This is the Architecture and Landscape Architecture program and course sections of the 1996-1999 University of Minnesota College of Architecture and Landscape Architecture Bulletin.
Architecture encompasses the making and study of the buildings and environment that we inhabit. The concerns of architecture involve a wide variety of areas of study, including the art of representing built projects through drawings and computer graphics; the technology of building structure, building materials, and natural and mechanical systems; the history, theory, and art of making, using, and understanding buildings as cultural artifacts for human use; and the practice of architecture in the context of urban form and business economics.

The Department of Architecture offers two degrees: a bachelor of arts (B.A.) with a major in architecture offered through the College of Liberal Arts, and for those who have an undergraduate degree and seek to become licensed architects, the professional master of architecture (M.Arch.) degree offered through the Graduate School. The M.Arch. is also available as a postprofessional degree for students with a professional degree such as the bachelor of architecture (B.Arch.).

The architecture faculty is committed to a strong design curriculum in the context of architectural research and practice. Faculty offer diverse perspectives informed by their expertise as nationally known researchers and award-winning designers. The undergraduate curriculum exposes students to the broad range of issues and subjects that inform architecture. The graduate program is organized around the design studio, incorporating coursework in the diverse areas of architectural knowledge: representation, technology, history, theory, urban design, and architectural practice.

Bachelor of Arts (B.A.) with a Major in Architecture

The Department of Architecture, through the College of Liberal Arts, provides instruction in history, representation, design, theory, and design practice emphasizing the development of architecture as a language of form, space, and order. The B.A. with a major in architecture requires an understanding of social, cultural, and physical contexts as a foundation for the examination of the methods, values, precedents, and material reality characteristic of the process of shaping natural and built environments. The major combines core prerequisites with a broad introduction to architecture, including required courses in representation, history, theory, and design processes and an individualized program planned by the student with the assistance of an adviser.

The B.A. provides an introduction to the study of architecture in the context of a liberal arts education. It may be used as preprofessional preparation to continue graduate study in architecture and related fields or for employment in fields of environmental/community design, fine arts, government, private development, or construction. The undergraduate major establishes a strong design foundation that serves a diversity of careers, and provides flexibility as individual opportunities change. This degree is not a sufficient credential to practice architecture.

Grades—All architecture designated courses, whether required or elective, to be applied toward the major in architecture and the requirements in math, physics, composition, and speech, must be taken A-F with grades of C or better.

B.A. Sequence

The B.A. consists of two years of pre-architecture study followed by two years of coursework after admission to the major.

Admission to the Major—Application deadlines are November 1, February 1, and April 1. Students must complete the following steps before an application deadline.

1. Complete all required pre-architecture courses (see curriculum below) and liberal education requirements totaling a minimum of 90 credits (may include current enrollment).

2. Meet with their CLA adviser to complete the Pre-Architecture Planning Sheet.
   Premajor Advising, 30 Johnston Hall, 624-9006
   Martin Luther King Program (MLK), 19 Johnston Hall, 625-2300
   CLA Honors Program, 115 Johnston Hall, 624-5522
3. Meet with the Department of Architecture director of undergraduate studies. Bring a copy of the completed Pre-Architecture Planning Sheet and a current transcript to the appointment. Students should be prepared to state the courses they will take for their elective concentration or minor. (As individual goals change, the approved concentration may be revised with department consultation.)

Students are admitted to the major based on space availability and academic record (GPA of 2.50 overall and in all architecture courses taken).

Students should maintain a portfolio of originals or duplications of all freehand drawings, projects, and architecture studio designs during their studies because a portfolio is required for application to the graduate professional degree program. All majors complete their senior project in Arch 5283.

**B.A. Degree Requirements**

**Pre-Architecture**

*Preparation for the Major (55 credits)*

**Required Architecture Courses**

Arch 1301—Introduction to Architectural Drawing (4 cr)
Arch 1401—The Designed Environment (4 cr)
Arch 1601—Design Professions and Society (4 cr)

**Required General Education Courses**

Comp 1011—Writing Practice I (or equiv) (5 cr)
One additional writing or speech course (4 cr)
Calculus (Math 1142 or equiv) (4-5 cr)
Physics sequence (Phys 1041-1042 or equiv) (10-12 cr)
Studio arts course (eg., drawing, painting, sculpture) (4 cr)
Second language (one year of the two-year requirement) (15 cr)

Students must complete the above courses, have completed 90 credits (may include current enrollment), and have a GPA of 2.50 overall and in all architecture courses taken to apply to the architecture major.

**Liberal Education Requirements**

*(29-53 credits)*

Students should complete as many of the following courses as possible before applying to the major; courses may overlap categories. Major courses meet some requirements; if these particular courses are not taken, choose courses to fulfill the requirement.

**Writing Skills**

Satisfied by lower and upper division composition requirement

**Mathematical Thinking**

Satisfied by calculus requirement

**Physical and Biological Sciences**

Biological sciences with lab (5 cr)
Remainder satisfied by physics requirement

**History and Social Sciences**

Historical perspective elective (4 cr)
History or social science electives (8 cr)

**Arts and Humanities**

Literature or philosophy elective (4 cr)
Visual and performing arts satisfied by Arch 1301 and Arch 3411-3412; arts and humanities satisfied by Arch 1401

**Designated Themes**

Required courses satisfy three themes; two additional courses needed
International perspectives satisfied by Arch 3411-3412
Environment satisfied by Arch 1401
Citizenship and public ethics satisfied by Arch 1601
Cultural diversity elective (4 cr)
Elective from any theme category (4 cr)

**Upper Division Requirements**

**Architecture Major Requirements (46 credits)**

Courses in italics may be taken in the sophomore year if prerequisites are satisfied; they are also prerequisites for architecture design studio.

**Required Courses**

Arch 3311—Drawing for Design (4 cr)
Arch 3411—History of Architecture to 1750 (4 cr)
Arch 3412—History of Architecture Since 1750 (4 cr)
Arch 3501—People, Environment, Design (4 cr)
Arch 5281—Architecture Design Studio I (6 cr)
Arch 5282—Architecture Design Studio II (6 cr)
Arch 5283—Architecture Design Studio III (6 cr)
Arch 54xx—History elective (4 cr)

**Elective Courses**

Two from the following:
Arch 53xx—Representation elective (except 5351-5352) (4 cr)
Arch 54xx—History elective (except 5411-5413) (4 cr)
Arch 544x—Theory elective (4 cr)
Arch/LA 55xx—Technology elective (4 cr)
Arch 57xx—Urban design elective (4 cr)
LA 3413—History of Landscape Architecture (4 cr)

**Elective Concentration or Minor (20-28 credits)**

B.A. candidates develop an elective concentration or minor of 3xxx-5xxx courses outside the major as a means to broaden the social, cultural, and international aspects of design. Courses in the minor are generally selected from one department (e.g., anthropology, art history, ecology, political science). Courses for an elective concentration are chosen from various disciplines that impact design decisions (e.g., economics, geography, housing, natural resources, urban studies, women’s studies). Developing and selecting specific courses for the elective concentration or minor is the responsibility of the individual
student but consultation with a CLA, CALA, or department adviser is encouraged. The concentration or minor must be clearly presented by the student at the time of the application to the major as it becomes an integral part of the Major Program Form. As individual goals change, the approved concentration may be revised with department consultation and written amendment to the Major Program Form.

CLA Requirements (19 credits)
Advanced comp/writing (Comp 3012-13-14, 3027 or equiv) (4 cr)
Second language (remainder of the two-year requirement) (15 cr)

Total credits required (180 cr)
Note: All courses may not be offered every quarter.

Accelerated Status in Architecture

This status is a competitive opportunity for qualified undergraduates to complete the B.A. and M.Arch. in six years rather than seven. Applicants for the accelerated status must complete all B.A. degree requirements before their senior year, with the exception of no more than two courses in either the elective concentration or minor and any general education requirements. With accelerated status, students complete the first year of the professional degree program in their senior year; courses carry CLA upper division credit. Accelerated status is limited to 10 students per year and does not admit any student to the Graduate School professional degree program; separate requirements, such as the Graduate Record Examination, and other application documents, must be submitted in January of the year admission to the graduate program is sought. For more information about accelerated status, consult the Department of Architecture director of undergraduate studies.

To be considered for accelerated status, students must be enrolled at the University of Minnesota as a B.A. in architecture major, have completed one year of architecture design studio (Arch 5281, 5282, 5283), have completed 135 credits, have an overall GPA of 3.25 or above, be highly recommended by two studio critics, and complete an interview with the director of undergraduate studies by June 1 of their junior year.

Nonmajors, students with B.A. or B.S. degrees in disciplines other than architecture who are preparing for admission to the graduate professional degree program, and first-quarter transfer students are not eligible for accelerated status.

