ARCH - ARCHITECTURE

ARCH150 Discovering Architecture (3 Credits)
Introduction to architecture and design studio education. The course examines fundamental design principles and skills related to architecture. The design studio projects apply ideas and concepts introduced in lectures, readings and on site visits. The design studio projects are both analytic and synthetic in nature. The explicit goals of the course are: To explore the discipline of architecture; To promote visual thinking and representational skills; To develop analytic design thinking skills; To learn some of the conventions of architectural representation; To enhance cultural awareness of architecture and design.
Prerequisite: Permission of ARCH-Architecture Program.

ARCH170 Design Thinking and Architecture (3 Credits)
Examines conceptual, perceptual, behavioral, and technical aspects of the built environment, and methods of analysis, problem-solving, and design implementation.

ARCH171 Design Thinking and Making in Architecture (3 Credits)
Examines iterative design processes and critical thinking skills through active learning and design thinking methodologies to solve problems and apply design as a lens of inquiry and exploration. Students will understand Design Thinking through interactive and experiential learning.
Restriction: Must be a major in ARCH-Architecture Program; and must be a freshman; or have permission of the School of Architecture, Planning and Preservation.

ARCH200 Design Media and Representation I (3 Credits)
Study of architectural representation in physical and digital design media. Examine visual literacy and visual communications through applied drawing, modeling and visual making to explore the role of design media and representation in design and design thinking.
Restriction: Must be in a major in ARCH-Architecture Program.

ARCH201 Elements and Principles of Architecture (1 Credit)
Survey of fundamental elements and principals of architecture and architectural education. Frames study of architecture as a profession, discipline and critical practice.
Restriction: Must be in a major in ARCH-Architecture Program.

ARCH225 History of World Architecture I (3 Credits)
Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture

ARCH226 History of World Architecture II (3 Credits)
Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture

ARCH270 Design in Practice (3 Credits)
Case studies and hands-on design projects ranging in scale from a product to a building to give students insight into the process by which architects work both individually and collaboratively to put disciplinary knowledge and expertise into practice to shape our built environment.

ARCH271 People, Planet, and Profit: Building Sustainable Places (3 Credits)
An introduction to the four disciplines represented in the School: architecture and urban design, community planning, historic preservation, and real estate development, that work to create a more sustainable environment for the future to create a more sustainable environment for the future using our interpretation of the quadruple bottom line: socio-cultural, economic, environmental, and design sustainability. Students will be provided with an understanding of the fundamental scholarship and processes of each of these disciplines and examine the intersections between them. Additionally, they will learn by applying the approaches of the four disciplines through a series of field studies.Cross-listed with: RDEV250.
Credit Only Granted for: ARCH271 or RDEV250.

ARCH272 Sustainability at College Park (3 Credits)
Explore the ways and the degrees to which University of Maryland, College Park campus master planning and operations incorporate principles of sustainability including smart growth, LEED and other building rating systems, higher education rating systems, sustainable agriculture and transportation planning. Among other subjects, students will learn about the Campus and the City of College Park and survey the relationship between local, national and global sustainability concerns. Students will learn about the University's Climate Action Plan and the roles, and extent to which, the UMD Office of Sustainability and other campus units are helping develop a carbon-neutral and resource-efficient campus infrastructure.

ARCH289 Independent Studies in Architectural Sustainability (1-4 Credits)
Independent Studies in Architectural Sustainability. Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH300 Design Media and Representation II (3 Credits)
Study of architectural representation in physical and digital design media. Examine visual communications and speculative visual studies through applied drawing, modeling and making to explore expanded roles of representation in design and design thinking.
Prerequisite: ARCH200; or permission of ARCH-Architecture Program.
Restriction: Must be in a major in ARCH-Architecture Program.

ARCH386 Experiential Learning (1-6 Credits)
Learning experience tied to internship of specified duration with targeted learning outcomes.
Restriction: Must have learning proposal approved by faculty sponsor and student's internship sponsor; and sophomore standing or higher; and permission of ARCH-Architecture Program.

