 10%
Site analysis and precedent research 10%
Project design 75%

Prerequisites
ARCH 355

Textbooks/Learning Resources
The Heights: Anatomy of a Skyscraper by Kate Ascher
Tall Buildings by Harriet Schoenholz Bee

Dates Offered
Fall, Summer (no longer offered starting 2013)

Past Instructors

Current Instructors
Ralph Johnson, Tom Wood, John Brittingham, Barry Newton, Thomas Allen
ARCH 551 ADVANCED ARCHITECTURAL STUDIO

Credits
6 credits, 10 contact hours

Type of Course
Recitation 2 credits, Studio 4 credits

Required or Elective
Required

Course Description
Design projects which explore specific critical positions with regard to contemporary architectural issues. Research and analysis of theoretical positions are emphasized along with the development of contemporary methods, models and techniques for analysis.

Course Goals & Objectives
- Students will be able to read, comprehend and analyze texts on a specialized topic in preparation for developing a critical position for their design studio project
- Students will be able to prepare visual drawings and diagrams to analyze and communicate their research findings.
- Students will be able to undertake a research or design project to explore conceptual and schematic design topics.

Student Performance Criteria
A. 2. Design Thinking Skills
A.11. Applied Research

Topical Outline
Will vary with instructor and project but a general example is:
Reading and Research 30%
Conceptual Design 20%
Schematic Design/Experimentation 35%
Presentation 15%

Prerequisites
ARCH 557

Textbooks/Learning Resources
Varies with each course offering and instructor.

Dates Offered
Fall, Spring, Summer

Past Instructors

Current Instructors
ARCH 552 ARCHITECTURAL RESEARCH METHODS

Credits 3 credits, 3 contact hours

Type of Course Lecture 1 credit, Recitation 2 credits

Required or Elective Required

Course Description An examination of the types of inquiry used to conduct architectural research. Students will engage in initial studies of traditional and non-traditional research methods in architecture and its related fields followed by an individual research project.

Course Goals & Objectives

- Students will further develop their abilities to read, write, speak and listen effectively
- In this course students will learn to gather, assess, record, apply, and comparatively evaluate relevant information and be able to apply this ability in their graduate architectural coursework and design studios
- Students will further their understanding of the role of applied research in determining function, form, and systems and their impact on human conditions and behavior
- Students will understand the ethical issues involved in the formation of professional judgment regarding social, political and cultural issues in architectural design and practice.

Student Performance Criteria

A.1. Communication Skills
C.8. Ethics and Professional Judgment

Topical Outline

Systems of Inquiry as the Epistemological Basis of Research; Precedent Studies and Literature Review as the Critical Step in Research; and Role and Scope of Theory in Design Research Strategies 33%

Research Strategies 66%
(Interpretive Research; Logical Argumentation; Qualitative Research; Correlation Research; Experimental Research; Simulation; and Case Studies)

Prerequisites Graduate standing or seniors by petition

Textbooks/Learning Resources Research Design: Qualitative, Quantitative, and Mixed Methods Approaches by John W. Creswell

Dates Offered Fall, Spring

Past Instructors Robert Aydlett 2012

Instructors Fatih Rifki 2012-14
ARCH 557 ARCHITECTURAL DESIGN STUDIO

Credits 6 credits; 10 contact hours

Type of Course Lecture 2 credit, Studio 4 credits

Required or Elective Required

Course Description Advanced architectural design projects integrating site analysis, programming, building systems, and contemporary design theory. Emphasis placed on the synthesis of conceptual processes, analysis, preliminary design investigation, and design development. Field Trip required.

Course Goals & Objectives

• Students will produce an advanced architectural design project integrating site analysis, programming, building systems, review of relevant laws and standards and contemporary design theory.

• Students will be able to synthesis conceptual processes, analysis, preliminary design investigation, and design development.

Student Performance Criteria

A. 6. Fundamental Design Skills

B. 1. Pre-Design

Topical Outline

Site analysis 15%
Contemporary design theory 5%
Precedent research 5%
Conceptual design 20%
Design development 55%

Prerequisites ARCH 456 and Graduate standing

Textbooks/Learning Resources Varies with each course offering and section

Dates Offered Fall, Spring


Current Instructors Maire O’Neill 2013, Jack Smith 2013
ARCH 558  COMPREHENSIVE DESIGN STUDIO

Credits                                  6 credits
Type of Course                          Lecture 2 credit, Studio 4 credits
Required or Elective                    Required

Course Description                      Comprehensive architectural studio which integrates design thinking and investigative skills with site design, accessibility and life safety, sustainability and environmental, and structural systems in the design and presentation of a programmatically complex building.

Course Goals & Objectives

- Students will develop a comprehensive design project which investigates issues of materiality, human activity, site conditions, and history/theory.
- Students will undertake research and analysis as well as investigations of issues related to their design project.
- Students will develop technical documentation that articulate the building systems, including environmental systems and structural systems, within their building design.
- Students will identify conservation and reuse of natural and built resources within their design project.
- Students will develop a site plan that responds to new and preserved landscapes, vegetation and on-site water management.
- Students will demonstrate an understanding of life safety requirements with an emphasis on egress.

