LA - LANDSCAPE ARCHITECTURE

LA Class Schedule (https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/LA/)

Courses

LA 100 Landscape Architecture at Illinois credit: 1 Hour. (https://courses.illinois.edu/schedule/terms/LA/100/)

This seminar brings together BLA students who are new to the department to introduce them to various aspects of the Department of Landscape Architecture. We will focus on different topics or presenters each meeting to create actively engaging conversations. The seminar will provide the opportunity for students to learn about each faculty member and the work they do; to meet returning students; to learn more about the student experience and to discuss resources, practical information, and department culture. Prerequisite: Restricted to Landscape Architecture majors or permission of instructor.

LA 101 Introduction to Landscape Arch credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/LA/101/)

Introduction to primary concepts and methods of landscape inquiry as a means to understand experiential qualities of landscape and to guide landscape design and planning projects.

LA 199 First-Year Seminar credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/199/)

Survey topics in landscape architecture. Additional fees may apply. See Class Schedule. Prerequisite: For undergraduate students.

LA 221 History of the Prison credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/221/)

History of prison architecture, landscapes, and carceral regimes from ancient times until the present. Topics include: philosophy of punishment, the invention of the modern prison, the advent of mass incarceration, and 21st century geographies of incarceration. The course focuses on the western experience, but also includes international examples, e.g. from China, East Africa, and Japan. Interdisciplinary approach includes readings in architectural history, urban planning, sociology, philosophy, psychology, history, and landscape studies. Same as AFRO 221 and HIST 219.

This course satisfies the General Education Criteria for. Humanities - Hist Phil

Cultural Studies - Western

LA 222 Islamic Gardens & Architecture credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/222/)

Study of the formation, history, and meaning of the landscape and architecture of the Islamic world. Same as ARCH 222 and ARTH 219.

This course satisfies the General Education Criteria for.

Humanities - Hist Phil

Cultural Studies - Non-West

LA 233 Foundation Design Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/233/)

Introduction to the fundamentals of design, including studies in twoand three-dimensional abstract and applied problems, basic elements and procedures of design, and principles of landscape composition. Additional fees may apply. See Class Schedule. Open to Landscape Architecture majors only. Prerequisite: Credit or concurrent registration in LA 280 or consent of instructor. LA 234 Site Design Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/234/)

Site as the fundamental unit of landscape design. Involves ecological, cultural and experiential understanding of sites, and the creation of place-specific designs. Field trip required. Additional fees may apply. See Class Schedule. Prerequisite: LA 233 or consent of instructor.

 $\begin{tabular}{ll} LA~241 & Landform~Design~\&~Construction~credit:~3~Hours.~\mbox{ (https://courses.illinois.edu/schedule/terms/LA/241/)} \end{tabular}$

Introduction to landform design, drainage, stormwater management, surveying, and materials.

LA 242 Nature and American Culture credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/242/)

Same as RST 242, and NRES 242. See RST 242.

This course satisfies the General Education Criteria for. Cultural Studies - Western

LA 250 Environmental Site Analysis credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/250/)

Principles and practices of identifying, analyzing, and recording landscape resources. Field trip required. Prerequisite: GEOL 100, 101, 103 or GGIS 103; or consent of instructor.

This course satisfies the General Education Criteria for. Nat Sci Tech - Phys Sciences

LA 270 Behavioral Factors in Design credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/270/)

Introduces the impacts of cultural and social factors, such as age, gender, physical ability, economic status, ethnicity and how people interact with the environment. Reading assignments, short exercises, field trips, and evaluation of space will enable students to evaluate and potentially design more socially and ecologically responsive environments.

LA 280 Design Communications I credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/280/)

Fundamentals of visual communication in the design process and presentation for landscape architecture. Includes freehand and constructed drawing, color, media, and models. Open to Landscape Architecture majors only. Prerequisite: Concurrent registration in LA 233.

LA 281 Design Communications II credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/281/)

Advanced principles and techniques of visual communication in landscape architectural rendering, emphasizing computer-based techniques. Open to Landscape Architecture majors only. Prerequisite: Concurrent registration in LA 234; completion of LA 280 and completion of campus Composition I general education requirement or consent of instructor.

LA 314 History of World Landscapes credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/314/)

Analysis of the development of landscape architecture as a result of environmental and cultural influences. Same as ARCH 314.

This course satisfies the General Education Criteria for.

