# ARCHITECTURE

http://www.arch.iastate.edu

The undergraduate program in architecture is an accredited five-year curriculum leading to the Bachelor of Architecture degree. The program provides opportunities for general education as well as preparation for professional practice and/or graduate study. An optional one-semester foreign study program is offered to fourth year students.

The undergraduate curriculum includes one year of the college's Core Design Program followed by a four year professional program. Admission to the professional degree program is based on the applicant's performance in the completed pre-professional curriculum; previous high school record (or transfer record where applicable); portfolio and essay evaluations; and on available departmental resources.

## Objectives of the Bachelor of Architecture program:

The department is committed to the study of architecture as a cultural discipline in which issues of practice, of the multiplicity of social formations in which buildings exist, and of environmental effect are enfolded with the subject matter of building design - construction, space, material, form and use. Architecture arises from the aspirations that diverse individuals and groups have for their physical environment, and from the social enterprise of designing and fabricating the landscape we inhabit. It involves individual and multiple buildings, the spaces within them, and the exterior landscape.

It is our intent: that our students develop the skills with which to critically assess and research architectural questions and to invent architectural designs that address those questions; that they develop a working method for designing and that they have the communication, graphic, modeling and computational skills to support design exploration and to represent their design ideas to others; that they gain knowledge of architectural technologies through which buildings are given form, of which they are constructed and by which they are environmentally tuned and made sustainable; that they understand architectural history, that they understand the theoretical and diverse cultural underpinnings of the discipline of architecture, that they are able to reference architectural precedents and know how to utilize all of these in the development of their ideas; and that they have grounding in the ethical and practical aspects of the architectural profession in society.

For students entering the professional program, the department highly recommends purchase or lease of a laptop/notebook computer and appropriate software.

## Curriculum in Architecture

The Department offers undergraduate and graduate degree programs:

A 167.5-credit undergraduate professional program, including the 30-credit Core Design Program, leading to the Bachelor of Architecture degree. (B. Arch.)

A 100-credit graduate professional program leading to the Master of Architecture. Applicants holding B.S. or B.A. degrees in Architecture or other affiliated design fields may be given advanced standing in this program. (M.Arch.)

A 30-credit interdisciplinary graduate program leading to the Master of Science in Architecture. (M.S. Arch.)

For more complete graduate program descriptions see Graduate Study under Architecture in the Courses and Programs section.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

**Total B. Arch. Requirement: 167.5 cr.**
Only 65 cr from a two-year institution may apply which may include up to 16 technical cr.; 9 P-NP cr of free electives; 2.00 minimum GPA.

**International Perspective: 3 cr.**
**U.S. Diversity: 3 cr.**
**Communications: 10 cr.**
(C- or better grade)

| | | |
|---|---|---|
| ENGL 150 | Critical Thinking and Communication | 3 |
| ENGL 250 | Written, Oral, Visual, and Electronic Composition | 3 |
| LIB 160 | Information Literacy | 1 |
| Plus three credits from approved list. | | 3 |
| **Total Credits** | | **10** |

**Humanities: 6 cr.**
6 cr. from approved list.

**Social Sciences: 6 cr.**
6 cr. from approved list.

**Math and Physical Sciences: 8 cr.**

| | | |
|---|---|---|
| MATH 145 | Applied Trigonometry | 3 |
| PHYS 111 | General Physics | 5 |
| **Total Credits** | | **8** |

**Design Core 11.5 cr.**

| | | |
|---|---|---|
| DSN S 102 | Design Studio I | 4 |
| DSN S 115 | Design Collaborative Seminar | 0.5 |
| or DSN S 110 | Design Exchange Seminar I | |
| DSN S 131 | Design Representation | 4 |
| DSN S 183 | Design Cultures | 3 |
| **Total Credits** | | **11.5** |

**Design Communications: 3 cr.**

| | | |
|---|---|---|
| ARCH 230 | Design Communications I | 3 |
| **Total Credits** | | **3** |

**Design: 48 cr.**

| | | |
|---|---|---|
| ARCH 201 | Architectural Design I | 6 |
| ARCH 202 | Architectural Design II | 6 |
| ARCH 301 | Architectural Design III | 6 |

| ARCH 302 | Architectural Design IV | 6 |
|---|---|---|
| ARCH 401 | Architectural Design V | 6 |
| 12 credits: | | 12 |
| DSN S 546 | Interdisciplinary Design Studio | |
| ARCH 403 | Architectural Design VII | 6 |
| **Total Credits** | | **48** |

**Building Technologies: 21 cr.**

| ARCH 245 | Building Science and Technology I | 3 |
|---|---|---|
| ARCH 341 | Building Science and Technology II | 5 |
| ARCH 342 | Building Science and Technology III | 5 |
| ARCH 343 | Building Science and Technology IV | 5 |
| ARCH 445 | Building Science and Technology V | 3 |
| **Total Credits** | | **21** |

**Studies in History, Theory, and Culture: 18 cr.**

| ARCH 221 | History of Architecture I | 3 |
|---|---|---|
| ARCH 222 | History of Architecture II | 3 |
| ARCH 323 Theories of Architecture | | 3 |
| Nine credits from approved SAC Option list. | | 9 |
| **Total Credits** | | **18** |

**Behavioral Studies/Practice: 6 cr.**

| ARCH 371 | Human Behavior and Environmental Theory | 3 |
|---|---|---|
| ARCH 482 | Professional Practice | 3 |
| **Total Credits** | | **6** |

**Professional Options: 9 cr.**

6 cr. 300-500 level Arch; 3 cr. from Arch, Art, Art H, ArtID, ArtGr, ArtIS, C R P, Des, Dsn S, or L A.