Student Performance Criteria

B. 6. Comprehensive Design

Topical Outline

<table>
<thead>
<tr>
<th>Research</th>
<th>20%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site analysis</td>
<td>10%</td>
</tr>
<tr>
<td>Precedent research</td>
<td>5%</td>
</tr>
<tr>
<td>Conceptual design</td>
<td>15%</td>
</tr>
<tr>
<td>Design development</td>
<td>50%</td>
</tr>
</tbody>
</table>

Prerequisites

ARCH 551

Textbooks/Learning Resources

Varies with course offering and instructor

Dates Offered

Fall, Spring, Summer

Past Instructors


Instructors

Ralph Johnson 2011-13, Jack Smith 2008-2013, Christopher Livingston 2013
ARCH 590  MASTER’S THESIS (this class offering ended Spring of 2012)

Credits  1-10 credits, maximum credits unlimited

Type of Course  Individual Study

Required or Elective  Required prior to 2010

Catalogue Description  --

Course Goals & Objectives
- Students will be able to independently pursue an architectural investigation of the student’s own choosing.
- Students will be able to synthesis their design education as an exploration of new ideas or opportunities in the field of architecture.

Student Performance Criteria  B. 6. Comprehensive Design

Topical Outline  Varies with each student and advisor

Prerequisites  Master’s standing

Textbooks/Learning Resources  Varies with each student and advisor

Dates Offered  Fall, Spring, Summer

Instructors  All tenured, tenure-track and full time adjunct faculty
Fourth Year Studio Options
Students choose from one of the fourth year studio course offerings listed on the following pages—ARCH 44, ARCH 450, ARCH 458 and ARCH 490. Because our students do not take a common studio option, we have not listed the Studio Options as meeting any of the Student Performance Criteria for our degree. However, we see these studios as very strong enrichment experiences for all of our students.
ARCH 414 ARCHITECTURAL STUDY ABROAD

Credits 9 credits

Type of Course Lecture 6 credits, Independent Study 3 credits

Required or Elective Fourth Year Design Studio Option – one of four design studio options that students choose from as part of their fourth year curriculum.

Course Description Structured study in foreign countries under the direction of an architecture faculty member to obtain an understanding of modern and historical architecture and the forces shaping them. Holistic study of urban environments combines design, urban design, architectural history, drawing, and pre-travel design and research. Itineraries include opportunities for additional destinations and independent travel.

Course Goals & Objectives At the conclusion of this course, students will:
- Gain knowledge about the architecture of the specific countries and places that were a part of the itinerary for their study abroad semester.
- Learn about the cultures the specific countries and people that were a part of their itinerary for their study abroad semester.
- Develop illustrative skills for in-depth perception, critical analysis, and understanding of space
- Develop an understanding of the nature of the relationship between built form and economics, politics, social issues, cultural issues and function.
- Develop skills for critiquing architecture and analyzing what creates successful architectural and urban space

Student Performance Criteria A. 3. Visual Communication Skills
A.6. Fundamental Design Skills
A.9. Historical Traditions and Global Culture
C.2. Human Behavior

Topical Outline Topical outline can vary with each course offering, itinerary and instructor. One example outline is:
- Exploration of Cities 15%
- Site Research 10%
- Site planning and conceptual Design 15%
- Schematic Design 25%
- Presentation 5%
- Independent Travel and Sketching 30%

Prerequisites ARCH 355

Corequisite ARCH 428

Textbooks/Learning Resources Varies with each course offering and instructor.

Dates Offered Spring, Summer

ARCH 450  COMMUNITY DESIGN CENTER

Credits  5 credits, 12 contact hours

Type of Course  Lecture 1 credit, Studio 4 credits

Required or Elective  Fourth Year Design Studio Option – one of four design studio options that students choose from as part of their fourth year curriculum.

Course Description  The Community Design Center (CDC) assists public and non-profit groups by providing planning, programming, and conceptual design ideas. Emphasis and scope of projects are determined by the community needs. Projects are intended to complement and promote the professional practice of architecture in the State of Montana.

Course Goals & Objectives  At the conclusion of this course, students will
  • Be able to work in a collaborative professional practice experience
  • Be able to determine appropriate design proposals and meet production schedules
  • Conduct meetings and presentations with project clients
  • Use graphic communication to present information and alternatives to clients and team members

Student Performance Criteria  A.5. Investigative Skills
  A. 6. Fundamental Design Skills
  C. 1. Collaboration
  C. 8. Ethics and Professional Judgment
  C.9. Community and Social Responsibility

Topical Outline  Topic outline will vary depending upon specific project undertake in CDC, but a general outline would be as follows:
  Client meetings and site visits  10%
  Project research  20%
  Programming  10%
  Conceptual Design  15%
  Schematic Design  25%
  Presentation materials  20%

Prerequisites  ARCH 355

Textbooks/Learning Resources  Varies with the subject matter in each course offering.

Dates Offered  On demand

Instructors  Tom McNab, 2003-13
ARCH 458 ARCHITECTURAL DESIGN VI

Credits  5 credits; 10 contact hours

Type of Course  Lecture, 1 Studio 4 credits

Required or Elective  Fourth Year Design Studio Option – one of four design studio options that students choose from as part of their fourth year curriculum.

Course Description  A continuation of the holistic design synthesis encountered in ARCH 456 or 457 with emphasis on development of student's emerging design values and theoretical perspective.