Students in the accelerated program enroll in the following major courses during their senior year.

Accelerated program senior year curriculum (45 credits)
Arch 5309—Representation in Architecture (4 cr)
Arch 5371, 5372, 5373—Intermediate Computer Methods in Architecture (3 cr)
Arch 5401—Principles of Design Theory (4 cr)
Arch 5511—Construction Materials in Architecture (4 cr)
Arch 5531—Lighting and Acoustic Design (4 cr)
Arch 5541—Thermal Design in Architecture (4 cr)
Arch 5711—Design Principles of the Urban Landscape (4 cr)
Arch 8251, 8252, 8253—Architectural Design (18 cr)
Electives as necessary to complete the B.A. (4-8 cr)

Professional Program: Master of Architecture (M.Arch.)

The master of architecture (M.Arch.) degree program introduces students to the practice and discipline of architecture as a speculative, analytic, and investigative endeavor. The M.Arch. prepares students to enter architecture as both a profession and field of knowledge.

Through rigorous methods of inquiry developed in the design studio, lectures, and seminars, students acquire the range of knowledge required of the professional architect: techniques and processes of representation, communication, and analysis; the history and theory of making architecture and urban form for human use; and the technology, systems, processes, and economics of construction and practice.

The 3-year professional curriculum accredited by the National Architectural Accreditation Board (NAAB) consists of a minimum of 131 credits, including the thesis. Applicants must have a baccalaureate degree and have completed the equivalent of a year of preparatory work, including coursework in calculus, physics, architectural history,
drawing, and design. Students are expected to have basic computer skills, including familiarity with either Macintosh or Windows operating systems, word processing, basic drawing or painting programs, and use of e-mail. Students are required to take intermediate and advanced courses in computer methods in architecture as part of their M.Arch. degree requirements.

Because admitted students will have a broad educational background and have completed fundamental courses, the program focus is on professional and disciplinary coursework, including required and elective lecture, seminar, and design studio courses. Students with a prior professional degree will take a minimum of 44 credits in an individually developed postprofessional program, requiring a minimum of 4 quarters (about 1 1/3 years).

Open to students who meet the entrance requirements of both the Graduate School and the Department of Architecture, the program combines coursework in representation, history, theory, technology, urban design, professional practice, and architectural design. The first-year integrated curriculum is followed by two years of less structured coursework that culminates in a thesis.

Program of Study

First Year (45 credits)
- Arch 5371-5372-5373—Intermediate Computer Methods in Architecture (3 cr)
- Arch 5401—Principles of Design Theory (4 cr)
- Arch 5511—Construction Materials in Architecture (4 cr)
- Arch 5531—Lighting and Acoustic Design (4 cr)
- Arch 5541—Thermal Design in Architecture (4 cr)
- Arch 5711—Design Principles of the Urban Landscape (4 cr)
- Arch 8251-8252-8253—Graduate Architectural Design I (18 cr)
- Electives (4 cr, see below)

Second Year (44 credits)
- Arch 5374-5375—Advanced Computer Methods in Architecture (2 cr)
- Arch 5521—Building Methods in Architecture (4 cr)
- Arch 5572—Structures in Architecture I (4 cr)
- Arch 5573—Structures in Architecture II (4 cr)
- Arch 8254-8255-8256—Graduate Architectural Design II (18 cr)
- Electives (12 cr, see below)

Third Year (42 credits)
- Arch 5574—Structures in Architecture III (4 cr)
- Arch 5621—Professional Practice in Architecture (4 cr)
- Arch 8257-8258—Graduate Architectural Design III (12 cr)
- Electives (6 cr, see below)

Electives

Students take a minimum of 22 credits of professional electives in the following areas:
- History (8-12 cr)
- Practice (2-4 cr)
- Representation and communication (4 cr)
- Technology (4 cr)
- Theory (2-4 cr)

Graduate Degree Applicants in Architecture

Track A: Applicants with Nonprofessional Degrees in Architecture

Students with a nonprofessional baccalaureate degree in architecture with at least one year of studio experience are eligible to apply to the program if they have completed one quarter of calculus and two quarters of physics. Students may be conditionally admitted if these courses are in progress.

Track B: Applicants with Nonarchitecture Degrees

Candidates with a bachelor’s degree in a major other than architecture or environmental design can complete the M.Arch. program in nine quarters (three years) including the thesis if they have satisfied fundamental prerequisites. To be admitted without conditions, an applicant must complete coursework that provides

1. an understanding of basic physical systems and analytical procedures, including mechanics, as demonstrated by successful completion of two or more college-level physics courses (Phys 1041 and 1042 or equivalent).
2. an understanding of basic mathematical principles and analytical procedures as demonstrated by successful completion of one college-level calculus course (Math 1142 or equivalent).
3. a general knowledge of the history of Western architecture from ancient to modern periods as demonstrated by successful completion of at least two college-level architectural history courses (Arch 3411 and 3412 or equivalent) plus one 5xxx arch history course.
4. an ability to produce freehand drawings of architectural form and space as demonstrated by successful completion of two college-level drawing courses (Arch 1301 and 3311 or equivalent) and a portfolio of work.

5. an ability to design as demonstrated by successful completion of the equivalent of one year of college-level architectural design studio courses (Arch 5281, 5282, 5283 or equivalent) and a portfolio of architectural design work.

Candidates with deficiencies in one of these prerequisite areas may be admitted with the requirement to fulfill them before enrolling in the Graduate School, or in some instances with completion required during the program.

Candidates who lack basic preparatory work can complete the equivalent of up to one year of full-time coursework as Extension students or as undergraduates. The M.Arch. degree program of three years is in addition to this preparatory work.

**Track C: Advanced Standing Applicants**

In exceptional circumstances, students who have a nonprofessional baccalaureate degree and have completed the equivalent of the first year of the graduate program may receive advanced placement in the design sequence. Depending on their academic record, coursework completed, and portfolio review, students can complete the M.Arch. in two years.

**Track D: Applicants Seeking a Second Professional Degree**

A select number of students with the bachelor of architecture professional degree (B.Arch.) are admitted each year to pursue the M.Arch. as a postprofessional degree. These students work with a faculty adviser to plan a curriculum around their special interests. Admission is based on the quality of previous academic work and the portfolio.

**Application Procedures: M.Arch.**

Program applicants must submit the following by January 10. Failure to deliver complete information to the assigned locations may delay processing of your application. Contact the Department of Architecture for an application packet.

**Send to the Graduate School:**

1. Completed Graduate School application.
2. Application fee.
3. Official transcripts of all college- and University-level work (GPA must be at least 3.00 on a 4.00 scale).
4. Statement of purpose.
5. Graduate Record Examination scores.
6. For international applicants: a TOEFL score of at least 550 or MELAB score of 80.

**Send to the Department of Architecture director of graduate studies:**

1. Completed Department of Architecture application.
2. Completed Department of Architecture financial aid/teaching-research assistantship application.
3. Portfolio of architecture design work (no larger than 10”x12” in notebook format).
4. Statement of intent explaining your interest in architecture and why you want to study at the University of Minnesota.
5. Sample paper, in English, from a recent course.
6. Three faculty recommendations.
7. A copy of transcripts sent to the Graduate School.
8. A copy of Graduate Record Examination scores.
Course Numbers and Symbols

Courses primarily for freshmen and sophomores are numbered 1000 through 1998; for juniors and seniors, 3000 through 3998; for juniors, seniors, and graduate students, 5000 through 5998. Courses numbered 8000 and above are restricted to graduate students.

The following symbols are used throughout the descriptions:

, .......... The comma, used in prerequisite listings, means “and.”
† .......... All courses preceding this symbol must be completed before credit will be granted for any quarter of the sequence.
§ .......... Credit will not be granted if credit has been received for the course listed after this symbol.
¶ .......... Concurrent registration is required (or allowed) in the course listed after this symbol.
# .......... Approval of the instructor is required for registration.
∆ ....... Approval of the department offering the course is required for registration.

Architecture Courses

Design Courses

Arch 5241. Principles of Design Programming. (4 cr; §5292, §5952; prereq Arch grad or major, 5111/8253)
Concepts and techniques of architectural programming, including space and activity analysis, site selection, precedent study, code review, appropriate technology identification, hypothesis formulation, and evaluation. Emphasis on conceptual development, research, and analytic drawing.

Arch 5250. Topics in Architecture Design. (Cr ar [1-6]; prereq Arch grad or 5283)
Special topics in the design of architecture.