**Electives: 21 cr.**

6 cr. 300-500 level from department list.; 15 cr. from approved list. 2 cr. Kin or Ath allowed; 4 cr. AFAS, M S, or N S allowed; 9 cr. Arch allowed (no P/NP).

Architecture, B.Arch.

**First Year**

| Fall | Credits | Spring | Credits |
|---|---|---|---|
| DSN S 102 or DSN S 131 | 4 | DSN S 102 or DSN S 131 | 4 |
| DSN S 110 or DSN S 115 | 0.5-1 | DSN S 183 or ENGL 150 | 3 |
| DSN S 183 (or General Elective) | 3 | PHYS 111 | 5 |
| ENGL 150 (or General Elective) | 3 | Social Science/Humanity Elective | 3 |
| MATH 145 | 3 | LIB 160 | 1 |
| Social Science/Humanity Elective | 3 | | |
| | **16.5-17** | | **16** |

**Second Year**

| Fall | Credits | Spring | Credits |
|---|---|---|---|
| ARCH 201 | 6 | ARCH 202 | 6 |
| ARCH 221 | 3 | ARCH 222 | 3 |
| ARCH 230 | 3 | ARCH 341 | 5 |
| ARCH 245 | 3 | Social Science/Humanity Elective | 3 |

| | | ENGL 250 | 3 |
|---|---|---|---|
| | **18** | | **17** |

**Third Year**

| Fall | Credits | Spring | Credits |
|---|---|---|---|
| ARCH 301 | 6 | ARCH 302 | 6 |
| ARCH 323 | 3 | ARCH 343 | 5 |
| ARCH 342 | 5 | ARCH 371 | 3 |
| Social Science/Humanity Elective | 3 | HTC Elective Non-Wester Opton | 3 |
| | **17** | | **17** |

**Fourth Year**

| Fall | Credits | Spring | Credits |
|---|---|---|---|
| ARCH 401 | 6 | DSN S 546 | 6 |
| ARCH 445 | 3 | HTC Elective | 3 |
| ARCH 482 | 3 | General Elective | 3 |
| HTC Elective (Reading,Writing & Research Option) | 3 | General Elective | 3 |
| University Communication Elective | 3 | | |
| | **18** | | **15** |

**Fifth Year**

| Fall | Credits | Spring | Credits |
|---|---|---|---|
| ARCH 403 | 6 | DSN S 546 | 6 |
| Professional Elective | 3 | Professional Elective | 3 |
| Professional Elective | 3 | General Elective | 3 |
| General Elective | 3 | General Elective | 3 |
| General Elective | 3 | | |
| | **18** | | **15** |

**Total Credits: 167.5-168**

Admission into the Bachelor of Architecture Program requires the completion of at least 30.0 credits, including the following courses: DSN S 102, 131, 183, 110 or 115, 6 credits of Social Sciences/ Humanities, 6 credits Math/Science, ENGL 150 (or test-out credit) LIB 160. A portfolio review and essay will also be significant factors.

# Graduate Study

The Department of Architecture offers two graduate degrees in architecture: a three-year accredited professional degree (M.Arch.) and a two-semester to three-semester research degree (M.S. in Arch.). Both degrees encourage interdisciplinary work within the College of Design and across related fields within the university. Double-degree programs are currently offered with the Department of Community and Regional Planning (M.Arch. / M.C.R.P.) and the College of Business (M.Arch. / M.B.A.). Financial support in the form of teaching and research assistantships is available competitively.

# Master in Architecture

M.Arch. is an accredited professional degree in architecture. It is designed for students with undergraduate degrees in disciplines other than architecture as well as for students who hold four-year pre-professional degree in architecture.

The M.Arch. program demands engagement with contemporary issues and a commitment to lifelong learning. We encourage students to

examine the relationships between local, regional and global contexts addressing environmental, social and technological issues. We believe that even though the scale of the architect's action might be limited, the range of information needed to make creative, intelligent and responsible design decisions is vast. We expect our graduates to value the necessity of research, interdisciplinary learning, and teamwork.

M.Arch. is accredited by the National Architectural Accreditation Board (NAAB) and leads to a professional Master of Architecture degree over three years including the first summer term. The curriculum starts with an intensive three-semester course sequence that places equal emphasis on three study areas: architectural design and media, science and technology, and theory and history seminars on the built environment. While this learning framework shapes the whole curriculum, the remaining four semesters have a more open structure that allows students to explore architecture within an interdisciplinary context. These four semesters include a number of options, including study abroad, specialized studios with a variety of faculty, and the opportunity to do an independent project.

Students with undergraduate degrees in architecture or other related design fields may be given advanced standing in the program; advanced standing students may waive up to the whole first year. Students admitted to the program hold undergraduate degrees in a broad range of fields such as art history, history, literature, interior design, economics, mathematics, computer science, anthropology, and medicine. These students must complete the full three years of the curriculum.

# Master of Science in Architecture

M.S. in Arch. is a 30-credit research degree with a required graduate thesis. As a research degree, this program is not subject to NAAB accreditation.