Course Goals & Objectives  At the conclusion of this course, students will:
- Develop clear, conceptual proposals with a practical system of construction
- Make presentations to clients in visual and/or verbal form
- Develop details, material selection, and project site location
- Be able to work with sub-contractors on fabrication and cost estimating
- Implement the construction of an approved design including project coordination, and site management
- Be knowledgeable in the proper use of tools and materials

Student Performance Criteria  A. 6. Fundamental Design Skills
B. 4. Site Design

Topical Outline  Conceptual Design  20%
Client Presentations  10%
Technical development  25%
Construction of design project  45%

Prerequisites  ARCH 355

Corequisites  none

Textbooks/Learning Resources  Varies with each course offering and section

Dates Offered  Fall, Summer

Instructors  Lori Ryker (Remote Studio)
ARCH 498  INTERNSHIP

Credits  3-12 credits

Type of Course  Independent study

Required or Elective  Fourth Year Design Studio Option – one of four design studio options that students choose from as part of their fourth year curriculum.

Course Description  Students arrange for employment in an architectural office for a continuous period of 12-16 weeks. Students will participate in a structured work/study professional practice experience and are required to present the content of this experience upon their return to campus.

Course Goals & Objectives

- Students will be exposed to the spectrum of the architectural profession through the course of their internship experience.
- Students will have the opportunity of living and working in an environment different from her/his past experience in addition to gaining invaluable experience.

Student Performance Criteria

A.4. Technical Documentation
A.6. Fundamental Design Skills
C.1. Collaboration
C.3. Client Role in Architecture
C.9. Community and Social Responsibility

Additional criteria may be included depending upon specific firm needs and responsibilities

Topical Outline  Varies with each particular firm. Students are required to work full time at a firm for the duration of the Internship course/semester.

Prerequisites  ARCH 340, ARCH 355 and all other architectural courses through the third year.

Textbooks/Learning Resources  Varies with each particular firm

Dates Offered  Fall, Spring, Summer


Current Instructors  Lindsay Shack 2010-2013-Internship Coordinator
Elective Courses

New Elective Courses
As part of our work on the changes to the 2014-16 undergraduate and graduate catalog, the following courses will be added as electives in our graduate program:

- ARCH 510 LEADERSHIP IN PROFESSIONAL PRACTICE*
- ARCH 519 SYNTHESIS OF ARCHITECTURAL PRACTICE*
- ARCH 526 ADVANCED ARCHITECTURAL THEORY
- ARCH 527 ARCHITECTURE: MEANING AND PLACE
- ARCH 535 ADVANCED BUILDING SYSTEMS INTEGRATION
- ARCH 566 PHOTOGRAPHY FOR ARCHITECTS
- ARCH 575 RESEARCH OR PROFESSIONAL PAPER/PROJECT

*courses added as part of our new Professional Practice of Architecture Graduate Certificate Program which is scheduled to begin Spring 2014.

Existing Elective Courses
The existing elective courses on the following pages are offered on a regular basis. They are included here to show the breadth of elective offerings that students have to choose from. Many of these electives are offered by different faculty each semester which has led to a variety of topics and textbooks being utilized for some courses.
ARCH 231CS  ISSUES IN SUSTAINABILITY

Credits  3 credits;

Type of Course  Lecture 3 credits

Required or Elective  Elective, designated as a Contemporary Issues in Science (CS) university core course

Course Description  Introduction to concepts and practices intended to create more sustainable communities where present generations are accountable for the needs of future generations and the natural environment. The course will explore current multi-disciplinary practices in "ecological design".

Course Goals & Objectives  After successfully completing this course, students will:

- Identify the common threads of causality that brought about the failure of ancient communities.
- Identify the social, cultural and economic conditions in contemporary communities which in some way parallel the circumstances and lessons learned from ancient precedents.
- Identify, explain and contrast the characteristics of the two fundamental types of built environments, the conventional/high-carbon community in contrast with resilient/low-carbon built environments.
- Compare and contrast the characteristics associated with transportation, energy, water, the natural environmental, food production/agriculture, solid waste and economic systems as they relate to conventional/high-carbon communities versus resilient/low-carbon built environments.

Student Performance Criteria  B. 3. Sustainability

Topical Outline  A history of failed societies - 10%
Two types of built environments (high carbon & low carbon) and their supporting systems - 5%
Sustainable neighborhoods -10%
Transportation and the sustainable corridor - 5%
Minimizing the impact of the automobile - 5%
Energy systems - 5%
High performance buildings - 10%
Sustainable water and wastewater strategies - 5%
Water, food and the energy nexus - 5%
The natural environment - 5%
The realm of biophilia - 5%
The realm of recycling - 5%
Sustainable economics - 5%
Sustainable retail - 5%
Healthy neighborhoods - 5%
The regulatory environment - 5%
The process of transforming people, societies and cultures - 5%

Prerequisites  None

Textbooks/Learning Resources  Collection of readings

Dates Offered  On Demand

Instructors  Ralph Johnson 2010-13
ARCH 426  IDENTITY OF CONTEMPORARY PLACES

Credits  3 credits; Maximum 6 cr.

Type of Course  Lecture 3-6 credits

Required or Elective  Elective

Course Description  A course in applied architectural history and theory. Lectures, discussions, and student projects investigate characteristics which convey a sense of place based on historical development, architectural styles, and urban design.

Course Goals & Objectives
- Students will develop an understanding of issues of identity and the characteristics that define the concept of place
- Students will read, comprehend and analyze texts that explore issues of identify and place
- Students will develop skills to analyze and critique landscapes and built environments in order to determine the unique and/or common characteristics of a place.