Arch 5281. Architecture Studio I: Fundamentals of Space and Form. (6 cr; prereq Arch major, 3311, 3412 or #; A-F only)
Introduction to elements of architecture, qualities of space, principles of design and systems of order found in everyday objects, experiences and forms of nature. Application of visual tools—models, drawings, graphics—and design principles to three-dimensional form and composition. Lecture, critique, small design problems.

Arch 5282. Architecture Studio II: Structure and Order. (6 cr; prereq Arch major, 3311, 3412, 5281 or #; A-F only)
Design methods in the conception of architectural form and space in the context of cultural and technological conditions of our time. Applying design processes to understanding the relationship between architecture and meaning. Lecture, design projects, critiques.

Arch 5283. Architecture Studio III: Site, Context and Form. (6 cr; prereq Arch major, 5282 or #; A-F only)
Development of architectural form and space for a specific site and building program. Materials and structure systems for increasingly complex design projects. Lecture, design projects, critiques.

Arch 8250. Topics in Design. (2-4 cr; prereq 1st-yr design or 8101 or #; A-F only)
Advanced study of specialized topics in the design of architecture.

Arch 8251-8252-8253. Graduate Architectural Design I. (6 cr per qtr; prereq Arch grad; A-F only)
Fundamental architectural problems involving design as a creative inquiry. Individual and collaborative effort.

Arch 8254-8255-8256. Graduate Architectural Design II. (6 cr per qtr.; prereq Arch grad; A-F only)
Comprehensive architectural problems; in-depth exploration of fundamental architectural issues. Individual and collaborative effort.
Arch 8257-8258. Graduate Architectural Design III. (6 cr per qtr; prereq Arch grad; A-F only)
Case studies exploring societal issues in architecture and/or urban design. Project resolution emphasized. Individual and collaborative effort.

Arch 8261-8262-8263. Advanced Architectural Design. (6 cr per qtr; prereq post-prof Arch grad; A-F only)
Advanced architectural problems with a focus on alternating design methodologies. Individual and collaborative effort.

Arch 8777. Thesis Credits: Master’s. (4 cr thesis prep, 12 cr thesis)

**Representation and Communication**

Arch 1301. Introduction to Architectural Drawing. (4 cr, §LA 1301; A-F only)
Visualization and drawing of form and space in the physical environment. Basic elements of form using design drawing systems and conventions. Development of skills in visual literacy and expression through drawing.

Arch 3311. Drawing for Design. (4 cr, §LA 3311; prereq pre-Arch or Arch or BED or LA major, Arch/LA 1301 or #; A-F only)
Drawing processes as modes of perception, cognition, and reflection. Representational aspects of drawing systems and conventions. Understanding space, light, and order.

Arch 5309. Representation in Architecture. (4 cr, §Arch 5309; prereq Arch or LA grad, Arch/LA 3311 or #)
Historical and theoretical study of representation and its depiction in architecture and landscape architecture. Media, conventions, and techniques used to visualize or reproduce architecture and landscape architecture and how they affect the “production” of ideas.

Arch 5313. Visual Communication Techniques in Architecture. (4 cr, §3033; prereq 3311 or #)
Professional delineation for advanced architectural design students. Exploration and use of presentation and study techniques and the methods and media of investigation.

Arch 5321. Architecture in Watercolor. (4 cr, §3110; prereq Arch or BED major, 3311 or #)
Watercolor as representation and communication in the design process. Foundation principles, techniques, medium, tools and materials. Color relationships, mixing, composition, applications to design.

Arch 5350. Topics in Architectural Representation. (Cr ar; prereq Arch grad; S-N only)
Special topics in theory and practice of visual representation in architecture.

Arch 5351. AutoCAD I. (4 cr; prereq Arch major or 8251; no grad cr; computing exper not required)
Basic concepts, tools, and techniques of computer-aided drawing with an introduction to current AutoCAD release. Strategies and techniques for producing dimensioned and annotated drawings suitable for plotting, and an introduction to 3D drawing capabilities. Use of dimension variables, attributes, blocks, symbols, and the creation of customized menus. Basic drawing project. Class sessions include a brief demonstration and discussion followed by individual hands-on training in drawing examples of architectural construction documents.

Arch 5352. AutoCAD II. (4 cr; prereq Arch major or 5351 or #; no grad cr)
Intermediate concepts, tools, and techniques of computer-aided drawing with current AutoCAD release. Strategies and techniques for producing dimensioned and annotated drawings suitable for plotting. Use of dimension variables, attributes, blocks, symbols, and the creation of customized menus. Drawing project of intermediate complexity. Class sessions include a brief demonstration and discussion followed by individual hands-on training in drawing examples of architectural construction documents.

Arch 5371-5372-5373. Intermediate Computer Methods in Architecture. (1 cr per qtr; prereq Arch grad, §Arch 8251-8252-8253, basic computer skills; S-N only)
Intermediate methods of computer use in architecture, including drawing and painting, 3D modeling, image and video editing, and desktop publishing. Tutorials and assignments are linked to work being done concurrently in design studio and other required courses.

Arch 5374-5375. Advanced Computer Methods in Architecture. (1 cr per qtr; prereq Arch grad, Arch 5371-5372-5373, ¶Arch 8254-8255; S-N only)
Advanced methods of computer use in architecture, including CAD, 3D modeling, and rendering. Tutorials and assignments linked to work being done concurrently in design studio and other required courses.

Arch 5381. Introduction to Computer Aids for Architectural Design. (4 cr; Arch or BED or LA major; A-F only)
Electronic media for design, including document design, 2D drawing, 3D modeling and animation, printing, and plotting. Electronic networking and communications.

Arch 5382. Computer Aids for Architectural Design. (4 cr; Arch or BED or LA major; A-F only)
Understanding computer-aided tools used in design and practice, including database management, spreadsheet analysis, land use analysis, 2D/3D CAD, image manipulation, and project management.

Arch 5383. Advanced CAD Visualization for Architecture. (4 cr; Arch or BED or LA major; A-F only)
Advanced multimedia visualization techniques for architecture design and presentation, including solid modeling, photo-realistic imaging, animation, and video recording and editing.
Arch 8350. Advanced Topics in Representation. (2-4 cr; prereq Arch grad or 8101 or #)
Advanced topics in theory and practice of visual representation in architecture.

History Courses

Arch 3411. History of Architecture to 1750. (4 cr, §ArtH 3411, §LA 3411; A-F only)
History of architecture and city planning from antiquity to 1750 as illustrated by major monuments from Western and non-Western cultures.

Arch 3412. History of Architecture Since 1750. (4 cr, §ArtH 3412, §LA 3412; A-F only)
History of major monuments, concepts, and theories of urbanism and architecture since 1750.

Arch 5410. Topics in Architectural History. (Cr ar; prereq #)
Advanced study in architectural history. Readings, research, seminar reports.

Arch 5417. Asian Architecture. (4 cr, §5057, §ArtH 5417; prereq Arch major or #; A-F only)
Selected topics from history of architecture and urban design in West, South, and East Asia.

Arch 5418. Indigenous Architecture. (4 cr, §5058, §ArtH 5418; prereq Arch major or #; A-F only)
Case studies of indigenous environments in selected cultures.

Arch 5421. Ancient Architecture. (4 cr, §5051, §ArtH 5421; prereq Arch major, 3411 or #)
History of development of architecture and urban design in Egypt, Mesopotamia, Crete, Mycenae, and Classic Greece and Rome until the advent of Christianity.

Arch 5422. Early Medieval Architecture. (4 cr, §5052, §ArtH 5422; prereq Arch major or 3411 or #; A-F only)
History of the development of architecture and urban design during Early Christian, Byzantine, Islamic, Carolingian, and Romanesque periods in the Near East and Western Europe until 1150.

Arch 5423. Gothic Architecture. (4 cr, §5053, §ArtH 5423; prereq Arch major or 3411 or #; A-F only)
History of development of architecture and urban design in Western Europe from 1150 to 1400.

Arch 5424. Renaissance Architecture in Italy. (4 cr, §5054, §ArtH 5424; prereq Arch major, 3411 or #; A-F only)
History of architecture and urban design in Italy from 1400 to 1600. Emphasis on major figures (Brunelleschi, Alberti, Bramante, Palladio) and the evolution of major cities (Rome, Florence, Venice).

Arch 5425. Baroque Architecture in Italy. (4 cr, §5064, §ArtH 5425; prereq Arch major, 3411 or #; A-F only)
Architecture and urban design in Italy from 1600 to 1750. Emphasis on major figures (Bernini, Borromini, Cortona, Guarini) and the evolution of major cities (Rome, Turin).

Arch 5426. Architecture and Nature: 1500-1750. (4 cr; prereq 3411, 3412 or #)
History of the interaction of architecture and nature in Italy, England, and France in the 16th and 17th centuries. Major monuments, their relationship to theories of architecture and gardening, urban and rural life.