Advanced Composition

Humanities - Hist Phil

Cultural Studies - Western

LA 315 History of Modern Landscape Architecture credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/315/)

A selected overview of developments in landscape architecture in the western world from 1900 to the present. Same as ARCH 315. Prerequisite: LA 314.

LA 335 Community & Open Space Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/335/)

Development of design solutions at site and master plan scale relative to community, urban and open space problems; emphasizes development of analysis and design techniques to integrate physical context of place with social context. Additional fees may apply. See Class Schedule. Prerequisite: LA 234 or consent of instructor.

LA 336 Design Workshop Studio I credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/336/)

Project design at various scales utilizing problems of a wide range of complexity and subject matter; rural, community, and urban problems, housing, recreation, and natural areas; emphasizes problem analysis and generation of innovative design alternatives. Students select from several sections depending on specific interests. Additional fees may apply. See Class Schedule. Prerequisite: LA 335 or consent of instructor.

LA 342 Site Engineering credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/342/)

Principles of site engineering including landform design, stormwater management, site surveying, circulation systems and site utility planning. Prerequisite: LA 241 and college trigonometry; or consent of instructor.

LA 343 Landscape Construction credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/343/)

Construction methods, materials, and procedures related to the design of landscape structures; development of design details and cost estimating. Prerequisite: LA 342 or consent of instructor.

LA 345 Professional Internship credit: 0 to 10 Hours. (https://courses.illinois.edu/schedule/terms/LA/345/)

Professionally supervised field experience in design offices and public agencies intended to introduce students to practice. Students work in the department-approved firm or agency of their choice. Seventy five hours of employment is required for each one hour of course credit or a zero-credit option is available. Approved for S/U grading only. May be repeated to a maximum of 10 hours. Prerequisite: Upper division undergraduate standing or consent of instructor. Restricted to undergraduate students enrolled in the Department of Landscape Architecture.

LA 346 Professional Practice credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/LA/346/)

Study of the profession of landscape architecture including an introduction to modes of practice, career evolution, organizational theory, office procedures, project management and professional ethics. Field trip required. Additional fees may apply. See Class Schedule. Prerequisite: Junior standing or consent of instructor.

LA 352 Woody Landscape Plants credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/352/)

Systematic approach to the identification, ornamental characteristics, culture, and use of woody landscape deciduous and evergreen trees, shrubs, vines and groundcovers, with special emphasis on learning some plants and what to do with them.

LA 370 Environmental Sustainability credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/370/)
Same as ENSU 300 and NRES 370. See ENSU 370.

LA 387 Undergraduate Seminar credit: 1 to 6 Hours. (https://courses.illinois.edu/schedule/terms/LA/387/)

Topics in current and future areas of landscape architectural application. Additional fees may apply. See Class Schedule. May be repeated to a maximum of 6 hours if topics vary. Prerequisite: Restricted to students with junior or senior standing.

LA 390 Independent Study I credit: 1 to 6 Hours. (https://courses.illinois.edu/schedule/terms/LA/390/)

Supervised independent study, research, or special project in a selected area related to landscape architecture. May be repeated to a maximum of 6 hours. Prerequisite: Junior or senior standing, or consent of instructor. Consent of instructor prior to registration.

LA 427 Amer Vernacular Cultural Land credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/427/)

Focuses on vernacular structures in the cultural landscape, especially common houses, barns, and commercial and industrial structures; examines origin and geographical diffusion of vernacular architecture in the United States. 4 undergraduate hours. 4 graduate hours.

LA 430 Children and Nature credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/LA/430/)
Same as HORT 430. See HORT 430.

LA 433 Graduate Foundation Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/433/)

Graduate-level introduction, for students without a BLA, to the fundamentals of design, including studies in two- and three-dimensional abstract and applied problems, basic elements and procedures of design, and principles of landscape composition. Additional fees may apply. See Class Schedule. 5 undergraduate hours. 5 graduate hours. Prerequisite: Restricted to Landscape Architecture Graduate Students and BSSD/MLA joint degrees program students. Not for undergraduate Landscape Architecture students.

LA 434 Graduate Site Design Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/434/)

Graduate-level introduction for students without a BLA to site as the fundamental unit of landscape design. Involves ecological, cultural and experiential understanding of sites, and the creation of place-specific designs. Field trip required. Additional fees may apply. See Class Schedule. 5 undergraduate hours. 5 graduate hours. Prerequisite: Restricted to Landscape Architecture Graduate Students and BSSD/MLA joint degrees program students. Not for undergraduate Landscape Architecture students.