Student Performance Criteria  Varies with each course offering

Topical Outline  Topical outline can vary with each course offering but the most recent course offerings as part of the Remote Studio have been:
- Readings and discussions of texts  60%
- Exploration and analysis of landscapes  40%

Prerequisites  ARCH 322IA and ARCH 323IA

Textbooks/Learning Resources  Varies with each course offering

Dates Offered  On Demand

Instructors  Lori Ryker (Remote Studio)
ARCH 428 FOREIGN STUDY HISTORY

Credits 3 credits

Type of Course Lecture 2 credits, Independent Study 1 credit

Required or Elective Elective

Course Description An on-site study in a foreign country of the social, cultural, and historic influences on architectural design. This course is only offered in conjunction with the foreign study program within the School of Architecture. Course shall include research on-site visits documented in an appropriate media form.

Course Goals & Objectives
- Students will understand the historical context of visited sites including precedents, historical antecedents, general timelines of related interest.
- Students will understand the context of civilization’s development.

Student Performance Criteria
- A.9. Historical Traditions and Global Culture
- A.10. Cultural Diversity
- C.2. Human Behavior

Topical Outline Varies with each course offering and instructor. A typical topical outline has been:
- Readings 20%
- Discussions 20%
- Field Visits to selected sites 60%

Prerequisites ARCH 322IA and ARCH 323IA

Corequisites ARCH 414

Textbooks/Learning Resources Varies with each course offering and instructor.

Dates Offered Spring, Summer

ARCH 451 DESIGN FOR THE COMMUNITY

Credits
3 credits

Type of Course
Independent study 3 maximum 6 credits

Required or Elective
Elective

Catalogue Description
Students will be engaged in architecturally-related activities with government and non-profit agencies. This will enable students to be involved in a service learning academic experience.

Course Goals & Objectives
At the conclusion of this course, student will
- Undertake service learning opportunities within the communities of the state.
- Use graphic communication to present information and alternatives to clients and team members

Student Performance Criteria
A.5. Investigative Skills
A. 6. Fundamental Design Skills
C. 8. Ethics and Professional Judgment
C.9. Community and Social Responsibility

Topical Outline
Varies with each course offering and the specific service-learning project that a student will be working on in the course.

Prerequisites
ARCH 355

Textbooks/Learning Resources
Varies with each course offering

Dates Offered
On demand

Instructors
Tom McNab 2003-2013
**ARCH 521 ARCHITECTURAL THEORY**

<table>
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<tr>
<th>Credits</th>
<th>3 credits, maximum 9 credits</th>
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</thead>
<tbody>
<tr>
<td>Type of Course</td>
<td>Seminar</td>
</tr>
<tr>
<td>Required or Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>Course Description</td>
<td>Specific architectural, urban, planning and preservation theories, their application and context within contemporary practice will be investigated through the study of essays, drawings, models and built projects.</td>
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</tbody>
</table>
| Course Goals & Objectives | Specific objectives vary with the faculty member teaching the course.  
  - Students will engage in an area of architectural theory.  
  - Students will gain knowledge on architectural theory through directed readings, discussions, papers and presentations.  
  - Students will be able to read, comprehend and analyze texts on a specialized topic in preparation for developing a critical position |
| Student Performance Criteria | Varies with each course offering and instructor |
| Topical Outline        | Varies with each course offering and instructor |
| Prerequisites          | Graduate standing or seniors by petition. |
| Textbooks/Learning Resources | Varies with each course offering and instructor |
| Dates Offered          | On-demand                   |
ARCH 522  HISTORICAL ISSUES IN ARCHITECTURE AND URBAN DESIGN

Credits
3 credits, maximum 9 credits

Type of Course
Seminar 3 credits

Required or Elective
Elective

Course Description
Close examination of historic periods and individuals. Emphasis upon in-depth studies of particular personalities and the social, cultural, artistic and scientific developments that influenced the progress of architecture, urban design and city planning.

Course Goals & Objectives
Specific objectives vary with the faculty member teaching the course.

• Students will engage in an area of architectural history.
• Students will gain knowledge on architectural history through directed readings, discussions, papers and presentations.
• Students will be able to read, comprehend and analyze texts on a specialized topic in preparation for developing a critical position

Student Performance Criteria
Varies with each course offering and instructor

Topical Outline
Varies with each course offering and instructor

Prerequisites
ARCH 322IA, ARCH 323IA, Graduate standing or seniors by petition

Textbooks/Learning Resources
Varies with each course offering and instructor

Dates Offered
On-demand

Instructors
**ARCH 523  ISSUES IN CITY PLANNING**

<table>
<thead>
<tr>
<th>Credits</th>
<th>3 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course</td>
<td>Recitation/Discussion 3 credits</td>
</tr>
<tr>
<td>Required or Elective</td>
<td>Elective</td>
</tr>
</tbody>
</table>

**Course Description**
Problems and issues, processes and regulations in planning, urban design, and historic preservation.

**Course Goals & Objectives**

- Students will be able to read, write, speak and listen effectively
- Students will be able to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards
- Students will use appropriate representational media, such as traditional graphic and digital technology to convey essential formal elements at each stage of the programming and design process
- Students will examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design projects
- Students will understand the social and spatial patterns that characterize different cultures and individuals and the implication of this diversity on the societal roles and responsibilities of architects
- Students will understand the architect’s responsibility to work in the public interest, to respect historic resources, and to improve the quality of life for local and global neighbors

**Student Performance Criteria**
Varies with each course offering and instructor

**Topical Outline**
Varies with each course offering and instructor

**Prerequisites**
Graduate standing or seniors by petition.

**Textbooks/Learning Resources**
Varies with each course offering and instructor

**Dates Offered**
On-demand

**Instructors**
ARCH 524 DESIGN COMPETITION

Credits
3 credits, maximum 6 credits

Type of Course
Lab/Studio 3-6 credits

Required or Elective
Elective

Course Description
Students will work under the direction of a faculty member in the research, design, development and presentation of a project in response to a design competition.