Arch 5431. 18th Century Architecture and the Enlightenment. (4 cr, §5055, §ArtH 5431; prereq Arch major, 3412 or #; A-F only)
Architecture, urban planning, and garden design in Europe from 1700 to 1850.

Arch 5432. Modern Architecture. (4 cr, §5056, §ArtH 5432; prereq Arch major, 3412 or #; A-F only)
Architecture and urban design in Europe and America from early 19th-century to World War II.

Arch 5433. American Architecture and Urbanism to 1870. (4 cr; prereq 3412 or #; A-F only)
American vernacular landscape and architecture-designed structures and spaces from colonization through the Civil War. Topics range from colonial architecture in the Southwest and New England to the development of an expression of national identity, and from southern plantations and midwestern farms to the architecture of the industrial city.

Arch 5434. Contemporary Architecture. (4 cr, §5061; prereq Arch major, 3412 or #)
Developments, theories, movements, and trends in architecture and urban design from World War II to the present.

Arch 5439. History of Architectural Theory. (4 cr, §5067, §ArtH 5439; prereq 3412 or #; A-F only)
History of architectural theory from antiquity to the 20th century.

Arch 8410. Topics in History. (2-4 cr; prereq Arch grad or 8101 or #; A-F only)
Advanced study of specialized topics in history of architecture.

Theory and Criticism Courses

Arch 1401. The Designed Environment. (4 cr, §LA 1401; A-F only)
Principles and traditions in architecture, landscape architecture, and urban design, with references in the arts, sciences, and literature, explored in a review of the formal constructs of the designed environment.

Arch 3970. Directed Study. (Cr ar)
Guided individual reading or study.

Arch 5401. Principles of Design Theory. (4 cr; prereq Arch grad or #; A-F only)
Principles of design and their instrumentation. How and why architecture theory is generated. Types and significance of formal analysis. Theoretical positions and modes of criticism.
Arch 5450. Topics in Architectural Theory. (Cr ar; prereq Arch grad or major or #; A-F only)
Special topics in theory and criticism in architecture.

Arch 5451. Architecture: Theory and Philosophy. (4 cr, §5851; prereq Arch grad or #; A-F only)
Architecture as a discipline: its nature, role, purpose, and meaning discussed within a general, philosophical, and theoretical context. Investigation and discussion of paradigms through which architecture has attempted to define itself and derive its mode of operation.

Arch 5452. Architecture: Thought and Design Process. (4 cr, §5852; prereq Arch grad or #; A-F only)
Architecture as theoretical discourse (thought, design, and transformational process) explored via analytical studies of significant, contemporary works of architecture. Investigation of underlying philosophical viewpoints, theoretical premises, design approaches and issues of representation, and their relation to architectural form and order.

Arch 5453. Architecture: Form and Meaning. (4 cr, §5853; prereq Arch grad or #; A-F only)
Architecture and the issues of meaning. Exploration of fundamental constituent elements of architectural form and order; their inherent tectonic, phenomenal, and experiential characteristics; and their potential and implications for the creation and structure of meaningful, human place(s).

Arch 5454. Semiotics and Deconstruction in Architecture. (4 cr, §5854; prereq Arch grad, 5401 or #; A-F only)
Expressive and cultural dimensions of architecture, especially as they relate to linguistic analogies, knowledge production, and contemporary philosophy. Broad critical perspective of architectural discussion and argumentation addressing current issues.

Arch 5455. Typology and Architecture: Theories of Analysis and Synthesis. (4 cr, §5855; prereq Arch grad, 5401 or #; A-F only)
Theoretical traditions and development of the use of typology in architecture. Historical works of Laugier, Quatremère de Quincy, Viollet-le Duc, Ledoux, Durand, Sitte, and Le Corbusier. Recent developments and theoretical positions of the “neo-rational” and “contextual” arguments for contemporary applications of the idea of type.

Arch 5458. Architecture and Culture. (4 cr, §5951; prereq Arch major, 3412 or #; A-F only)
Architecture as a cultural medium; relation among architecture, people, and culture; physiological and symbolic messages; relation between research findings and design; relation between vernacular and high style architecture; reception theory in architecture; cultural critique and cultural change; implications for architectural practice.

Arch 5461. North American Indian Architecture. (4 cr)
Historic and contemporary principles and theories of North American Indian architecture. Culture, technology, environment, art, and craft of North American Indians in their architecture and settlements.

Arch 8450. Topics in Theory. (2-4 cr; prereq 8101 or #; A-F only)
Advanced study of specialized topics in architecture theory.

Technology Courses
Arch 3501. People, Environment, Design. (4 cr; prereq Arch major, 3311, 3412 or #; A-F only)
Issues, design procedures, and short- and long-term impacts of development decisions made by architects and landscape architects on local and global ecological systems.

Arch 5511. Construction Materials in Architecture. (4 cr, §3061; prereq Arch grad or #; A-F only)
Study and analysis of building materials, assemblies, and operations affecting construction of building designs. Materials performance, durability, workmanship, and compatibility in the detailing of masonry, wood, and metal framing designs. Examination of building partner relationships and their implications for materials, elements, components, and assembly selections.

Arch 5512. Historic Building Conservation. (4 cr, §5142; prereq Arch major or #)
Historic building systems, materials and methods for their conservation, introduction to use of contemporary systems in historic buildings.

Arch 5521. Building Methods in Architecture. (4 cr, §3062; prereq Arch grad or #; A-F only)
Analysis of architectural materials, building products, construction operations related to structural and enclosure systems in designing and detailing non-combustible and fire-resistive constructions. Emphasis on concrete systems and structural steel frames and composite structures. Applying legal constraints and regulations, cost controls, and life safety factors in preparing construction documents, specifications, and drawings.

Arch 5522. Techniques and Form. (4 cr, §5116; prereq Arch grad, 5511, 5571 or #; A-F only)
Form as an interface between programmatic requirements for environmental change and the physical means available to the architect; social and cultural paradigms and physical environment; search for organizational principles of architectural form; geometrical order, properties of materials, distribution of forces, construction techniques, accommodation of building infrastructure.
Arch 5523. Light Frame Buildings: Design for Energy Efficiency, Health, and Durability. (4 cr; prereq Arch grad, 5521, 5541 or #)
Design principles and construction methods for resolving problems of comfort, energy efficiency, and durability. Problems integrating building systems and envelope assemblies with design solutions for moisture, infiltration, indoor air quality, and material degradations.

Arch 5525. Design in Masonry. (4 cr; Arch grad, 5521, 8253 or #; A-F only)
Design principles, construction methods, and document production for masonry structures.

Arch 5531. Lighting and Acoustic Design. (4 cr; §5306; prereq Arch grad or #; A-F only)
Principles of daylighting, electric lighting, and acoustic design in architecture. Relationship between luminous and acoustic environments, human comfort and architectural experience. Analytic methods, design process, and modeling of daylighting.

Arch 5539. Daylighting and Architectural Design. (4 cr, §5959; prereq Arch grad, 5531 or #; A-F only)
Role of daylighting in architectural design: principles, strategies, energy and environmental issues, psychology of light, color, and integration of electric lighting. Design projects investigate qualitative and quantitative issues through drawing, physical models, and photometric analyses.

Arch 5541. Thermal Design in Architecture. (4 cr, §3064; prereq Arch grad or #; A-F only)
Thermal and climatic issues in designing small and midsize buildings. Built and mechanical means to modify the climate. Evaluation of design techniques in terms of potential impacts on energy use, the environment, and architectural meaning.

Arch 5542. Building Energy Systems. (4 cr, §5966; prereq Arch grad, 5541 or #; A-F only)
Understanding functions of building mechanical systems and their integration with other building components through case studies. Topics include residential and commercial HVAC systems, alternative energy sources, energy efficiency, and structural implications of mechanical systems, indoor air quality, and environmental control strategies.

Arch 5543. Climate and Architecture. (4 cr, §5957; prereq Arch grad, 5541 or #; A-F only)
Role of climate in architectural design and theory. Lectures and discussions focus on environmental and energy implications at the site, building, and component scales. Design projects explore graphic analysis, physical modeling, and quantitative assessment.

Arch 5550. Topics in Architectural Technology. (Cr ar; prereq Arch grad or major or #)
Selected topics in architectural technology, construction, environmental management, energy performance, lighting, or materials.

Arch 5552. Design in Masonry. (4 cr; Arch grad, 5521, 8253 or #; A-F only)
Design principles, construction methods, and document production for masonry structures.

Arch 5572. Theory and Design of Architectural Structures—Space, Span, Order. (4 cr; prereq 5511, 5521, Arch grad or #; A-F only)
Critical evaluation of principles and concepts of architectural structures (historic and modern) describing the interrelated nature of building design and structure. Various structural elements, systems, materials, and technical principles explored in lecture, construction exercises, graphical analyses, and lab modeling.