ARCH400 Architecture Design Studio I (6 Credits)
Introduction to architectural design with particular emphasis on conventions and principles of architecture, visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses.
Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.

ARCH401 Architecture Design Studio II (6 Credits)
Continuation of ARCH 400 with introduction to building typology, urban and contextual issues, design of the vertical surface, and architectural interiors.
Prerequisite: Minimum grade of C- in ARCH400.
Restriction: Must be in Architecture (B.S.) program.

ARCH402 Architecture Design Studio III (6 Credits)
Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical.
Prerequisite: Minimum grade of C- in ARCH401.
Restriction: Must be in Architecture (B.S.) program.

ARCH403 Architecture Design Studio IV (6 Credits)
Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.
Prerequisite: Minimum grade of C- in ARCH402.
Restriction: Must be in Architecture (B.S.) program.

ARCH404 Graduate Architecture Design Studio I (6 Credits)
Introduction to architectural design with particular emphasis on conventions and principles of architecture , visual and verbal communication skills, formal analysis, design process, spatial composition, architectural promenade, basic program distribution, and elementary constructional and environmental responses. Offered fall only.
Recommended: For 3 1/2 year graduate students only.
Restriction: Must be in Architecture (Master's) program.

ARCH405 Graduate Architecture Design Studio II (6 Credits)
Architectural design studio with emphasis on building and facade typologies, the development of architectural promenade and sequence, public and/or civic infill buildings dependent upon the architectural promenade, and urban housing types of varying densities. The architect's obligations to urban context are explored in many dimensions including historical, typological, and physical. Offered spring only.
Prerequisite: Minimum grade of C- in ARCH404.
Restriction: Must be in Architecture (Master's) program.

ARCH406 Graduate Architecture Design Studio III (6 Credits)
Investigations into the relationship between the man-made and the natural world including introductory issues of assembly and material value. Design of the site and the building are combined into an integral process delimiting and probing the boundaries of each and exploring their reciprocal relationship. The architect's obligations to the natural and urban contexts are explored in many dimensions including historical, typological, environmental, and physical.
Prerequisite: Minimum grade of C- in ARCH405.
Restriction: Must be in Architecture (Master's) program.

ARCH407 Graduate Architecture Design IV (6 Credits)
Studio problems and theories concentrating on urbanism and urban design techniques. Issues and sites range from high-density urban in-fill to suburban and greenfield development in American and other contexts. Studio theories explore such topics as Contextualism, Neo-Traditional design, Transit Oriented Development, density, sustainable development, building typology, and street design.
Prerequisite: Minimum grade of C- in ARCH406.
Restriction: Must be in Architecture (Master's) program.

ARCH408 Special Topics Architecture Design Studio (6 Credits)
Design Studio course to examine topical problems in architecture and urban design.
Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
Repeatable to: 12 credits if content differs.
Additional Information: May also be taken for repeat credit for ARCH400, ARCH401, ARCH402, or ARCH403 only by permission of Architecture Program Director.

ARCH418 Selected Topics in Architectural Technology (3 Credits)
Selected Topics in Architectural Technology
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH419 Independent Studies in Architectural Technology (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH420 History of American Architecture (3 Credits)
American architecture from the late 17th to the 21st century.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture program.

ARCH423 History of Roman Architecture (3 Credits)
Survey of Roman architecture from 500 B.C. To A.D. 325.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

ARCH425 History of Architecture I (3 Credits)
Pre-1500 World Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and cultural production through architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.
Restriction: Permission of ARCH-Architecture Program.
Credit Only Granted for: ARCH225 or ARCH425.
Additional Information: Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures.