Course Goals & Objectives
- Students will undertake research and creative activities to research and analyze design problems
- Students will develop a design competition solution

Student Performance Criteria
A.6. Fundamental Design Skills

Topical Outline
Varies with each course offering and instructor

Prerequisites
ARCH 355 or consent of instructor. Admission to graduate program or seniors by petition.

Textbooks/Learning Resources
Varies with each course offering and instructor.

Dates Offered
On-demand

Instructors
Mike Everts 2011
ARCH 525 SPECIAL DESIGN TOPICS

Credits 3 credits, maximum 12 credits

Type of Course Lab/Studio 3 credits

Required or Elective Elective

Course Description Students will work under the direction of a faculty member in the research, design, development and presentation of a design, research, or historic preservation project.

Course Goals & Objectives
- Students will undertake research in a specialized area
- Students will undertake a creative activity in a specialized area of architecture or in an allied field

Student Performance Criteria Varies with each course offering and instructor

Topical Outline Varies with each course offering and instructor

Prerequisites ARCH 355 and consent of instructor. Admission to graduate program or seniors by petition.

Textbooks/Learning Resources Varies with each course offering and instructor

Dates Offered On-demand


ARCH 533 ADVANCED ENVIRONMENTAL CONTROL SYSTEMS

Credits: 3 credits
Type of Course: Seminar 3 credits
Required or Elective: Elective

Course Description: Advanced environmental controls systems explored through experimental exercises, calculations, physical modeling and computer simulations with the goal of designing high-performance buildings with an emphasis on lighting and HVAC systems

Course Goals & Objectives:
- Students will explore new tools, techniques, and materials available to the lighting designer.
- Students will understand how to evaluate high performance building designs.
- Students will utilize the tools and techniques in a project design

Student Performance Criteria: B. 8. Environmental Systems

Topical Outline:
- Energy Simulation 20%
- Lighting and Daylighting 15%
- Sustainable Topics 45%
- Project Design 20%

Prerequisites: ARCH 331 and ARCH 332. Admission to graduate program or seniors by petition.

Textbooks/Learning Resources:
- IESNA ED-150 Lighting Education Binder

Dates Offered: Fall

Instructors: Tom Wood
ARCH 543  ADVANCED APPLIED DESIGN AND CONSTRUCTION

Credits  3 credits, maximum 6 credits
Type of Course  Lab/Studio
Required or Elective  Elective
Course Description  Small scale projects industrial products, furniture, buildings, etc., will be designed and built by students as an exploration of the opportunities and limitations of materials, technology, economics, and construction methods.

Course Goals & Objectives  At the conclusion of this course, students will:

- Design and construct an original furniture piece, fused glass piece, or material exploration
- Understand and be able to use stationary woodworking machinery, hand held machines and hand tools for woodworking or appropriate tools and equipment for fused glass.
- Understand and be able to utilize wood or glass characteristics, joining and finishing techniques as an integral part of their design and construction process.

Student Performance Criteria  A. 6. Fundamental Design Skills

Topical Outline

<table>
<thead>
<tr>
<th>Topic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety Training and orientation</td>
<td>5%</td>
</tr>
<tr>
<td>Conceptual design</td>
<td>15%</td>
</tr>
<tr>
<td>Drawing development</td>
<td>20%</td>
</tr>
<tr>
<td>Construction</td>
<td>60%</td>
</tr>
</tbody>
</table>

Prerequisites  ARCH 241, consent of instructor, and graduate standing or seniors by petition.

Textbooks/Learning Resources  Varies with course offering

Dates Offered  On-demand

Past Instructors  Heath “Tad” Bradley 2010-2012

Current Instructors  Bill Clinton 2008-2013
ARCH 564 ADVANCED ARCHITECTURAL GRAPHICS

Credits 3 credits, maximum 6 credits
Type of Course Lab/Studio 3 credits
Required or Elective Elective
Course Description Advanced architectural presentation strategies for exploring visual perception and design development through graphic exploration.

Course Goals & Objectives
At the conclusion of this course, students will:
- Be able to engage the visual imagination in their design process by blending skills for translating the actual landscape as drawing.
- Develop techniques for representing the inner landscape of ideas,
- Incorporate visual imagination in their architectural expression.
- Utilize both hand drawing.sketching techniques and digital tablet drawing techniques and software

Student Performance Criteria
A. 3. Visual Communication Skills

Topical Outline
Observation drawing 50%
Design Drawing and presentation drawing 50%

Prerequisites
ARCH 363, admission to graduate program or seniors by petition

Textbooks/Learning Resources
Architectural Field Sketching Course Reader by Henry Sorenson
Architectural Field Drawing, by Henry Sorenson
Drawing From The Mind’s Eye, by Henry Sorenson
Painter 11 Creativity, by Jeremy Sutton
The Drawing Aperture, by Henry Sorenson

Dates Offered Summer, Fall

Instructors Henry Sorenson 2008-2013
**ARCH 565 ADVANCED COMPUTER APPLICATIONS II**