Arch 5573. Architectural Structures I—Wood and Steel Construction. (4 cr; prereq Arch grad or #; A-F only)
Principles of structural behavior, analysis, and design in wood and steel materials and systems. Emphasis on whole building design and individual structural elements. Conceptual design strategies, including example studies; estimating loads; wall, beam, and column design; physical models; and computer and quantitative analyses.

Arch 5574. Architectural Structures II—Concrete and Masonry Construction. (4 cr; prereq Arch grad or #; A-F only)
Principles of structural behavior, analysis, and design in reinforced concrete framing systems and structural masonry constructions. Emphasis on whole building design and individual structural elements. Conceptual design strategies, including properties of materials; estimating loads; footing, wall, beam, slab, and column design; connection design; and performance problems. Case studies, exercises, design problems, physical models, computer and quantitative analyses.

Practice Courses
Arch 1601. Design Professions and Society. (4 cr)
Issues and roles citizens, civic structures, entrepreneurs, clients, and design professions address in shaping, constructing, and managing the physical environment. Planning procedures, policy creation, and decision-making strategies used in formulating projects intended to maintain an aesthetic, ecologically functional, and equitable physical environment.

Arch 5411. Historic Preservation Process. (4 cr, §5141; prereq Arch major or #)
Philosophy and theory of historic preservation, historic origins, descriptive analysis of buildings, building documentation, technology of building conservation, historical archaeology, economic considerations, preservation law, guidelines for preservation, neighborhood conservation, international preservation, and case studies of representative preservation projects.
Arch 5413. Historic Building Research and Documentation. (4 cr, §5143; prereq Arch major or #)
Philosophy, theory, and methods of historic building research, descriptive analysis of buildings, building documentation, historical archaeology, and architectural taxonomy.

Arch 5621. Professional Practice in Architecture. (4 cr, §5126; prereq Arch grad or #)
Legal, ethical, business, and practical requirements to practice architecture. Contemporary and historical models of contract formation, business principles, accounting, project management, design services, and marketing.

Arch 5631. Legal Contracts in Architecture I. (4 cr, §5127; prereq Arch grad or #; A-F only)
Legal subject matter relevant to the work of architects and design professionals.

Arch 5632. Contracts for Practice. (4 cr, §5128; prereq Arch grad, 5621 or #)
Principles of contract formation for practice of architecture. Ethical, legal, and contractual requirements among owner, contractor, subcontractor, and architects.

Arch 5645. Real Estate Development in Architecture. (4 cr, §5125; prereq Arch grad or #)
Fundamentals of real estate development and investment building. Processes and rules of specialists in developing investment projects. Proforma, tax shelter, feasibility, market analysis, appraisal equity finance, design, construction, leasing, property management.

Arch 5650. Topics in Architectural Practice. (Cr ar; prereq Arch grad, 5711 or #)
Topics in architectural practices, methods of design production, marketing, operation, and client-architecture-society relationships.

Arch 5650. Topics in Urban Design. (Cr ar, prereq Arch grad or 8101 or #; A-F only)
Advanced study of specialized topics in the professional practice of architecture.

Arch 5725. Housing and Values. (4 cr, §5953; prereq Arch grad or major; A-F only)
Meanings and values attached to housing in different cultures at various stages in the life cycle and in different climatic situations. Impact of housing heritage on housing choice, potential impact of emerging constraints (e.g., energy ability) on current and future housing decisions.

Arch 5750. Topics in Urban Design. (Cr ar, prereq Arch grad, 5711 or #)
Special topics in theory and practice of urban design.

Arch 8750. Topics in Urban Design. (2-4 cr; prereq Arch grad or 8101 or #; A-F only)
Advanced study in urban design.

General Course

Arch 8101. Seminar: Subjects and Methods in Architecture. (4 cr; prereq Arch grad; A-F only)
The discipline of architecture. Subjects and methods in the field.

Urban Design Courses

Arch 5711. Design Principles of the Urban Landscape. (4 cr, §5137; prereq Arch or BED major or #)
Art and design of making city, neighborhood, and development plans. Public policies, planning tools and process, and physical models for design professionals and private and civic institutions to shape the physical environment.

Arch 5724. Meanings of Place. (4 cr, §5956; prereq # A-F only)
Direct experience analyzing meanings and messages of surroundings. Explores what present-day environments reveal about the past and examines links between sense of place and feelings of well-being. Twin Cities central districts and selected neighborhoods as well as other settings inside and outside Minnesota.
Landscape architecture is the design, planning, and management of the landscape to create environments that embody ecological function and realize human aspirations for community, health and safety, and beauty. Landscape architects are concerned with a wide range of projects: large-scale regional landscape planning; design of exterior environments for working, living, and recreation; commercial, institutional, and industrial development; transportation systems; and multiple-use areas. Professional services include studies of land use feasibility, suitability, and capability; site selection studies; proposals for site layout and regional land use allocation and management; detail grading; construction drawings; and planting plans. Landscape architects often interact with other professionals such as architects, planners, engineers, geographers, physical scientists, social scientists, and others in developing projects.

The Department of Landscape Architecture offers three degrees: the preprofessional bachelor of environmental design in landscape architecture (B.E.D.); professional master of landscape architecture (M.L.A.), required to become a registered landscape architect; and master of science (M.S.), a research-oriented degree allowing a specialized focus within landscape architecture.

The cornerstone of the three degree programs is design informed by ecological understanding. National leadership in research and active testing of design ideas locally and nationally give the department a powerful springboard for innovation in design. Collaborative opportunities within the college and University offer a further means of realizing the potentials of landscape architecture as well as a means of asserting the necessity for ecological responsibility in design and planning.

**B.E.D. in Landscape Architecture**

The B.E.D. provides a broad background in the biological and physical sciences and liberal arts as they apply to design. The B.E.D. program may be used as preprofessional preparation to continue graduate study in landscape architecture or related fields, or for employment in environmental design or planning that does not require an accredited professional degree.

Students complete the pre-environmental design curriculum (typically the first two years) through either the College of Agricultural, Food, and Environmental Sciences or the College of Liberal Arts. Degree requirements in pre-environmental design weave together a background in ecological sciences, written communication, and the visual and liberal arts. Students then apply to the B.E.D. program in CALA (see the B.E.D. admission procedures below) where the pre-environmental design background synthesizes with landscape architecture education in history, graphics, technology, and design studio.

B.E.D. graduates applying to the M.L.A. professional degree program receive advanced standing in the program upon acceptance by the Department of Landscape Architecture and the Graduate School.

**Grades**—All required courses must be taken A-F with grades of C or better. Elective courses may be taken S-N.

**B.E.D. Degree Requirements**

**Pre-Environmental Design**

**Preparation for the Major (39 credits)**

**Required Landscape Architecture Courses**

- Arch 1601—Design Professions and Society (4 cr)
- LA 1301—Introduction to Landscape Architecture Drawing (4 cr)
- LA 1401—The Designed Environment (4 cr)
- LA 3411—History of Architecture to 1750 (4 cr)
- LA 3413—History of Landscape Architecture (4 cr)

**Required General Education Courses**

- Arts 1101—Drawing (4 cr)
- Biol 1103—General Botany (5 cr)
- Hort 1021—Woody Plant Materials (5 cr)
- Hort 1022—Herbaceous Plant Materials (5 cr)

**Liberal Education Requirements (52 credits)**

**Writing Skills**

- Rhet 1101—Writing to Inform and Persuade (4 cr)
- Rhet 1104—Library Research (1 cr)
- Rhet 1151—Writing in Your Major (4 cr)
- Rhet 1222—Public Speaking (4 cr)

**Mathematical Thinking**

- Math 1031—College Algebra (4 cr)

**Physical and Biological Sciences**

- Biol 1009—General Biology (5 cr)
- Geol 1001/1021—Introduction to Geology and Laboratory (5 cr)
- Soil 1020—The Soil Resource (5 cr)
History and Social Sciences
Geog 13xx-15xx—Introduction to Geography (4 cr)
Geog 3xxx—Regional or Topical Studies (4 cr)
Historical perspective elective (4 cr)

Arts and Humanities
Phil 3502—Introduction to Aesthetics (4 cr)
Literature or philosophy elective (4 cr)
Visual and performing arts satisfied by LA 1301/3413

Designated Themes
Major courses meet requirements. If these particular courses are not taken, choose courses to fulfill designated themes.
Citizenship and public ethics satisfied by Arch 1601
Cultural diversity satisfied by Rhet 1101
Environment satisfied by Geol 1001
Environment satisfied by LA 1401
Environment satisfied by Soil 1020
International perspective satisfied by Arch 3411

Students must complete the above courses (or their equivalent), have completed 90 credits (may include current enrollment), and have an overall GPA of 2.75 to apply to the B.E.D. degree program.