M.S. in Arch. is open for applicants who hold a professional degree in architecture or other related design fields. Applicants are required to submit a research proposal that lies within one of the listed study areas. These study areas are: Sustainability and Green Design, Rural and Urban Studies, Representation and Digital Media, Design Inquiry, Advanced Building Design, Architectural and Construction History, and Building Science and Construction. The degree is also open for applicants with non-professional degrees in various fields depending on the study area proposed by the applicant.

## Masters of Architecture
### Studio Courses: 39 cr.

| | | |
|---|---|---|
| ARCH 505 | Architectural Design and Media I: Mapping, Programming, Building | 5 |
| ARCH 506 | Architectural Design and Media II: Materiality and Representation | 5 |
| ARCH 507 | Architectural Design and Media III: Design in Detail | 5 |
| ARCH 601 | Sustainable Building Design | 6 |
| ARCH 602 | Community, Building and the Environment | 6 |
| ARCH 603 | Comprehensive Design | 6 |
| ARCH 604 | Design Studio Options | 6 |

### History and Theory Courses: 16 cr.

| | | |
|---|---|---|
| ARCH 595 | Seminar on the Built Environment I: History | 5 |
| ARCH 596 | Seminar on the Built Environment II: Landscape and Society | 5 |
| ARCH 597 | Seminar on the Built Environment III: Theory | 3 |
| ARCH 598 | Seminar on the Built Environment IV: Topical Study | 3 |

### Science and Technology: 24 cr.

| | | |
|---|---|---|
| ARCH 541 | Science and Technology for Architects I | 5 |
| ARCH 542 | Science and Technology for Architects II | 5 |
| ARCH 581 | Service Learning | 5 |
| ARCH 643 | Science and Technology for Architects III | 3 |
| ARCH 644 | Science and Technology for Architects IV | 3 |
| ARCH 582 | Professional Practice | 3 |

### Electives: 21 cr.
Total Credits 100

# DuAl degree

Double degree programs are offered with Master of Design in Sustainable Environments (M.Arch./M.Des.S.E.), and Master of Urban Design (M.Arch/M.U.D.). Information about our programs and how to apply can be obtained from the department's web page at: www.design.iastate.edu/architecture

Financial support in the form of teaching and research assistantships is available.

**Courses primarily for undergraduates:**

### ARCH 201: Architectural Design I
(1-15) Cr. 6. F.
*Prereq: Completion of the pre-professional program and admission into the professional program in Architecture*
Introduction to architectural design. Introduction to architectural design, including precedent research, drawing conventions, model making, and diagramming. Studio projects focus on investigating the impact of specific site conditions on design, threshold conditions, and small-scale domestic space. Students will learn skills in problem solving, visualization, and written, oral, and graphic communication. Field trips to relevant architectural sites.

### ARCH 201H: Architectural Design I, Honors
(1-15) Cr. 6-7. F.
*Prereq: Completion of the pre-professional program and admission into the professional program in Architecture*
Introduction to architectural design. Introduction to architectural design, including precedent research, drawing conventions, model making, and diagramming. Studio projects focus on investigating the impact of specific site conditions on design, threshold conditions, and small-scale domestic space. Students will learn skills in problem solving, visualization, and written, oral, and graphic communication. Field trips to relevant architectural sites.

### ARCH 202: Architectural Design II
(1-15) Cr. 6. S.
*Prereq: ARCH 201; MATH 142; PHYS 111*
Continuation of fundamental architectural design exploration. Studio projects focus on the generation of ideas based on experience and an understanding of urban spaces. Emphasis on systematic analysis of urban culture, scale, materiality, and networks. Students work in groups and individually. Representational methods expand on architectural conventions through experimentation. Fieldtrips to relevant architectural sites.

**ARCH 202H: Architectural Design II, Honors**
(1-15) Cr. 6-7. S.
*Prereq: ARCH 201, MATH 142 and PHYS 111*
Continuation of fundamental architectural design exploration. Studio projects focus on the generation of ideas based on experience and an understanding of urban spaces. Emphasis on systematic analysis of urban culture, scale, materiality, and networks. Students work in groups and individually. Representational methods expand on architectural conventions through experimentation. Fieldtrips to relevant architectural sites.

**ARCH 221: History of Architecture I**
(3-0) Cr. 3. F.
Survey of western architectural ideas and practices in their social, cultural, and representational contexts. Comparisons with global examples. Ancient through 1750.
Meets International Perspectives Requirement.

**ARCH 222: History of Architecture II**
(3-0) Cr. 3. S.
Survey of western architectural ideas and practices in their social, cultural and representational contexts. Comparisons with global examples. 1750 to present.
Meets International Perspectives Requirement.

**ARCH 230: Design Communications I**
(2-2) Cr. 3. F.
*Prereq: Admission to the professional program in architecture*
Investigations of various design media--including computer graphics and freehand drawing--and their applications to design, specifically to the course work in ARCH 201. Exercises to develop manual skill and perceptual sensitivity.

**ARCH 245: Building Science and Technology I**
(2-2) Cr. 3. F.
*Prereq: Admission to the professional program in architecture*
Integrated architectural technology fundamentals in three modules: environmental, material, and structural technologies. Introductory topics include: sustainable considerations in environmental forces and systems, (solar orientation, climate, daylight, ventilation, human comfort & occupancy patterns), basic materials and assemblies (physical properties & building codes) and structural concepts (forces, equilibrium, and stability).