LA 437 Regional Design Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/437/)

Ecological design and planning studio emphasizing team approaches to design development and evaluation using current human and environmental research results. Projects require field work, analysis, problem-solving, and advanced design and presentation products. 5 undergraduate hours. 5 graduate hours. Prerequisite: LA 336 or consent of instructor.

LA 438 Design Workshop Studio II credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/438/)

Project design at various scales utilizing problems of a wide range of complexity and subject matter; rural, community, and urban problems, housing, recreation, and natural areas; and emphasizes problem analysis and generation of innovative design alternatives. The student selects from several sections depending on specific interests. Additional fees may apply. See Class Schedule. 5 undergraduate hours. 5 graduate hours. May be repeated if topics vary. Prerequisite: LA 336 or consent of instructor.

LA 441 Land Resource Evaluation credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/441/)

Examines concepts for the value of land, land resource problems and policy responses, methods for evaluating land resource development and policy alternatives, and case studies of land resource evaluation. Same as UP 441. 4 undergraduate hours. 4 graduate hours. Prerequisite: Graduate standing or consent of instructor.

LA 446 Sustainable Planning Seminar credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/446/)

Examines sustainability issues of concern to planners, such as resource conservation, urban growth, environmental justice, industrial development, social equity, sustainable agriculture, and economic development. Presents holistic approaches ranging from theoretical concepts to detailed case studies that combine urban and regional land use, physical design, and policymaking. Same as GGIS 446, NRES 446, and UP 446. 4 undergraduate hours. 4 graduate hours.

LA 450 Ecology for Land Restoration credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/450/)

Ecological implications of alternative land use patterns; equipment, field techniques, and nomenclature in current use by environmental consultants; and elements of a baseline ecosystem study. 4 undergraduate hours. 4 graduate hours. Prerequisite: Consent of instructor.

LA 452 Planting Design credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/452/)

Biogeography; identification of native species, uses of native plants in the landscape; and restoration and planting design projects. Field trips required. 3 undergraduate hours. No graduate credit. Prerequisite: LA 352 or approval of instructor.

LA 453 Cultural Precedent in Planting credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/453/)

Planting design issues; historic precedent and contemporary comprehensive design projects; management practices; technical documents; and plant use and identification. Field trips required. 3 undergraduate hours. 3 graduate hours. Prerequisite: LA 452.

LA 454 Landscape Archaeology credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/454/)
Same as ANTH 453. See ANTH 453.

LA 460 Heritage Management credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/460/)
Same as ANTH 460 and RST 459. See ANTH 460.

LA 466 Energy & the Built Environment credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/466/)

Focuses on the study of buildings, including their past and present uses, their place in the environment, and most importantly, how they can become more sustainable. Teaches students to think about and plan physical space from an energy-and climate-centric perspective. Uses climate mitigation and building energy systems-modeling techniques to analyze potential energy systems reductions and approaches to affect a building's carbon footprint. Same as UP 466. 4 undergraduate hours. 4 graduate hours.

LA 472 Museum Theory and Practice credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/472/)
Same as ANTH 462 and ARTH 462. See ANTH 462.

LA 480 Sustainable Design Principles credit: 2 Hours. (https://courses.illinois.edu/schedule/terms/LA/480/)
Introduction to key concepts for the sustainable design of buildings and landscapes, including concepts that form the core of the U.S Green Building Council rating system (LEED). Introduction to LEED accreditation. Same as UP 480. 2 undergraduate hours. 2 graduate hours.

LA 482 Advanced Communication in Landscape Architecture credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/482/)
This intensive, advanced, representation course teaches the use of software (including advanced skills in creating three-dimensional representation) and workflow procedures used to design urban settings, visualize design ideas for 21st-century urbanism, and communicate ideas about landscape architecture design in urban settings to professionals and non-experts. 4 undergraduate hours. 4 graduate hours. Prerequisite: Students should have skills at intermediate level representation and have the equivalent skills and knowledge of the material in LA 280 and LA 281.