Upper Division Requirements
Major Requirements (20 credits)
These courses may be taken before admission to the B.E.D. program; all are prerequisites to the landscape design and technology courses.

Writing Skills
Rhet 3562—Writing in Your Profession (4 cr)

Graphic Communication
LA 3311—Drawing for Design (4 cr)
LA/Arch 3-5xxx—Advanced graphics course (4 cr)

Geography/Ecology/Geology
One of the following:
EEB 3001—Introduction to Ecology (4 cr)
EEB 3101—Ecology for Engineers and Physical Scientists (4 cr)
One of the following:
Geol 5251—Geomorphology (4 cr)
Geol 5261—Glacial Geology (4 cr)

Elective Concentration (20-28 credits)
Electives supporting the degree, selected in consultation with an adviser.

Landscape Design and Technology
Students must be admitted to the B.E.D. program to enroll in the following courses.

Landscape Design
LA 5211—Making Landscape Space (6 cr)
LA 5212—Ecological Informants of Design (6 cr)
LA 5213—Making Landscape Types (6 cr)
LA 5221—Planted Form (5 cr)

Landscape Technology
LA 5201—Field Techniques for Landscape Analysis (3 cr)
LA 5202—Landscape Ecology (3 cr)
LA 5571—Landscape Construction: Landform Systems (4 cr)
LA 5572—Landscape Construction: Spatial Performance (4 cr)

Architecture/Urban Design
Arch 5711—Design Principles of the Urban Landscape (4 cr)

Total credits required (180 cr)
Note: All courses may not be offered every quarter.

Admission Procedures—All applications must be submitted by January 15 of the year of desired entry. Admission is for fall only, unless advanced standing is granted. The following policies and admission procedures change periodically; students should check with their adviser and/or the Department of Landscape Architecture for current information.
1. Apply to the University of Minnesota if not already a University student.
2. Complete the required pre-environmental design coursework (minimum of 90 credits, including current enrollment). See the pre-environmental design curriculum above.
3. Complete the B.E.D. application available from the Department of Landscape Architecture, University of Minnesota, 125 Architecture Building, 89 Church Street S.E., Minneapolis, MN 55455 (612/625-6860).
4. Submit official transcripts of all coursework at the college, university, or graduate level, including coursework currently being taken. Typically, a student must have a GPA of at least 2.75 for admittance.
5. Submit letter of intent stating the student’s reasons for wanting to be a landscape architect, describing previous experiences in landscape architecture and related fields, and identifying interests and life experiences that may relate to landscape architecture (maximum two pages).
6. Submit a portfolio of art or design work, environmental or design reports, photographs of three-dimensional work, slides, or similar examples of creative work. It is strongly suggested that the portfolio be a bound 8 1/2-x-11-inch booklet. Portfolios larger than 24 x 36 inches will not be accepted. Loose materials are also unacceptable. Slides must be submitted in 8 1/2-x-11-inch transparent slide carrier pages.
The landscape architecture faculty votes on each applicant. The applicant may be admitted, rejected, or recommended for pre-landscape architecture status. Approval for admission is based on: 1) the student’s academic standing and GPA; 2) the student’s maturity and experience; 3) the student’s letter of intent; 4) the estimated design potential of the student; and 5) the availability of staff and space.

Applicants are encouraged to visit the landscape design studios, talk to students who are in the program, and find out as much as they can about the profession by talking with landscape architects in their community.

Applicants will be notified of the admission decision by May 15. Successful applicants must notify the department of their intention to enter by June 15 to reserve a position in the program.

**Minor Sequence—Environmental Design in Landscape Architecture**

An undergraduate minor in environmental design requires a minimum of 28 credits. Two courses are required; the remainder are chosen from the list of optional courses.

**Required Courses**
- LA 3413—The History of Landscape Architecture (4 cr)
- LA 5431—Landscape Architecture History: Individual Influences (4 cr)

**Optional Courses**
- Hort 1021—Woody Plant Materials (5 cr)
- LA 1024—Landscape Theory (4 cr) (UC only)
- LA/Arch 1301—Introduction to Landscape Architecture Drawing (4 cr)
- LA/Arch 1401—The Designed Environment (4 cr)
- LA 3098—Making Landscape Space (4 cr) (UC only)
- LA/Arch 3311—Drawing for Design (4 cr)
- LA 5202—Landscape Ecology (4 cr)
- LA 5213—Making Landscape Types (4 cr)
- LA/Geog 5562—Introduction to Geographic Information Systems (4 cr)
- LA 5571—Landscape Construction: Land Form Systems (4 cr)
- LA 5572—Landscape Construction: Spatial Performance (4 cr)
- LA 5621—Professional Practice (4 cr)

**Transfer Credits**
A maximum of 12 transfer credits may be used for the minor. Overlapping courses taken for a major degree may also be used toward the minor.

**Grades**
Courses for the minor may be taken S-N; however, courses taken S-N may not later be used for the B.E.D. major. A minimum grade of C (or S) is required in all courses for the minor.

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**Master of Landscape Architecture**

This professional master of landscape architecture (M.L.A.) degree program, accredited by the national Landscape Architecture Accreditation Board (LAAB), is the degree program for students who wish to become registered landscape architects. This program requires 18 credits of preparatory undergraduate work and 121 graduate credits to meet the standards of the LAAB. Areas of coursework within the program include: design, technology and ecology, graphic and written communication, landscape history, and research methods. Students are encouraged to select from among graduate seminars to develop a special focus or a particular point of view. Students are required to take 8 credits of graduate coursework outside the department. Coursework in the M.L.A. program is organized in a sequential framework of nine design studios. Therefore, commitment to the program for three successive years is important.

No previous undergraduate education in design is required for application to the M.L.A. program; a baccalaureate degree in the arts, sciences, or humanities may enrich the studies of the M.L.A. candidate. M.L.A. program applicants who have a comprehensive background in environmental design may receive advanced standing in the degree program. Students who enter the M.L.A. program with advanced standing will be required to complete approximately 80 graduate credits. Requirements may vary according to the specific preparation of the advanced standing student. Applicants who hold an accredited, professional bachelor’s degree in landscape architecture may complete the M.L.A. with 44 credits of graduate school coursework, including landscape architecture studio courses (18 cr), landscape architecture research issues and methods (5 cr), survey of landscape architecture research (1 cr), and coursework outside the department (8 cr). Up to 12 credits earned as part of the M.L.A. may be applied to the M.S. All M.L.A. students are required to complete all coursework necessary to meet the professional degree requirements of the LAAB.
For students who wish to explore the landscape architecture professional program or prepare for entry, a limited number of introductory professional degree courses are offered through University College. See the Extension Classes Bulletin for more information.

Program of Study (M.L.A.)

Core Requirements

Design (61 credits)
- LA 5211—Making Landscape Space (6 cr)*
- LA 5212—Ecological Informants of Design (6 cr)*
- LA 5213—Making Landscape Types (6 cr)*
- LA 5221—Planted Form (5 cr)*
- LA 8221—The Design of Landscapes for Dwelling (6 cr)
- LA 8222—The Landscape Architectural Design of Community Places (6 cr)
- LA 8223—Regional Landscape Design (6 cr)
- LA 8231—Urban Landscape Design (6 cr)
- LA 8232—Design of Recreational Landscapes (6 cr)
- LA 8233—Special Problems: Proposal (2 cr)
- LA 8234—Advanced Landscape Planning and Design (6 cr)

Technology and Ecology (30 credits)
- LA 5201—Field Techniques for Landscape Analysis (3 cr)
- LA 5202—Landscape Ecology (3 cr)
- LA or Geog 5562—Introduction to Geographic Information Systems (4 cr)
- LA 5571—Landscape Construction: Land Form Systems (4 cr)*
- LA 5572—Landscape Construction: Spatial Performance (4 cr)*
- LA 5621—Professional Practice (4 cr)
- LA 8573—Landscape Construction: Structural Systems (4 cr)
- LA 8574—Landscape Construction: Mechanical Systems (4 cr)

History (8 credits)
- LA 3413—History of Landscape Architecture (4 cr)*
- LA 5431—History of Landscape Architecture: Individual Influences (4 cr)

Visual and Verbal Communications (8 credits)
- LA 1301—Introduction to Landscape Architectural Drawing (4 cr)*
- One of the following (3-4 cr):
  - LA 3311—Drawing for Design (4 cr)*
  - LA/Arch 5309—Representation in Landscape Architecture (4 cr)*
- Arch 5381—Computer-Aided Architectural Design (4 cr)*
- Any LA/Arch advanced graphics course (4 cr)

Theory and Research Methods (8 credits)
- LA 8200—Landscape Architectural Research Issues and Methods (5 cr)
- LA 8820—Survey of Landscape Architecture Research (colloquium taken three times, once each spring quarter) (3 cr)
- Four 5xx-8xx topic courses (16 cr)

The Graduate School requires eight credits in any degree program to be taken outside the major department.