<table>
<thead>
<tr>
<th>Credits</th>
<th>3 credits, 3 contact hours</th>
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<tbody>
<tr>
<td><strong>Type of Course</strong></td>
<td>Recitation 1 credit, Lab 2 credits</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>Course Description</strong></td>
<td>Computer-aided design and theory for architecture. Lectures and projects may include topics of three-dimensional modeling, animation, delineation or digital fabrication.</td>
</tr>
</tbody>
</table>
| **Course Goals & Objectives** | • Students will develop complex three-dimensional models  
• Students will explore parametric families and advanced building information modeling techniques  
• Students will experiment with a range of digital presentation techniques  
• Students will explore workflow as a part of the digital modeling/rendering process |
| **Student Performance Criteria** | A. 3. Visual Communication Skills |
| **Topical Outline**      | Varies with each course offering, instructor and selected software application. An example of an outline from 2012 is:  
Three-dimensional Modeling            30%  
Building Information Modeling         40%  
Rendering                               30% |
| **Prerequisites**        | ARCH 363                   |
| **Textbooks/Learning Resources** | Handouts given in class. |
| **Dates Offered**        | On-demand                  |
### ARCH 589  GRADUATE CONSULTATION

<table>
<thead>
<tr>
<th>Credits</th>
<th>1-3 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course</td>
<td>Independent study</td>
</tr>
<tr>
<td>Required or Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>Course Description</td>
<td>This course may be used only by students who have completed all of their course work but who need additional faculty or staff time or help.</td>
</tr>
<tr>
<td>Course Goals &amp; Objectives</td>
<td>This course is intended to serve those graduate students who have substantially completed ARCH 592, Master’s Studio in Architecture or ARCH 558 Comprehensive Design Studio, but require additional research, design or critique to fulfill all of the course requirements established by the student’s graduate committee. This course continues to be listed in our catalog to accommodate students who entered the graduate program under an earlier catalog.</td>
</tr>
<tr>
<td>Student Performance Criteria</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Topic Outline</td>
<td>Varies with each course offering and committee.</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>Master’s standing and approval of the Dean of Graduate Studies..</td>
</tr>
<tr>
<td>Textbooks/Learning Resources</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Dates Offered</td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td>Instructors</td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
Variable Elective Courses with Common University Rubrics—offered as Needed

The courses shown on the following pages are seminar, independent study and directed research courses that are not required but are utilized to accommodate unique and typically one-time courses of study that students will take under the supervision of a faculty member.
<table>
<thead>
<tr>
<th><strong>ARCH 290R</strong></th>
<th><strong>UNDERGRADUATE RESEARCH/ CREATIVE ACTIVITY</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Credits</strong></td>
<td>1-6 credits; 3 contact hours</td>
</tr>
<tr>
<td><strong>Type of Course</strong></td>
<td>Independent Study</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective, University Research Core</td>
</tr>
<tr>
<td><strong>Course Description</strong></td>
<td>Directed undergraduate research which may culminate in a written work or other creative project. Course will address responsible conduct of research.</td>
</tr>
<tr>
<td><strong>Course Goals &amp; Objectives</strong></td>
<td>To encourage additional research/creative activities involving students and the faculty beyond the basic requirements of the professional program.</td>
</tr>
<tr>
<td><strong>Student Performance Criteria</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Topical Outline</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Textbooks/Learning Resources</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Dates Offered</strong></td>
<td>Fall, Spring</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Architecture Faculty</td>
</tr>
</tbody>
</table>
### ARCH 291 SPECIAL TOPICS

<table>
<thead>
<tr>
<th><strong>Credits</strong></th>
<th>1-4 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Course</strong></td>
<td>Lecture, Seminar</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>Course Description</strong></td>
<td>Courses not required in any curriculum for which there is a particular one-time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.</td>
</tr>
<tr>
<td><strong>Course Goals &amp; Objectives</strong></td>
<td>To investigate the potential of new or opportunistic directions for the expansion and/or liberalization of the professional curriculum. To relate to emerging concerns of the profession, the School, and the University.</td>
</tr>
<tr>
<td><strong>Student Performance Criteria</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Topical Outline</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>None required but some may be determined necessary by each offering department</td>
</tr>
<tr>
<td><strong>Textbooks/Learning Resources</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Dates Offered</strong></td>
<td>On demand</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
## ARCH 292 INDIVIDUAL PROBLEMS

<table>
<thead>
<tr>
<th><strong>Credits</strong></th>
<th>1-3 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of Course</strong></td>
<td>Independent study</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>Course Description</strong></td>
<td>Courses not required in any curriculum for which there is a particular one-time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.</td>
</tr>
<tr>
<td><strong>Course Goals &amp; Objectives</strong></td>
<td>To encourage student-initiated input to the student’s own degree program, providing an appropriate degree of flexibility and individuality for the highly motivated student.</td>
</tr>
<tr>
<td><strong>Student Performance Criteria</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Topical Outline</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>Consent of instructor and approval of department head</td>
</tr>
<tr>
<td><strong>Textbooks/Learning Resources</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Dates Offered</strong></td>
<td>On demand</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
**ARCH 294 SEMINAR**