ARCH426 History of Architecture II (3 Credits)
Post-1500 - History of Architecture survey course - History of Architecture structured to develop critical thinking and visually literacy with regard to the worldwide legacy of design thinking and building innovation in architecture. Structured to nurture critical thinking and visually literacy with regard to the worldwide legacy of architecture. The work in the course will involve the evaluation of sources and arguments in reading architectural history. Architecture will be framed relative to ways of thinking, religious beliefs, cultural heritage, and cultural values.
Restriction: Permission of ARCH-Architecture Program.
Credit Only Granted for: ARCH226 or ARCH426.
Additional Information: Graduate architecture history course requires additional recitation section and additional coursework tied to survey lectures.

ARCH427 Theories of Architecture (3 Credits)
Survey of architectural theories - theories of architectural design, representation and urban design from antiquity to the present day.
Prerequisite: ARCH426; or permission of ARCH-Architecture Program.
Restriction: Must be in Architecture (B.S.) program.

ARCH428 Selected Topics in Architectural History (1-4 Credits)
Selected Topics in Architectural History
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH429 Independent Studies in Architectural History (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH430 Measuring Sustainability in Architecture (3 Credits)
Studies metrics of sustainability as included in rating standards, including LEED. All students will take the LEED GA test.
Credit Only Granted for: ARCH430 or ARCH418M.
Formerly: ARCH418M.

ARCH435 History of Contemporary Architecture (3 Credits)
Architectural history from World War II to the present.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

ARCH443 Visual Communication For Architects (3 Credits)
Investigation of the relationship between drawing from life and architectural drawing, the conventions of architectural drawing and the role of architectural drawing as a means to develop, communicate, and generate architectural ideas.
Corequisite: ARCH400.
Restriction: Must be in Architecture (Master's) program; and must be in the 3.5 year M. ARCH program.

ARCH445 Visual Analysis of Architecture (3 Credits)
Study of visual principles of architectural and urban precedents through graphic analysis. Exercises include on-site observation, documentation and analysis. Focuses on the development of an architect's sketchbook as a tool for life-long learning.
Prerequisite: ARCH400; or permission of ARCH-Architecture Program.
Restriction: Must be in Architecture (B.S.) program.

ARCH448 Selected Topics in Visual Studies in Architecture (3 Credits)
Selected Topics in Visual Studies in Architecture
Restriction: Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH449 Independent Studies in Visual Studies in Architecture (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Permission of ARCH-Architecture Program; and must be in a major in ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH456 Great Cities (3 Credits)
Case studies from a selection of the great cities of the world.
Prerequisite: Permission of ARCH-Architecture Program.

ARCH458 Selected Topics in Urban Design (3 Credits)
Selected Topics in Urban Design
Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH459 Independent Studies in Urban Design (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Must be in a major in ARCH-Architecture Program; and permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH460 Site Analysis and Design (3 Credits)
Principles and methods of site analysis; the influence of natural and man-made site factors on site design and architectural form.
Restriction: Must be in the Master of Architecture program; or permission of the School of Architecture, Planning and Preservation.

ARCH461 Sustainability in Architecture (3 Credits)
Strategies of sustainability as related to the broader context of architectural problem solving.
Restriction: Permission of ARCH-Architecture Program.
Credit Only Granted for: ARCH418S or ARCH461.
Formerly: ARCH418S.

ARCH462 Methods & Materials of Building Construction (3 Credits)
Building Construction methods and materials are examined through case studies to explore the means and techniques applied to the material execution of buildings and BIM. Focus on an understanding of the organization of the design and construction process and awareness of building and zoning codes, material systems and types.
Prerequisite: PHYS121 or equivalent; and MATH120 or MATH140 or equivalent; or permission of the ARCH-Architecture Program.
Restriction: Must be in a major in undergraduate or graduate ARCH program or Construction Project Management Minor.
Credit Only Granted for: ARCH410 or ARCH462.

ARCH463 Sustainable Systems in Architecture (3 Credits)
Sustainable systems in architecture examines the nature of the global problem, environmental economics, understanding the local environment, bioclimatic design, solar control and shading, solar access zoning, residential scale energy design issues, commercial scale energy design issues, and urban scale energy design issues.
Prerequisite: ARCH462.
Restriction: Must be in a major in undergraduate or graduate ARCH program.