LA 490 Independent Study II credit: 1 to 6 Hours. (https://courses.illinois.edu/schedule/terms/LA/490/)

Supervised advanced independent study, research, or special project in a selected area related to landscape architecture. 1 to 6 undergraduate hours. No graduate credit. May be repeated to a maximum of 6 hours. Prerequisite: LA 390. Junior or senior standing; consent of instructor and head of department prior to advance enrollment and registration.

LA 501 Landscape Arch Theory & Prac credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/501/)

Seminar to introduce the discipline, profession, and practice of landscape architecture. Emphasis is on understanding the skills and knowledge base of the profession including environmental, social, and historical factors in design. 4 graduate hours. No professional credit.

LA 505 Methods in Arch & LA History credit: 2 to 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/505/)

Seminar on the historiography of architectural and landscape history, including an introduction to the major concepts and figures in the discipline, past and present. Students will learn of approaches historians have used for analyzing the built environment from traditional methods to newer interpretive frameworks, and examine how contemporary values determine or inform the writing of history.

LA 506 Landscape and Vision credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/506/)
A study of the major 20th-century texts on vision, perception, and perspective as applied to architecture and landscape. Prerequisite: Doctoral students only; master's level students must receive permission from instructor.

LA 513 History of World Landscapes credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/513/)
Introduction to the landscape architectural heritage of the past in its social, environmental and historical context. Same as ARCH 510.

LA 515 History & Theory of Modern Landscape Architecture credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/515/)
A selected overview of developments in landscape architecture in the western world from 1900 to the present. Same as ARCH 515. 4 graduate hours. No professional credit. Prerequisite: LA 513 or approval of instructor.

LA 533 Planning & Design Studio I credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/533/)

Ecological design and planning graduate studio emphasizing design that reflects evaluation and integration of human and environmental research results. Detailed investigation of design options. Additional fees may apply. See Class Schedule. 5 graduate hours. No professional credit. Prerequisite: LA 433/434 or consent of instructor.

LA 534 Design Workshop G-I credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/534/)

Graduate project design at various scales utilizing problems of a wide range of complexity and subject matter; rural, community, and urban problems, housing, recreation, and natural areas; and emphasizes problem analysis and generation of innovative design alternatives. The student selects from several sections depending on specific interests. Additional fees may apply. See Class Schedule. 5 graduate hours. No professional credit. Prerequisite: LA 433/434 or consent of instructor.

LA 537 Planning & Design Studio II credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/537/)

Ecological design and planning studio emphasizing design that reflects evaluation and integration of human and environmental research results. Detailed investigation of design options. Additional fees may apply. See Class Schedule. 5 graduate hours. No professional credit. May be repeated. Prerequisite: LA 534 or consent of instructor.

LA 538 Urban Design Research Studio credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/538/)

This advanced studio broadens and strengthens students' understanding of urban design research methods and prepares students to conduct independent urban design work. Students learn research strategies and methods and examine research precedents and texts during the first portion of the course. In the second portion, students develop and carry out individual research design proposals. The semester ends with formal presentations of the findings from the design research projects. 5 graduate hours. No professional credit.

LA 539 Design Workshop G-II credit: 5 Hours. (https://courses.illinois.edu/schedule/terms/LA/539/)

Advanced graduate project design at various scales utilizing problems of a wide range of complexity and subject matter; rural, community, and urban problems, housing, recreation, and natural areas; and emphasizes problem analysis and generation of innovative design alternatives. The student selects from several sections depending on specific interests. Additional fees may apply. See Class Schedule. 5 graduate hours. No professional credit. Prerequisite: LA 534 or consent of instructor.

LA 545 Graduate Internship credit: 0 to 12 Hours. (https://courses.illinois.edu/schedule/terms/LA/545/)

Professionally supervised field experience in design offices and public agencies intended to provide the opportunity for graduate students to develop advanced practice skills. Students work in the department-approved firm or agency of their choice. Seventy five hours of employment is required for each one hour of course credit. 0 to 12 graduate hours. No professional credit. Approved for S/U grading only. May be repeated in separate semesters to a maximum of 12 hours. Prerequisite: Restricted to graduate students in Landscape Architecture.

LA 562 Social Construction of Space credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/562/)
Same as ANTH 557. See ANTH 557.

LA 563 Human-centric Research for Designed Environments credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/563/) Same as ARCH 563. See ARCH 563.