<table>
<thead>
<tr>
<th>Credits</th>
<th>1-2 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course</td>
<td>Seminar 3 credits</td>
</tr>
<tr>
<td>Required or Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>Course Description</td>
<td>Topics offered at the lower division level which are not covered in regular courses. Students participate in preparing and presenting discussion material.</td>
</tr>
<tr>
<td>Course Goals &amp; Objectives</td>
<td>To provide a greater diversity of choice and more concentrated focus in specialized areas at the undergraduate level, encouraging students to take advantage of the full breadth of faculty experience and expertise beyond the basic professional curriculum.</td>
</tr>
<tr>
<td>Student Performance Criteria</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Topical Outline</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>Determined for each offering.</td>
</tr>
<tr>
<td>Textbooks/Learning Resources</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Dates Offered</td>
<td>On demand</td>
</tr>
<tr>
<td>Instructors</td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
### ARCH 471  DIRECTED RESEARCH/ CREATIVE ACTIVITY

<table>
<thead>
<tr>
<th>Credits</th>
<th>1-2 credits, maximum 4 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Course</td>
<td>Recitation</td>
</tr>
<tr>
<td>Required or Elective</td>
<td>Elective</td>
</tr>
<tr>
<td>Course Description</td>
<td>Directed research/creative activity which may culminate in a research paper, journal article, or design project.</td>
</tr>
<tr>
<td>Course Goals &amp; Objectives</td>
<td>To enrich the experience of students participating in an ARCH 471 project by including instruction from a faculty member with particular expertise in the area of investigation.</td>
</tr>
<tr>
<td>Student Performance Criteria</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Topical Outline</td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>None</td>
</tr>
<tr>
<td>Corequisite:</td>
<td>ARCH 472</td>
</tr>
<tr>
<td>Textbooks/Learning Resources</td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td>Dates Offered</td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td>Instructors</td>
<td>Architecture faculty</td>
</tr>
<tr>
<td><strong>ARCH 472  DIRECTED RESEARCH/ CREATIVE ACTIVITY INSTRUCTION</strong></td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td>1-2 credits, maximum 4 credits</td>
</tr>
<tr>
<td><strong>Type of Course</strong></td>
<td>Recitation</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>Course Description</strong></td>
<td>Classroom instruction associated with directed research/creative activity projects.</td>
</tr>
<tr>
<td><strong>Course Goals &amp; Objectives</strong></td>
<td>To enrich the experience of students participating in an ARCH 471 project by including instruction from a faculty member with particular expertise in the area of investigation.</td>
</tr>
<tr>
<td><strong>Student Performance Criteria</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Topical Outline</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Corequisite:</strong></td>
<td>ARCH 471</td>
</tr>
<tr>
<td><strong>Textbooks/Learning Resources</strong></td>
<td>Varies with each course offering and instructor.</td>
</tr>
<tr>
<td><strong>Dates Offered</strong></td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
ARCH 490R  UNDERGRADUATE RESEARCH

Credits  1-6 credits, Maximum 6 cr.
Type of Course  Independent study
Required or Elective  Elective, University Research Core
Course Description  Directed undergraduate research which may culminate in a research paper, journal article, or undergraduate thesis. Course will address responsible conduct of research.
Course Goals & Objectives  To encourage additional research/creative activities involving students and the faculty beyond the basic requirements of the professional program.

Student Performance Criteria  Varies with each course offering and instructor.

Topical Outline  Varies with each course offering and instructor.

Prerequisites  None

Textbooks/Learning Resources  Varies with each course offering and instructor.

Dates Offered  Fall, Spring, Summer
Instructors  Architecture faculty
ARCH 491 SPECIAL TOPICS

Credits 1-4 credits, maximum 12 credits
Type of Course Varies with course offering
Required or Elective Elective
Course Description Courses not required in any curriculum for which there is a particular one-time need, or given on a trial basis to determine acceptability and demand before requesting a regular course number.
Course Goals & Objectives To investigate the potential of new or opportunistic directions for the expansion and/or liberalization of the professional curriculum. To relate to emerging concerns of the profession, the school, or the University.
Student Performance Criteria Varies with each course offering and instructor.
Topical Outline Varies with each course offering and instructor
Prerequisites Course prerequisites as determined for each offering.
Textbooks/Learning Resources Varies with each course offering and instructor.
Dates Offered On demand
Instructors Architecture faculty
ARCH 492  INDIVIDUAL PROBLEMS

Credits  1-3 credits

Type of Course  Independent study maximum 6 credits

Required or Elective  Elective

Course Description  Directed research and study on an individual basis.

Course Goals & Objectives  To encourage student-initiated input to the student’s own degree program, providing an appropriate degree of flexibility and individuality for the highly motivated student.

Student Performance Criteria  Varies with each course offering and instructor.

Topical Outline  Varies with each course offering and instructor

Prerequisites  Junior standing, consent of instructor, and approval of department head.

Textbooks/Learning Resources  Varies with each course offering and instructor.