**ARCH 301: Architectural Design III**
(1-15) Cr. 6. F.
*Prereq: ARCH 202*
Consideration of landscape as a constructed, cultural artifact. Projects address the perceptual aspects and strategies of situation and location; examination of environmental phenomena and patterns of use and settlement as revealed and affected by the architectural artifact. Development of a critical design process is stressed.

**ARCH 301H: Architectural Design III, Honors**
(1-15) Cr. 6-7. F.
*Prereq: ARCH 202*
Consideration of landscape as a constructed, cultural artifact. Projects address the perceptual aspects and strategies of situation and location; examination of environmental phenomena and patterns of use and settlement as revealed and affected by the architectural artifact. Development of a critical design process is stressed.

**ARCH 302: Architectural Design IV**
(1-15) Cr. 6. S.
*Prereq: ARCH 301 and minimum 2.0 GPA in previous studio courses*
Continuation of ARCH 301, examining housing in the urban situation; diverse scales of use and occupation within the city as shaped by cultural tendencies. Projects examine collective and individual identities related by the condition of adjacency, the ability to consider varieties of scale within a project, and a further development of critical and technical methods.

**ARCH 302H: Architectural Design IV, Honors**
(1-15) Cr. 6-7. S.
*Prereq: ARCH 301 and minimum 2.0 GPA in previous studio courses*
Continuation of ARCH 301, examining housing in the urban situation; diverse scales of use and occupation within the city as shaped by cultural tendencies. Projects examine collective and individual identities related by the condition of adjacency, the ability to consider varieties of scale within a project, and a further development of critical and technical methods.

**ARCH 321: History of the American City**
(3-0) Cr. 3.
*Prereq: Sophomore classification*
Study of the development of the built environment and urban condition in the United States from the colonial period to today. Through the theme of infrastructure, primary attention is given to urban spatial organization, built form, technological change, regulatory and funding patterns, and social categories such as class, race, and gender.
Meets U.S. Diversity Requirement

**ARCH 323: Theories of Architecture**
(3-0) Cr. 3.
*Prereq: ARCH 221, 222. Course restricted to ARCH majors only.*
Survey of theories impacting the production of architecture, historically and in contemporary practice. Emphasis will be given to recent movements and architectural manifestations, as well as close examinations of socio-cultural conditions. Weekly readings and an analytic term paper (3000 words minimum) are required.

**ARCH 334: Computer Applications in Architecture**
(2-2) Cr. 3.
Current and potential applications of digital computers in architecture. Projects employing computer graphics and modeling methods. Awareness of programming languages related to applications.

**ARCH 335: Three-Dimensional Studio**
(Cross-listed with ARTIS). (1-4) Cr. 3. Repeatable, maximum of 6 credits. This course deals with three dimensional problems in visual invention, organization, and expression emphasizing creative manipulation of tools, materials, and techniques as means for three dimensional thinking. Projects cover the additive (modeling), subtractive (carving), substitutional (casting) as well as constructive techniques.

### ARCH 341: Building Science and Technology II
(3-4) Cr. 5. S.
*Prereq: ARCH 245, MATH 142 and PHYS 111*
Continued exploration of integrated architectural technology fundamentals in three modules: environmental, material, and structural technologies. Topics include environmental systems (building envelope systems and heat transfer, passive heating and cooling, daylighting, thermal comfort, analytical guidelines and calculation methods), materials & assemblies (composite building materials and framing systems) and structural systems (exploration relationship between applied forces and structural forms).

### ARCH 342: Building Science and Technology III
(3-4) Cr. 5. F.
*Prereq: ARCH 341*
In-depth explorations of integrated architectural technology fundamental topics in three modules: environmental, material, and structural technologies with a focus on sustainable concepts and formal/material explorations. Examination of a design process that incorporates climate into the control of thermal, luminous, and acoustic environments. Introduction to plumbing systems. Complex construction assemblies and large-scale construction will be studied. Structural components (beams, columns, & slabs) will be designed, computed, and analyzed.

### ARCH 343: Building Science and Technology IV
(3-4) Cr. 5. S.
*Prereq: ARCH 342*
In-depth explorations of fundamental integrated architectural technology topics in three modules: environmental, material, and structural technologies with a focus on sustainable concepts and formal/material explorations. An overview of active environmental control systems in response to occupant comfort, patterns of use, health, and safety regulations. Use and design of mechanical, electrical, plumbing, fire safety, transportation, and conveying systems and subsystems. Structural module investigates complex structural systems and behaviors with a focus on documentation and integration with other building technologies.

### ARCH 351: Whole Building Energy Performance Modeling
(2-2) Cr. 3.
*Prereq: ARCH 202, 245, 341. Open to non-majors by permission of instructor.*
Architectural design, design evaluation and technical analysis using energy performance modeling tools. Emphasis will be given to whole building energy efficiency including passive and active systems integration.

### ARCH 371: Human Behavior and Environmental Theory
(3-0) Cr. 3.
*Prereq: Completion of the pre-professional program and admission into the professional program in architecture*
Exploration of theories that describe social structure and order and the manner in which individuals and societies organize themselves and structure their environment.