* Courses not required for B.E.D. graduates receiving advanced standing in the M.L.A. program.

Master of Science in Landscape Architecture

The master of science (M.S.) is a research-oriented degree that provides a specialized course of study for individual students. This program is a critical incubator of ideas that expands the discipline’s knowledge base. Research and scholarship within the M.S. program infuses energy into all degree programs in the department.

The M.S. program is for students with a clear focus in research related to landscape architecture. Students in the M.S. program build specialized expertise related to the practice of landscape architecture as they learn how to conduct research. Students specialize within areas of faculty expertise. These currently include art and landscape architecture, landscape ecology, landscape architectural history and theory, park and recreation design, rural and suburban landscape planning, and transportation. Prospective students may request a summary of current faculty research for a comprehensive description of potential specialization topics.

The M.S. requires 44 graduate credits, including a minimum of 7 to 16 credits within the major as determined by the adviser, a 16-credit written thesis, and a minimum of 8 credits in an area of focus outside of landscape architecture. M.S. degree applicants must have a baccalaureate degree in landscape architecture or a discipline related to their proposed course of study in landscape architecture. M.S. applicants are required to take the Graduate Record Examination (GRE). Applicants must also write a letter of intent that explains the relationship of their previous academic work and work experience to their proposed graduate work in landscape architecture.

Graduate Degree Applicants in Landscape Architecture

Students with baccalaureate degrees may apply to the accredited M.L.A. professional degree program or the research-oriented M.S. program.

Applications for M.L.A. or M.S. admission must be received by January 15 of the desired year of admission. Applications are made in two parts.
Send to the Graduate School:
1. Completed Graduate School application.
2. Official transcripts for each college attended (3.00 minimum GPA required).
3. The Graduate School application fee.
4. GRE scores (M.S. program applicants only).

Send to the Department of Landscape Architecture director of graduate studies:
1. Letter of intent describing how and why you have chosen to pursue a degree in landscape architecture. It should especially describe your interest in advancing scholarship in landscape architecture, which is the focus of the graduate program.
2. Three letters of reference. At least one should be from a former teacher. Others may be from employers, people with whom you have worked on volunteer projects, and people who know you through your work.
3. Copies of your transcripts (need not be official, photocopies are acceptable).
4. Applicants with previous professional degrees in landscape architecture and applicants seeking admission to the M.L.A. program should also submit a portfolio of professional work. A portfolio is not required for admission to the M.S. program.

More information on all graduate programs is in the Graduate School Bulletin available from the Prospective Students Office, Graduate School, University of Minnesota, 307 Johnston Hall, 101 Pleasant Street S.E., Minneapolis, MN 55455. Graduate applications may be obtained from the Department of Landscape Architecture or the Graduate School.

Reapplication—Note that an applicant who is unsuccessful on a first attempt may be admitted on a second attempt, especially if the GPA can be raised, the portfolio improved, or support courses added to the transcript. Students who are not admitted are urged to consult an adviser about reapplication for the next year.

Notification—Applicants will be notified by letter of the admission decision no later than May 15. Those offered admission must notify the Department of Landscape Architecture of their intention to attend or they will forfeit their place. Those not accepting the opportunity must reapply if they wish to enter the program at a later date; delayed admissions are not granted.

Course Numbers and Symbols
Courses primarily for freshmen and sophomores are numbered 1000 through 1998; for juniors and seniors, 3000 through 3998; for juniors, seniors, and graduate students, 5000 through 5998. Courses numbered 8000 and above are restricted to graduate students.

The following symbols are used throughout the descriptions:
,
...... The comma, used in prerequisite listings, means "and."
†
...... All courses preceding this symbol must be completed before credit will be granted for any quarter of the sequence.
§
...... Credit will not be granted if credit has been received for the course listed after this symbol.
¶
...... Concurrent registration is required (or allowed) in the course listed after this symbol.
#
...... Approval of the instructor is required for registration.
∆
...... Approval of the department offering the course is required for registration.
1011, 1012, 1013
.......... Series courses, separated by commas; may be entered any quarter.
1011-1012-1013
.......... Sequence courses, separated by hyphens; must be taken in order listed.
H
...... Honors course (follows the course number).
f, w, s, su
.......... fall, winter, spring, summer (follows the course number). Use as a guide only. Contact the department offering the course for updates.
1011-1012-1013
.......... Sequence courses, separated by hyphens; must be taken in order listed.
1011
.......... Series courses, separated by commas; may be entered any quarter.
H
...... Honors course (follows the course number).
f, w, s, su
.......... fall, winter, spring, summer (follows the course number). Use as a guide only. Contact the department offering the course for updates.
1011
.......... Series courses, separated by commas; may be entered any quarter.
H
...... Honors course (follows the course number).
f, w, s, su
.......... fall, winter, spring, summer (follows the course number). Use as a guide only. Contact the department offering the course for updates.

Directed studies course numbers end in "970," directed research in "990."

A prerequisite course listed by number only (e.g., prereq 5246) is in the same department as the course being described.

UC
...... University College (formerly Continuing Education and Extension).
Landscape Architecture Courses

LA 1024. Landscape Theory. (4 cr; UC only)
Analysis of design elements and forms involving direction, shape, proportion, and color with emphasis on their function in design; perception and our relationship to the environment: social effects of and psychological basis for design.

LA 1301. Introduction to Landscape Architectural Drawing. (4 cr, §Arch 1301; A-F only)
Visualization and drawing of form and space in the physical environment. Basic elements of form using design drawing systems and conventions. Development of skills in visual literacy and expression through drawing.

LA 1401. The Designed Environment. (4 cr, §1031, §Arch 1401; A-F only)
Principles and traditions in architecture, landscape architecture, and urban design with references in the arts, sciences, and literature, explored in a review of the formal constructs of the designed environment.

LA 3200. Landscape Architecture Practicum. (1-6 cr; prereq LA major, #; S-N only)
Approved design, planning, engineering, contracting, or travel experience in applying or developing landscape architecture theory. Proposal must be submitted to LA faculty for approval; final written, graphic, and/or oral presentation required.

LA 3311. Drawing for Design. (4 cr, §Arch 3311; prereq Arch or BED or LA major, 1301 or Arch 1301 or #; A-F only)
Drawing processes as modes of perception, cognition, and reflection. Representational aspects of drawing systems and conventions. Understanding space, light, and order.

LA 3411. History of Architecture to 1750. (4 cr, §Arch 3411, §Arch 3411; A-F only)
History of architecture and city planning from antiquity to 1750 as illustrated by major monuments from Western and non-Western cultures.

LA 3412. History of Architecture Since 1750. (4 cr, §Arch 3412, §Arch 3412; A-F only)
History of major monuments, concepts, and theories of urbanism and architecture since 1750.

LA 3413. History of Landscape Architecture. (4 cr, §1022; A-F only)
History and theoretical issues of landscape architecture in typologically based survey format. Landscape design from ancient to modern periods.

LA 5131. Directed Studies in Landscape Architecture History and Theory. (1-6 cr; prereq BED major or LA grad, Δ; A-F only)
Advanced independent studies in history and theory.

LA 5133. Directed Studies in Landscape Architecture Technology. (1-6 cr; prereq BED major or LA grad, Δ; A-F only)
Advanced independent studies in landscape architecture technology.

LA 5134. Directed Studies in Emerging Areas of Landscape Architecture. (1-6 cr; prereq BED major or LA grad, Δ; A-F only)
Advanced independent studies in areas of student’s choice that relate to new or renewed direction in landscape architecture.

LA 5140. Interdisciplinary Studies in Landscape Architecture. (Cr ar [2-6 cr per qtr, 18 cr max]; prereq #; A-F only)
Interdisciplinary research, planning, and/or design project related to landscape architecture; subject matter selected by students, faculty, or real users requesting assistance. Topics may include natural resource conservation, downtown revitalization, recreational facilities and programming, energy-efficient design, historic preservation, agricultural land use, land reclamation, environments for the aged, computerized land use planning, visual assessment, housing, new towns.

LA 5200. Directed Studies in Landscape Architecture Design. (1-6 cr, §5132; prereq #)
Advanced independent studies in design.

