THECOOPERUNION

FOR THE ADVANCEMENT OF SCIENCE AND ART

COURSE CATALOG 2024–25 **SUPPLEMENT**

VOLUME 131 | OCTOBER 1, 2025 | IN EFFECT UNTIL REPLACED

COOPER.EDU

This catalog supplement is provided to give a brief overview of policy updates, new programs and courses that have been approved since the 2024–25 catalog was published; as well as courses offered in the spring and summer of 2025.

ADMISSIONS

You will receive the Hometest via email. You will have approximately one month to complete the test. Extensions are not permitted unless in the case of extenuating circumstances. We highly recommend adding admissions@cooper.edu to your email address book in order to prevent important emails (like your Hometest and admission decision) from going to spam!

Early Decision policy was incorrect in the 2024-25 catalog. No transfer students were considered or admitted under Early Decision. This statement was removed from the webpage and early decision references will be removed from the 2025-26 Catalog.

FEES AND REFUNDS

Summer Session A mandatory registration fee of $568 will be charged to any student registered for summer courses. This fee is payable on acceptance of admission or registration and is nonrefundable after the start of class. Most Federal Pell Grant eligible students may receive financial assistance to pay the tuition.

Refund Process During the first month of the semester financial aid refunds are processed once a week in order to meet the needs of our students.

Direct Deposit All student financial aid or student account refund can only be processed through direct deposit.

Withdrawal Fees Should a student choose to withdraw tuition can be refunded based on the withdrawal refund schedule.

Tuition/Housing Payment Plan Instructions Payment plans are available for students for tuition and housing fees. The tuition and housing fees can be paid in four installments. A $50 payment plan enrollment fee (per plan) will be added to your total bill. A $100 late payment fee will be assessed for each late payment. A $50 returned payment fee will be charged to your account.

Financial Aid Recipients Scholarships, grants, and loans can all be used for tuition and housing costs. You are responsible for completing and submitting the required paperwork to the Financial Aid Office. Please contact the Financial Aid Office for more information. Students expecting outside scholarship must notify the financial aid office as it can impact the overall cost of attendance. International payments (any payments made from foreign accounts) may be made at: flywire.com/pay/cooper.

THE IRWIN S. CHANIN SCHOOL OF ARCHITECTURE

MASTER OF SCIENCE IN ARCHITECTURE

Faculty directly engaged with the Master of Science in Architecture program in studios and seminars include Diana Agrest, Benjamin Aranda, Nora Akawi, Lauren Kogod, Michael Young, and Guido Zuliani among others.

DEGREE REQUIREMENTS FOR STUDENTS ENTERING **PRIOR TO** FALL 2025

	Courses	**Credits**
Semester 1 (Fall)		
ARCH 411	Graduate Research Design Studio I	6
ARCH 401	Proseminar	2
FA100R	Introduction to Techniques	0
	Seminar in Concentration	2
	Seminar out of Concentration	2
Total Credits First Semester		**12**

Semester 2 (Spring)		
ARCH 412	Graduate Research Design Studio II	6
ARCH 402	Thesis Research Tutorial	2
FA 100R	Introduction to Techniques	0
	Seminar in Concentration	2
	Seminar out of Concentration	2
Total Credits Second Semester		**12**

Semester 3 (Fall)		
ARCH 413	Graduate Thesis (written or studio)	6

Total Credit Requirement for M.S. Arch. Degree **30**

DEGREE REQUIREMENTS FOR STUDENTS ENTERING **AS OF FALL 2026**

	Courses	Credits
Semester 1 (Fall)		
ARCH 411	Graduate Research Design Studio I	6
ARCH 401	Proseminar	2
FA100R	Introduction to Techniques	0
	Seminar in Concentration	2
	Seminar of Choice	2
Total Credits First Semester		**12**

Semester 2 (Spring)		
ARCH 412	Graduate Research Design Studio II	6
ARCH 402	Thesis Research Tutorial	2
FA 100R	Introduction to Techniques	0
	Seminar in Concentration	2
	Seminar of Choice	2
Total Credits Second Semester		**12**