### ARCH 401: Architectural Design V
(1-15) Cr. 6. F.
*Prereq: ARCH 302*
A rigorous examination of how buildings participate sustainably in socio-political and environmental systems. Student projects consider in a comprehensive proposal how issues of physical site, socio-economic context, programming, structure, form, materiality, and building systems are interconnected through the design process and within the built environment. Projects typically focus on a smaller scale urban public building that is closely connected to its physical, environmental, and social context.

### ARCH 401H: Architectural Design V, Honors
(1-15) Cr. 6-7. F.
*Prereq: ARCH 302*
A rigorous examination of how buildings participate sustainably in socio-political and environmental systems. Student projects consider in a comprehensive proposal how issues of physical site, socio-economic context, programming, structure, form, materiality, and building systems are interconnected through the design process and within the built environment. Projects typically focus on a smaller scale urban public building that is closely connected to its physical, environmental, and social context.

### ARCH 402: Architectural Design VI
(1-15) Cr. 6. S.
*Prereq: ARCH 401 and minimum 2.0 GPA in previous studio courses*
An examination of the relationship between architecture and the city. Studio projects stress analysis and interpretation of the diverse forces and conditions that impact and inform architecture in the urban environment. Urban design project. Study abroad option.
Meets International Perspectives Requirement.

### ARCH 402H: Architectural Design VI, Honors
(1-15) Cr. 6-7. S.
*Prereq: 401 and minimum 2.0 GPA in previous studio courses*
An examination of the relationship between architecture and the city. Studio projects stress analysis and interpretation of the diverse forces and conditions that impact and inform architecture in the urban environment. Urban design project. Study abroad option.
Meets International Perspectives Requirement.

### ARCH 403: Architectural Design VII
(1-15) Cr. 6. F.
*Prereq: ARCH 402*
A rigorous examination of architecture's relationship with culture and technology. Studio projects stress the interpretation and integration of contextual and historical considerations, as well as structural, environmental, and communication systems, in a comprehensive design proposal.

### ARCH 403H: Architectural Design VII, Honors
(1-15) Cr. 6-7. F.
*Prereq: ARCH 402*
A rigorous examination of architecture's relationship with culture and technology. Studio projects stress the interpretation and integration of contextual and historical considerations, as well as structural, environmental, and communication systems, in a comprehensive design proposal.

**ARCH 404: Architectural Design VIII**
(1-15) Cr. 6. S.
*Prereq: ARCH 403*
Advanced forum for architectural research and/or design. Choice of thematic studios or student initiated research and design. Experimentation and innovation are encouraged. DSN S 446 or DSN S 546, for 6 cr. each time taken, can be substituted for this class and be taken up to a maximum of 12 credits.

**ARCH 404H: Architectural Design VIII, Honors**
(1-15) Cr. 6-7. S.
*Prereq: ARCH 403*
Advanced forum for architectural research and/or design. Choice of thematic studios or student initiated research and design. Experimentation and innovation are encouraged. DSN S 446 or DSN S 546, for 6 cr. each time taken, can be substituted for this class and be taken up to a maximum of 12 credits.

**ARCH 420: Topics in American Architecture**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of American architecture and urban design considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment of History, Theory, Culture requirements. A maximum of 6 credits of ARCH 420 may be applied to degree program.
Meets U.S. Diversity Requirement

**ARCH 422: Topics in Medieval Architecture**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of medieval architecture and urban design considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment of History, Theory, Culture requirements. A maximum of 6 credits of ARCH 422 may be applied to degree program.
Meets International Perspectives Requirement.

**ARCH 423: Topics in Renaissance to Mid-Eighteenth Century Architecture**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of renaissance to mid-eighteenth century architecture and urban design considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment of History, Theory, Culture requirements. A maximum of 6 credits of ARCH 423 may be applied to degree program.
Meets International Perspectives Requirement.

**ARCH 424: Topics in Nineteenth Century Architecture**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of nineteenth century architecture and urban design considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment History, Theory, Culture requirements. A maximum of 6 credits of ARCH 424 may be applied to degree program.

**ARCH 425: Topics in Twentieth Century Architecture**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
History, theory, and principles of twentieth century architecture and urban design considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment History, Theory, Culture requirements. A maximum of 6 credits of ARCH 425 may be applied to degree program.

**ARCH 426: Topics in Native American Architecture**
(Cross-listed with AM IN). (3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of Native American/American Indian architecture, landscape architecture and planning considering relationships to the culture, visual arts, site, and surroundings. Credit counts toward fulfillment History, Theory, Culture. A maximum of 6 credits of ARCH 426 may be applied to degree program.
Meets U.S. Diversity Requirement

**ARCH 427: History, Theory, and Criticism of Chinese Architecture**
(Dual-listed with ARCH 527). (3-0) Cr. 3. F.
*Prereq: Junior classification*
The history and theoretical concept of Chinese built environment with emphasis on the morphology of built form and its relationship to art, landscape design, and urban structure. Credit counts toward fulfillment History, Theory, Culture.
Meets International Perspectives Requirement.

**ARCH 429: Topics in Italian Architecture and Urbanism**
(3-0) Cr. 3. S.
History, theory and principles of Italian architecture and urban design considering relationships to the culture, visual arts, site, and surroundings.

**ARCH 431: Analytical Drawing**
(1-6) Cr. 3. Repeatable, maximum of 12 credits. F.S.
*Prereq: ARCH 230 and ARCH 302*
Exploration of 2- and 3-dimensional representations. Emphasis on on-site freehand sketching, perspective and orthographic drawing, rendering of shadows and textures, and use of diverse media.