LA 570 Landscapes and Human Health credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/570/)

We will explore the challenge of, and science behind, creating healthy, sustainable places. We will engage this topic by learning about four mechanisms through which places impact health. We will examine the empirical evidence in support of each of these mechanisms. Learning in this course grows from a series of readings, active participation in class discussion, and the development of a review paper or a research proposal. Same as GGIS 561. 3 graduate hours. No professional credit.

LA 587 Graduate Seminar credit: 1 to 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/587/)

Preparation, presentation, and discussion of research papers on current and future areas of landscape architectural application. Additional fees may apply. See Class Schedule. 1 to 4 graduate hours. No professional credit. May be repeated if topics vary. Prerequisite: Consent of instructor.

LA 589 Sustainable Urban Design Theory credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/589/)

This advanced theory seminar introduces students to key urban design theory literature that draw on a range of disciplines and subjects. This seminar situates urban design at the overlap of architecture, landscape architecture, and urban planning, and examines the historic and contemporary influences of those environmental arts on urban design theory and practice. 4 graduate hours. No professional credit.

LA 590 Directed Research credit: 1 to 8 Hours. (https://courses.illinois.edu/schedule/terms/LA/590/)

Nature and scope of projects to be determined by consultation between student and faculty adviser; open to landscape architecture majors as well as those from other disciplines who wish to engage in interdisciplinary work. Additional fees may apply. See Class Schedule. 1 to 8 graduate hours. No professional credit. Approved for Letter and S/U grading. May be repeated. Prerequisite: Consent of instructor.

LA 592 Urban Design Capstone Studio credit: 6 Hours. (https://courses.illinois.edu/schedule/terms/LA/592/)

In this summer studio, students will work closely with their instructor to turn their design research strategies from LA 538 Urban Design Research Studio into solutions customized specifically for their particular site, client, and set of constraints. Students will draw upon previous coursework in theory, design, research, real estate, and representation to produce comprehensive and compelling design solutions and demonstrate how their solutions meet a variety of performance criteria. 6 graduate hours. No professional credit. Prerequisite: LA 538 Urban Design Research Studio. This course is open only to students enrolled in the Master of Sustainable Urban Design program.

LA 593 Islamic & S Asian Landscapes credit: 2 or 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/593/)

Topics in Islamic and South Asian cultural landscape history, including historiography, methodology and recent scholarship. An advanced course that requires disciplinary familiarity with research on the built environment, material culture and visual culture. 2 or 4 graduate hours. No professional credit. May be repeated in separate terms to a maximum of 12 hours but no more than 8 hours in any one term.

LA 594 Cultural Heritage credit: 2 or 4 Hours. (https://courses.illinois.edu/schedule/terms/LA/594/)

Topics in cultural landscape heritage, conservation planning and design. Investigates theories of landscape, heritage, and their intersections, with readings drawn from anthropology, geography, and landscape studies, as well as applied work on historical landscape conservation, preservation and management. Same as ANTH 594. 2 or 4 graduate hours. No professional credit. May be repeated in separate terms to a maximum of 16 hours but no more than 10 hours in any one term. Prerequisite: Concurrent enrollment in LA 438 may be required in the spring semester; check Class Schedule.

LA 597 Research Design & Methods credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/LA/597/)

This graduate-level course provides instruction and application of research and scholarly methods for landscape architecture and related fields. Students are introduced to the basic steps of inquiry and development of a thesis/research proposal. Course content includes: problem identification; choosing and articulating a research topic; synthesis of topical/theoretical background from literature; choice of research strategy; design of a plan for investigation; selection of data sources, methods and analysis; proof of concept; feasibility planning; and other necessary components of a successful research proposal. 3 graduate hours. No professional credit. Prerequisite: Second year or post-professional MLA students; graduate students in other majors may enroll with permission of instructor.

LA 598 Master's Project credit: 0 to 8 Hours. (https://courses.illinois.edu/schedule/terms/LA/598/)
Major independent or small-group project synthesizing knowledge from previous coursework. Approved for letter and S/U grading. Prerequisite: Consent of instructor and program adviser.

LA 599 Thesis Research credit: 0 to 16 Hours. (https://courses.illinois.edu/schedule/terms/LA/599/)
Research toward Doctoral or Master's thesis. 0 to 16 graduate hours. No professional credit. Approved for S/U grading only. May be repeated in separate semesters to a maximum of 10 hours for MLA and a maximum of 32 hours for PhD. Prerequisite: Graduate standing in landscape architecture.