ARCH464 Architectural Structures I (3 Credits)
This course covers the basic principles of architectural structures, including the influence of geometric, sectional, and material properties related to flexure and shear in beam and framed systems; vector mechanics with application to analysis of trusses, catenaries, and arches; diagrammatic analysis of beams for bending moment, shear, and deflection as well as the study of structural framing systems for vertical and lateral loads.
Prerequisite: ARCH462, ARCH463, and PHYS121; and MATH120 or MATH140, or equivalent; or permission of the ARCH-Architecture Program.
Corequisite: ARCH401 or ARCH406.
Restriction: Must be in either BS in Architecture or M.Architecture Program.
Credit Only Granted for: ARCH411 or ARCH464.

ARCH465 Architectural Structures II (3 Credits)
The basic principles of elastic behavior for different materials such as wood, steel, concrete, and composite materials and compares the properties and applications of materials generally will be covered. It investigates cross sectional stress and strain behavior in flexure and in shear, and torsion as well as the stability of beams and columns. The qualitative behavior of combined stresses and fracture in materials is also covered.
Prerequisite: ARCH464 and PHYS121; and MATH120 or MATH140, or equivalent; or permission of the ARCH-Architecture Program.
Restriction: Must be in either BS in Architecture or M. Architecture Program.
Credit Only Granted for: ARCH412 or ARCH465.

ARCH466 Environmental Systems in Architecture (3 Credits)
Environmental systems in architecture presents the theory, quantification, and architectural design implications for heating ventilating and air conditioning, water and waste, fire protection, electricity, illumination, acoustics, and vertical transportation.
Prerequisite: ARCH462 and ARCH463.
Corequisite: ARCH403 or ARCH406.
Restriction: Must be in either BS in Architecture or M. Architecture Program.
Credit Only Granted for: ARCH413 or ARCH466.

ARCH467 Integrated Project Delivery (3 Credits)
Integrated Project Delivery is examined from design to implementation through an exploration of building construction, architectural design and construction management perspectives.
Restriction: Must be in a major in ARCH-Architecture Program; or must be in Construction Project Management Minor.

ARCH468 Selected Topics in Architecture (1-4 Credits)
Selected Topics in Architecture
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH470 Computer Applications in Architecture (3 Credits)
Introduction to computer utilization, with emphasis on architectural applications.
Prerequisite: ARCH400; or permission of ARCH-Architecture Program.

ARCH472 Building Information Modeling Communication and Collaboration (3 Credits)
Building Information Modeling is explored as pertains to collaboration and communication in the design and construction of buildings and building systems. Practical and empirical learning using BIM software and case studies of real world projects and construction scenarios.
Restriction: Must be in a major in ARCH-Architecture Program; or must be in the Construction Project Management Minor.
Credit Only Granted for: ARCH678I or ARCH472.
Formerly: ARCH678I.

ARCH478 Selected Topics in Architecture (1-4 Credits)
Selected Topics in Architecture
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH479 Independent Studies in Architecture (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH481 The Architect in Archaeology (3 Credits)
The role of the architect in field archaeology and the analysis of excavating, recording, and publishing selected archaeological expeditions.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

ARCH482 The Archaeology of Roman and Byzantine Palestine (3 Credits)
Archaeological sites in Palestine (Israel and Jordan) from the reign of Herod the Great to the Moslem conquest.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

ARCH483 Field Archaeology (3 Credits)
Participation in field archaeology with an excavation officially recognized by proper authorities of local government.
Prerequisite: ARCH225 and ARCH226; or ARCH425 and ARCH426; or permission of the ARCH-Architecture Program.

ARCH488 Selected Topics in Architectural Preservation (1-4 Credits)
Selected Topics in Architectural Preservation.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.

ARCH489 Independent Studies in Architectural Preservation (1-4 Credits)
Proposed work must have a faculty sponsor and receive approval of the Architecture Program Curriculum Committee.
Restriction: Permission of ARCH-Architecture Program.
Repeatable to: 6 credits if content differs.