**ARCH 432: Advanced Computer Lighting and Rendering**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: ARCH 230 and ARCH 301*
Exploration of the computer as a design and communication tool. Emphasis on lighting and rendering techniques.

**ARCH 433: File to Fabrication**
(3-0) Cr. 3. Repeatable, maximum of 6 credits. F.S.
*Prereq: ARCH 230 and ARCH 301*
Exploration of the computer as a design and manufacturing tool. Emphasis on fabrication techniques and rapid prototyping including laser-cutting, 3-D printing and CNC routing.

**ARCH 434: Computer-aided Architectural and Environmental Design**
(1-4) Cr. 3.
*Prereq: ARCH 334*
Emphasis on application of the computer as a design tool, topical applications and computer graphic methods, development of computer software for architectural and environmental problem solving.

**ARCH 436: Advanced Design Media**
(2-2) Cr. 3. Repeatable. F.SS.
*Prereq: ARCH 230*
Special topics in design media applications.

**ARCH 437: Architectural Photography**
(3-0) Cr. 3.
*Prereq: ARCH 202*
Emphasis on use of the camera and lighting in photographing drawings and interior and exterior building environments.

**ARCH 445: Building Science and Technology V**
(2-2) Cr. 3. F.
*Prereq: ARCH 343*
Technical topics which ground architectural design decisions and concepts in the physical world and the human perception thereof and have environmental sustainability as an emphasis. Synthesis of material, environmental, structural and systems design and related design modeling and simulation.

**ARCH 482: Professional Practice**
(Dual-listed with ARCH 582). (3-0) Cr. 3. F.
*Prereq: ARCH 202*
Emphasis on the circumstances and opportunities of the professional practice of architecture: practice as profession, process, organization, business, and evolving models of practice.

**ARCH 486: Design: Made in Italy**
(3-0) Cr. 3. S.
An investigation of the history of Italian design in its contemporary form as part of International study abroad program in Rome.

**ARCH 490: Independent Study**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490A: Independent Study: Design Communications.**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490B: Independent Study: Design**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490C: Independent Study: Building Science and Technology**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490D: Independent Study: Architectural History**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490E: Independent Study: Behavioral Studies**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490F: Independent Study: Practice**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**ARCH 490H: Independent Study: Honors**
Cr. 1-9. Repeatable.
*Prereq: Written approval of instructor and department chair on required form*
Independent investigation.

**Courses primarily for graduate students, open to qualified undergraduates:**

**ARCH 505: Architectural Design and Media I: Mapping, Programming, Building**
(0-10) Cr. 5. F.
*Prereq: Admission to the M Arch program. Concurrent enrollment in ARCH 541 and ARCH 595*
An introduction to comprehensive architectural design projects that focuses on three interrelated design skills: mapping, programming and building. Projects establish a framework for designing buildings that considers multiple factors such as environmental forces, construction methods, building codes, urban regulations, social relationships, and cultural values.

**ARCH 506: Architectural Design and Media II: Materiality and Representation**
(0-10) Cr. 5. S.
*Prereq: ARCH 505, ARCH 541, ARCH 595 and concurrent enrollment in ARCH 542 and ARCH 596*
Small-scale architectural design projects that investigate design representation through analogue and digital means. The projects explore different representation strategies to help students develop an understanding of the particular modes of architectural representation that advance the designer's knowledge of space as a complex interaction between materials with inherent physical characteristics, mobile socializing bodies, and changing environmental cycles.

**ARCH 507: Architectural Design and Media III: Design in Detail**
(0-10) Cr. 5. SS.
*Prereq: ARCH 506, ARCH 542, ARCH 596 and concurrent enrollment in ARCH 581*
Design projects that emphasize the multi-faceted role of the architectural detail in the design process through first, understanding the historical specificity of building construction and detailing; second, utilizing working drawing as a mode of communication; and third, designing with details. The term-long project will consider a set of working drawings of past buildings as a site for design intervention.

**ARCH 517: Big and Tall: A History of Construction**
(3-0) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: Junior classification*
History, theory, and principles of construction from ancient times through today. Analytic project or term paper and weekly readings with discussion questions.

**ARCH 519: Middle Eastern Cities**
(Cross-listed with C R P). (3-0) Cr. 3.
*Prereq: Graduate or Senior classification*
Introduction to basic academic writings on Middle Eastern cities in addition to other contemporary cultural productions of the region. Study of various aspects of Middle Eastern life and the built environments that this life produces.
Meets International Perspectives Requirement.

**ARCH 525: Meaning and Form in Architecture**
(3-0) Cr. 3.
*Prereq: Graduate or Junior or Senior classification*
Seminar on critical analysis of meaning and form in architecture and human-made environment in various cultural contexts examined from historical and theoretical perspectives. Analytic term paper and weekly readings with discussion questions. Credit counts toward fulfillment of History, Theory, Culture requirements Meets International Perspectives Requirement.
Meets International Perspectives Requirement.

**ARCH 527: History, Theory, and Criticism of Chinese Architecture**
(Dual-listed with ARCH 427). (3-0) Cr. 3. F.
*Prereq: Junior classification*
The history and theoretical concept of Chinese built environment with emphasis on the morphology of built form and its relationship to art, landscape design, and urban structure. Credit counts toward fulfillment History, Theory, Culture.
Meets International Perspectives Requirement.