LA 5201. Field Techniques for Landscape Analysis. (3 cr, prereq BED major or LA grad or Δ; A-F only)
Field techniques for site analysis, including vegetation, soil, and landform description, introduced at a one-week session at the Lake Itasca Forestry and Biological Station before fall quarter. Application of techniques to agricultural, urban, and natural landscapes in Minnesota at Itasca and during weekly field trips and one weekend field trip during fall quarter.

LA 5202. Landscape Ecology. (3 cr; prereq 1 ecol course or #; A-F only)
Relationships among spatial patterns, temporal patterns, and ecological processes in the landscape. Factors affecting landscape pattern, measurement of landscape pattern, material transport through landscapes, effects of landscape pattern on population dynamics, landscape planning.

LA 5211. Making Landscape Space. (6 cr; prereq BED major or Δ; A-F only)
Design exploration using three-dimensional models to make outdoor space for human habitation and use with landforms, structures, and plants. Development of form vocabulary to provide spatial order. Use of metaphorical thinking to imbue designed landscape space with meaning.
LA 5212. Ecological Informants of Design. (6 cr; prereq 5211 or #; A-F only)
Use of literature in landscape ecology, aesthetics, and the design arts to enable students to select and analyze ecological phenomena that influence the function and human experience of landscape and to use fundamental aesthetic principles to portray those phenomena in design.

LA 5213. Making Landscape Types. (6 cr; prereq 5212; A-F only)
Design studio. Theory, precedents, and practice in making fundamental space types in professional landscape architecture. Design studies focused on issues of order, form, and meaning in the design of discrete landscape types and types in combination.

LA 5221. Planted Form. (5 cr; prereq 5211, 5213; A-F only)
Lectures, presentations, field trips, readings, and projects exploring design principles related to the use of plants in the landscape. Explores both cultural and ecological principles through design projects of various scales.

LA 5228. Seminar: Topics in Campus Planning. (4 cr; prereq #; A-F only)
Lectures, discussion, presentations, field trips, readings, and paper on various aspects of contemporary and historic issues in campus planning, use of energy-efficient buildings, and efficient land use and site planning.

LA 5309. Representation in Landscape Architecture. (4 cr, §Arch 5309; prereq Arch or LA major, 3311 or Arch 3311 or #; A-F only)
Historical and theoretical study of representation and its depiction in architecture and landscape architecture. Media, conventions, and techniques used to visualize or reproduce architecture and landscape architecture and how they affect the “production” of ideas.

LA 5431. History of Landscape Architecture: Individual Influences. (4 cr, §5265; prereq 3413; A-F only)
Lectures, presentations, field trips, readings, papers and/or projects. Assessment of influences of individuals on the formation of the profession of landscape architecture from 1800 to the present.

LA 5562. Introduction to Geographic Information Systems. (4 cr, §Geog 5562; prereq BED major or LA or Geog grad or #; A-F only)
Basic concepts of geographic information systems structure. Theory and applications for landscape location, resource analysis, and regional planning. Location principles, data structure, variable attributes.

LA 5571. Landscape Construction: Landform Systems. (4 cr, §3065; prereq 5211 or #; A-F only)
Theory and professional applications of landform systems for design. Landform typology, representation methods, manipulation techniques, use of survey data, earthwork construction issues. Landscape integrity assurance, and economic performance.

LA 5572. Landscape Construction: Spatial Performance. (4 cr, §5063; A-F only)
Theory and application of appropriate standards, proportions and dimensions for spatial performance in landscape architecture. Spatial accommodation of people and automobiles in landscape applications, issues in land use and development controls.

LA 5621. Professional Practice. (4 cr; prereq LA grad final yr of study; A-F only)
Office and project management case studies. Organizational behavior, marketing, sales, strategic planning, financial and cost accounting, insurance, legal issues and contracts.

LA 5810. Visions of Paradise: Garden Design and the Good Life. (4-6 cr; prereq Arch or BED major or #; A-F only)
Theoretical inquiry and studio exploration into the art of garden design as a lamp to illuminate ideals for living. Aristotelian and Objectivist thought on art and happiness as a whole good life provide the foundation for exploration and artistic expression.

For Graduate Students Only

LA 8111. Directed Studio in Landscape Architecture. (6 cr; prereq LA grad, 8222; A-F only)
Comprehensive projects in landscape planning or design in instructor’s specialty area.

LA 8200. Landscape Architectural Research Issues and Methods. (5 cr; prereq LA grad or #; A-F only)
Alternative methodological approaches to landscape architectural research and consideration of their appropriateness for contemporary research topics.

LA 8221. Design of Landscapes for Dwelling. (6 cr; prereq LA grad, 5213, 5572 or §; A-F only)
Design studio. Theory and applications of the meaning of home, dwelling, and associated human behavior issues related to the professional design of residential landscape architecture. Advanced design studies ranging from individual home landscapes to neighborhoods as dwelling places.

LA 8222. The Landscape Architectural Design of Community Places. (6 cr; prereq LA grad, 8221 or #; A-F only)
Design studio. Public places as settings for the gathering of people. Historical precedent as an idea resource for designing streets and outdoor public gathering spaces in the context of mixed-use urban and suburban settings.

LA 8223. Regional Landscape Design. (6 cr, §5107; prereq LA grad, 5562, 8222 or FR 5130 or Geog 5562 or PA 5562 or #; A-F only)
Design exploration of landscape ecology, landscape perception, and public policy as informants of design decision making in regional landscapes at or exceeding a township level. Geographic information systems used as design tools.
LA 8231. Urban Landscape Design. (6 cr, §5103; prereq LA grad or #; A-F only)
Advanced design studio exploring urban and landscape design principles through analysis of case studies and the development of strategies from landscape systems within the urban environment.

LA 8232. Design of Recreational Landscapes. (6 cr, §5105; prereq 8223; A-F only)
Design studio. Analysis, development, and presentation of designs for diverse recreational landscapes.

LA 8233. Special Problems: Design Proposal. (2 cr; prereq 8223 or 8231; A-F only)
Individual research resulting in a proposal for a capstone project to be developed in LA 8234.

LA 8234. Graduate Landscape Planning and Design. (6 cr, §8110; prereq final qtr of study; A-F only)
Advanced studies in area of student’s choice.

LA 8500. Landscape Architecture Research Project. (1-6 cr; prereq 8200 or #; A-F only)
Research in a specific area of landscape architecture.

LA 8573. Landscape Construction: Structural Systems. (4 cr, §3067; prereq LA grad, 5123 or #; A-F only)
Lectures, projects, and exercises on professional design of pavements, enclosures, and decks. Theory and principles of structural design, properties and use of materials, construction communication. Landscape integrity and economic viability as performance issues.

LA 8574. Landscape Construction: Mechanical Systems. (4 cr, §3069; prereq LA grad, 8221 or #; A-F only)
Lectures, projects, and exercises on the landscape architectural applications of storm water management, urban utilities, irrigation, and electrical and lighting systems and techniques. Systems planning and design; historical precedents; professional design communication; landscape construction, integrity, and performance issues.

LA 8600. Landscape Architecture Education. (1-4 cr; prereq LA grad or #; A-F only)
Planning and implementing an undergraduate landscape architecture course under direct supervision of a course instructor.

LA 8777. Thesis Credits: Master’s. (1-16 cr; prereq LA grad)

LA 8801. Concepts of Landscape Evaluation. (4 cr, §8330; prereq LA grad or #; A-F only)
Philosophical basis for wide-ranging approaches to evaluating qualitative aspects of landscape. Emphasis on aesthetic factors and integration of landscape evaluation into regional design decision making.

LA 8802. Perception Manipulation in Design of Exterior Space. (4 cr, §8320; prereq Arch or LA grad or #; A-F only)
Historic and modern design devices that alter one’s sense of spatial control and arrangement to create illusionary situations in the exterior environment. Readings, lectures, and research projects on principles of perception distortion in exterior space.

LA 8803. The Sublime, the Beautiful, and the Picturesque: Theory and Practice. (4 cr, §8370; prereq Arch or LA grad, 3411, 5431; A-F only)
Readings, discussions, and research paper on 18th- and early 19th-century theoretical bases for landscape design. Analysis of executed designs, theoretical relationships to current design issues.

LA 8804. Landscape Ecology and Design. (4 cr, §8390; prereq LA grad or #; A-F only)
Readings, discussion, and field investigations to establish a landscape ecological basis for designing ecosystems as a part of human settlement. Emphasizes on the design and planning implications of scientific conclusions and theory, and meaningful techniques for creating high functioning ecosystems in inhabited landscapes.

LA 8820. Survey of Landscape Architecture Research. (1-3 cr, §8284; prereq LA grad; S-N only)
Critical review of lectures and discussion on current topics in landscape architecture research.