Dates Offered  On demand

Instructors  Architecture faculty
<table>
<thead>
<tr>
<th><strong>ARCH 494 SEMINAR</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Credits</strong></td>
<td>1-3 credits</td>
</tr>
<tr>
<td><strong>Type of Course</strong></td>
<td>Seminar</td>
</tr>
<tr>
<td><strong>Required or Elective</strong></td>
<td>Elective</td>
</tr>
<tr>
<td><strong>Catalogue Description</strong></td>
<td>Topics offered at the upper division level which are not covered in regular courses. Students participate in preparing and presenting discussion material.</td>
</tr>
<tr>
<td><strong>Course Goals &amp; Objectives</strong></td>
<td>To provide a greater diversity of choice and more concentrated focus in specialized areas, encouraging students to take advantage of the full breadth of faculty experience and expertise beyond the basic professional curriculum.</td>
</tr>
<tr>
<td><strong>Student Performance Criteria</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Topical Outline</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>Junior standing and as determined for each offering.</td>
</tr>
<tr>
<td><strong>Textbooks/Learning Resources</strong></td>
<td>Varies with each course offering and instructor</td>
</tr>
<tr>
<td><strong>Dates Offered</strong></td>
<td>Fall, Spring, Summer</td>
</tr>
<tr>
<td><strong>Instructors</strong></td>
<td>Architecture faculty</td>
</tr>
</tbody>
</table>
Elective Courses That Remain in the Catalog But Have Not Been Offered Since the Last Accreditation Visit

The following courses are electives that continue to be listed in our catalog but have not been offered since our last accreditation visit. As part of our work on the changes to the 2014-16 undergraduate and graduate catalog, the School and the Curriculum Committee will review whether or not to leave these courses in our catalog.

ARCH 221 WORLD ARCHITECTURE MODERN: CONTEMPORARY
On Demand 3 cr. LEC 3
This course will examine the historical development of architecture from the 19th century to the present. Within an historical context, the course will focus on the impact of cultural and philosophic trends, technological changes and innovations and the globalization of the digital revolution on our built environment. Students will be introduced to seminal theoretical approaches professed by architects and thinkers of the 20th and early 21st centuries.

ARCH 223 INTRODUCTION TO ARCHITECTURAL THEORY
On Demand 3 cr. LEC 3
-- Introduction to theoretical approaches advocated by architects, urban designers, planners and theorists throughout history. Emphasis is placed on theoretical positions, their advocacies and their impact on architecture.

ARCH 424 CONTEMPORARY ARCHITECTURAL HISTORY AND THEORY
On Demand 3 cr. LEC 3
PREREQUISITE: ARCH 322 and ARCH 323.
-- Critique and discussion of architectural projects built and ideologies proposed in writings, drawings, and models during the 20th and 21st centuries as they relate to their social, cultural, technical and economic context.

ARCH 425 WESTERN ARCHITECTURAL HISTORY
On Demand 3 cr. SEM 3 Maximum 6 cr.
PREREQUISITE: ARCH 322 and ARCH 323.
-- A study of events and influences that led to the development of western architectural styles, ideology, and forms of individual expression.

ARCH 427 NON-WESTERN ARCHITECTURAL HISTORY
On Demand 3 cr. SEM 3 Maximum 6 cr.
PREREQUISITE: ARCH 322 and ARCH 323.
-- A study of events and influences that led to the development of non-western architectural styles, ideology, and forms of individual expression.

ARCH 444 COMPUTATIONAL DESIGN FOR STRUCTURES
On Demand 3 cr. LEC 2 STU 1.
PREREQUISITE: ARCH 243 and ARCH 263.
-- Introduction to spreadsheets and computational software; spreadsheet developments for typical structural computations used in architecture; introduction to structural design/analysis software; and development of a library of computational software tools for the application of structural architectural design. Notebook computer required.

ARCH 464 INTERMEDIATE COMPUTER APPLICATIONS
On Demand 3 cr. RCT 1 STU 2
PREREQUISITE: ARCH 263 or ARCH 363.
-- Investigation of digital design, fabrication, modeling and drawing as applied to architectural practice. Lectures and projects will explore the use of two-dimensional and three-dimensional applications to explore design and construction processes.
ARCH 465 ADVANCED COMPUTER APPLICATIONS  
On Demand 3 cr. RCT 1 LAB 2  
PREREQUISITE: ARCH 464, or consent of instructor.  
-- The investigation and application of advanced two-dimensional and three-dimensional digital applications for design, modeling, and presentation techniques for architectural practice. Lectures and projects may include topics of three-dimensional modeling, animation, delineation, or digital fabrication.

ARCH 545 ADVANCED STRUCTURES  
On Demand 3 cr. LEC 2 STU 1  
PREREQUISITE: ARCH 244 or ARCH 344 and graduate standing or seniors by petition.  
-- Advanced structural topics, historical and contemporary structural precedents, load path, performance design, structural system planning, connection design; structural restoration; complete 2D and 3D design/analysis/structural projects.

ARCH 553 ARCHITECTURAL STUDIO-THEORETICAL APPLICATION  
On Demand 3 cr. LEC 1 RCT 2  
PREREQUISITE: Graduate standing.  
-- Graduate research and analysis of the formal manifestations of the specific theoretical positions advocated and illustrated through the design work of significant architectural practitioners. Notebook computer required.

ARCH 554 URBAN DESIGN STUDIO  
On Demand 6 cr. RCT 2 STU 4.  
PREREQUISITE: Graduate standing.  
-- Urban design projects that develop an understanding of public planning goals and constraints, urban infrastructure, formal urban fabric, historic preservation, and socio-cultural issues. Notebook computer required. Field trip required.

ARCH 555 URBAN DESIGN RESEARCH/ THEORY  
On Demand 3 cr. LEC 1 RCT 2  
PREREQUISITE: Graduate standing.  
-- Methods, models, and techniques for analyzing the city as an artifact of social, cultural, historical, economic and physical significance. Notebook computer required. Field trip required.

ARCH 556 CONSTRUCTION THEORY  
On Demand 3 cr. SEM 3. May be repeated as topics vary.  
PREREQUISITE: Graduate standing.  
-- Graduate research and analysis of contemporary and historic design theory.