**ARCH 528: Topical Studies in Architecture**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*
n/a.

**ARCH 528A: Studies in Architecture: Culture**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*

**ARCH 528B: Studies in Architecture: Technology**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*
n/a.

**ARCH 528C: Studies in Architecture: Communications**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*
n/a.

**ARCH 528D: Studies in Architecture: Design**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*

**ARCH 528E: Studies in Architecture: Practice**
(3-0) Cr. 2-3. Repeatable, maximum of 6 times.
*Prereq: ARCH 221, ARCH 222 or senior classification or graduate standing*

**ARCH 529: Spatial Dialectics in the American Midwest**
(3-0) Cr. 3.
*Prereq: Graduate or Senior classification*
The American Midwest has witnessed dramatic transformation during the last two centuries which impacted its physical, environmental, economic and social characteristics. This course is an interdisciplinary study of the evolution and sustainability of Midwestern space in relationship to forces of flow shaped by the mobility of bodies, products, meanings, and symbols that are enforced, incorporated, reproduced or destroyed.
Meets U.S. Diversity Requirement

**ARCH 534: Advanced Computer-aided Architectural Design**
(1-4) Cr. 3. Repeatable, maximum of 6 credits. F.
*Prereq: ARCH 434 and permission of instructor*
Emphasis on concepts, algorithms, data structures, advanced modeling, rendering, animation, and virtual reality applications in architectural design.

**ARCH 535: Advanced Three-Dimensional Studio**
(1-4) Cr. 3. Repeatable, maximum of 6 credits.
*Prereq: ARCH 335 or Graduate classification*
Advanced investigation of sculptural expression with emphasis on individual projects.

**ARCH 541: Science and Technology for Architects I**
(4-2) Cr. 5. F.
*Prereq: Admission to the M. Arch. program and concurrent enrollment in ARCH 505 and 595*
Introduction to Human Factors, Descriptive Geometry, Basic Building Materials, and Small-Scale Building Envelopes. Theory and case studies, stressing the connectivity of technical issues to broader formal, social, and cultural spheres.

**ARCH 542: Science and Technology for Architects II**
(4-2) Cr. 5. S.
*Prereq: ARCH 505, ARCH 541, ARCH 595 and concurrent enrollment in ARCH 506 and ARCH 596*
Elementary Statics and Beam Theory, Basic Construction Materials, and Site and Building Circulation. Theory and case studies stressing the connectivity of technical issues to broader formal, social, and cultural spheres.

**ARCH 558: Sustainability and Green Architecture**
(3-0) Cr. 3.
*Prereq: Graduate or Senior classification*
Issues of Sustainability as related to living patterns and city design, population, pollution and use and availability of natural resources for the built environment; Issues of Green Architecture as it relates to building material selection, systems of building materials, the environment of the United States and the World, architects and examples of buildings with green or sustainable designations.

**ARCH 567: Preservation, Restoration, and Rehabilitation**
(3-0) Cr. 3. S.
*Prereq: Senior classification*
Construction standards and procedures for preserving, restoring, reconstructing, and rehabilitating existing buildings following the guidelines of the National Park Service and the National Trust for Historic Preservation. Credit counts toward fulfillment of History, Theory, Culture requirements.

**ARCH 571: Design for All People**
(Cross-listed with GERON). (3-0) Cr. 3. S.
*Prereq: Graduate or Senior classification*
Principles and procedures of universal design in response to the varying ability level of users. Assessment and analysis of existing buildings and sites with respect to standards and details of accessibility for all people, including visually impaired, mentally impaired, and mobility restricted users. Design is neither a prerequisite nor a required part of the course. Enrollment open to students majoring in related disciplines. Credit counts toward fulfillment of History, Theory, Culture requirements.
Meets U.S. Diversity Requirement

**ARCH 575: Contemporary Urban Design Theory**
(3-0) Cr. 3.
*Prereq: Graduate or Senior classification*
Current urban design theory and its application to urban problems. Credit counts toward fulfillment of History, Theory, Culture requirements.

**ARCH 576: Study Abroad Options**
Cr. 1-12. Repeatable, maximum of 12 credits. SS.
Special topics in environmental design, architectural history and contemporary practice. Travel to relevant countries. General cultural and historical studies, topical projects and individual inquiry. Courses may be taught by departmental faculty or faculty from approved Iowa State Study Abroad programs. See current offerings for detailed syllabus.
Meets International Perspectives Requirement.

**ARCH 581: Service Learning**
(1-12) Cr. 5. SS.
*Prereq: ARCH 506, 542 and ARCH 596*
Planning and execution of a project serving a community need. Learning occurs through both theory and active involvement in on-site work. Projects connect previous coursework to practical applications and community involvement.

**ARCH 582: Professional Practice**
(Dual-listed with ARCH 482). (3-0) Cr. 3. F.
*Prereq: ARCH 202*
Emphasis on the circumstances and opportunities of the professional practice of architecture: practice as profession, process, organization, business, and evolving models of practice.

**ARCH 583: Research in Practice**
(3-0) Cr. 3. S.
*Prereq: Graduate or Senior classification*
Foundational course in the methods and conceptual tools of design research in the context of practice. Through team and individual guided projects, students generate, analyze and represent knowledge in design-related communications and contexts. Alternative models of practice, client groups and communities are addressed within projects that precede, feed, follow, or overlap with architectural contracts.

**ARCH 590: Special Topics**
Cr. 1-5. Repeatable.
*Prereq: Written approval of instructor and department chair on approved form*
Investigation of architectural issues having a specialized nature.

**ARCH 595: Seminar on the Built Environment I: History**
(5-0) Cr. 5. F.
*Prereq: Admission to the M. Arch. program and concurrent enrollment in ARCH 505 and ARCH 541*
Introduction to historical canons and traditions of architecture and urbanism. Discussion of the relationship between historical inquiry and contemporary practice. Students learn skills in critical thinking, visual analysis, and research methods. Course sessions develop thematically with interdisciplinary readings, group discussions, student presentations, and research projects.

**ARCH 596: Seminar on the Built Environment II: Landscape and Society**
(5-0) Cr. 5. S.
*Prereq: ARCH 505, ARCH 541, ARCH 595 and concurrent enrollment in ARCH 506 and ARCH 542*
Introduction to landscape as artifact and multi-disciplinary knowledge-base for design thinking. Literatures and methods of environmental psychology, cultural geography, landscape and architectural history and theory, site and circulation design as intersection of built infrastructural, natural, and social systems. Emphasis on sensory perception, and human movement; investigations of climate, environmental conditions, and values toward consumption and sustainability in everyday experience of the built environment.

**ARCH 597: Seminar on the Built Environment III: Theory**
(3-0) Cr. 3. F.
*Prereq: Graduate or Senior classification*
Multidisciplinary overview of contemporary theories concerned with the production of the built environment. Particular attention to urbanism as a discourse that relates social interactions and power structures to material space.
Meets International Perspectives Requirement.

**ARCH 598: Seminar on the Built Environment IV: Topical Study**
(3-0) Cr. 3. S.
*Prereq: Graduate or Senior classification*
A research seminar which considers a topic within contemporary discourses on the built environment outside of Europe and North America. The topic will be studied from multiple perspectives highlighting the historical and theoretical relationships between architecture, global cultures, geography, landscape, and urban planning. Credit counts toward fulfillment History, Theory, Culture requirements.

**Courses for graduate students:**

**ARCH 601: Sustainable Building Design**
(0-12) Cr. 6. F.
*Prereq: ARCH 507, ARCH 542, ARCH 596 and concurrent enrollment in ARCH 643*
Design projects that are developed through integrative design strategies that explore the relationship between buildings and environmental forces to maximize non-wasteful, efficient use of resources such as energy, water and building materials. Projects will include investigations of the impact of solar energy, airflow, building materials, passive and active systems and wall sections on spatial quality and form making. Design decisions will be quantitatively validated through energy modeling and performance simulation.

**ARCH 602: Community, Building and the Environment**
(0-12) Cr. 6. S.
*Prereq: ARCH 601, ARCH 643, ARCH 597 and concurrent enrollment in ARCH 644*
Design projects that explore the relationships between architectural, cultural, and environmental landscapes. Emphasis on regional sites, socio-economic conditions, and sustainable design and planning practices at multiple scales. Projects stress engagement with local circumstances and stakeholders; systemic interconnections and strategies; and the application of interdisciplinary research.

**ARCH 603: Comprehensive Design**
(0-12) Cr. 6. F.
*Prereq: ARCH 601*
Rigorous examination of architecture's relationship with culture and technology. Studio projects stress the interpretation of contextual and historical considerations, as well as structural, environmental, mechanical, electrical and plumbing systems, in a comprehensive design proposal. This course fulfills the Graduate College Creative Component Requirement.

**ARCH 604: Design Studio Options**
(0-12) Cr. 6. Repeatable, maximum of 12 credits. S.
*Prereq: ARCH 602*
Design studio selected by the students, which may include but is not limited to: independent design study, interdisciplinary design studio, study abroad, and design build. DSN S 546 for 6 cr. may be substituted for this course.

**ARCH 643: Science and Technology for Architects III**
(2-2) Cr. 3. F.
*Prereq: ARCH 507, ARCH 542, ARCH 596, ARCH 581 and concurrent enrollment in ARCH 601 or or Graduate classification and concurrent enrollment in ARCH 601*
Third in a four-course series in building science and technologies. Structural Elements and Systems, and Building Services. Theory and case studies stressing the connectivity of technical issues to broader formal, social and cultural spheres.

**ARCH 644: Science and Technology for Architects IV**
(2-2) Cr. 3. S.
*Prereq: ARCH 643 or Graduate classification*
Fourth of a four-course series in building science and technologies. Building Enclosures, Interior Construction and Sensory Qualities, Fabrication and Construction. Theory and case studies stressing the connectivity of technical issues to broader formal, social and cultural spheres. Summative Student Project.

**ARCH 690: Independent Design Study**
(1-15) Cr. 6. Repeatable.
*Prereq: Admission to the M. S. in Arch. program*
Independent architectural design projects commensurate with student interests requiring approval of Architecture Graduate Committee.

**ARCH 698: Graduate Seminar**
Cr. R. Repeatable. F.S.
*Prereq: Admission to the M. Arch. or M. S. in Arch. programs*
Special topics and guest speakers.

**ARCH 699: Research**
(1-18) Cr. 3-9. Repeatable.
Research.