Semester 3 (Fall)		
ARCH 413	Graduate Thesis (written or studio)	6

COURSES

Arch 133 **History of Architecture III: A Critical Study of Architectural Ideologies Post-WWII** (formerly: Introduction to Urban History & Theories: A Critical Study of Architectural Ideologies Post-WWII)
The courses of the HTC curriculum provide an introduction to the history of architecture and human settlements with a transcultural perspective, inclusive of diverse canons and traditions. The course sequence addresses architecture's cultural, ideological and material influences and exchanges, as well as the points of rupture throughout history that have determined the development of the field's conceptual frameworks and material instrumentalities. These courses place architectural and urban history and theory in the specific contexts of the various paths of colonization at different moments in history, and will consider the geopolitical influences on principles, concepts, styles and techniques, both within the centers of power and at the peripheries. This course focuses on the major breaking points in recent history and their influence on architectural discourse and production. The course investigates architectural concepts, movements, and theories of the post-war period that are essential to an understanding of the present moment. Through the analysis of texts, drawings, and built projects, the course will offer a critical study of architecture's relationship to ideology. *2 credits*

Arch 412 **Graduate Design Research Studio II**
Individual design projects within general guidelines established by the faculty, each emphasizing the special area(s) of research of the student. *6 credits*

THE SCHOOL OF ART ACADEMIC STANDARDS AND REGULATIONS

Good Standing, Probation, Dismissal, and Administrative Course Withdrawal Good standing is defined as a semester GPA of 2.0 or higher and normal progress toward the degree. A semester GPA below 2.0, and/or failure to make normal progress, places students on probation and makes them subject to dismissal. Students with excessive absences and lateness are also subject to probation or dismissal.

Post-Semester Review Student grades are reviewed at the end of each semester by the Office of Academic Advising & Off-Campus Programs and the Academic Standards Committee. Students who are at risk of dismissal will be invited to write a letter or meet with the review committee to provide context around their unsatisfactory academic performance. Students who are subsequently placed on probation or dismissed will be notified in writing. Decisions regarding probation are final. Students may appeal dismissal.

COURSES

Foundation **Foundation courses are required for all first-year students.**

FA-101: **Color**
Spring 2025. Required for first-year students. 2 credits

FA-102.1 **Two-Dimensional Design**
Fall 2024. Required for first year students. 3 credits
**During the 2024-2025 Academic Year, FA-102.1 (Two-Dimensional Design) was offered in the Fall semester. Beginning the 2025-2026 Academic Year, FA-102 (Two-Dimensional Design) will be offered in the Spring semester.*

FA-104.1 **Basic Drawing (Analytical and Descriptive)**
Spring 2025. Required for first year students. 3 credits
**During the 2024-2025 Academic Year, FA-104.1 (Basic Drawing) was offered in the Spring semester. Beginning the 2025-2026 Academic Year, FA-104 (Basic Drawing) will be offered in the Fall semester.*

FA-105 **Four-Dimensional Design**
Fall 2024. Required for first-year students. 2 credits

FA-108 **Foundation Studio**
Spring 2025. Required for first year students. 3 credits

FA-109.1 **Three-Dimensional Design**
Fall 2024. Required for first year students. 3 credits

SE-101 **Foundation Orientation**
Fall 2024.Required for first-year students. Pass/Fail. 0.5 credits

SE-150 **Foundation Project**
Spring 2025. Required for first-year students. Pass/Fail. 0.5 credits

Audiovisual

FA-272 **Film Workshop (16mm)**
Fall 2024/Spring 2025. Pre-Req: AV I. 3 credits

FA-275 **Audiovisual I**
Fall 2024/Spring 2025. May not be repeated. 3 credits

FA-276 **Audiovisual II**
Fall 2024/Spring 2025. May not be repeated. Pre-Req: AV I. 3 credits

FA-376.1 **Animation**
This class is devoted to the study and practice of frame by frame filmmaking. Alongside an examination of historic and contemporary examples of the wide and often experimental world of animation, students will engage in animation exercises and practical in-class demonstrations, ranging from traditional cartoon studies to fine art-based and experimental animation. Students create the initial artwork for their animations physically "with their own hands" and complete them digitally using the AV department's animation facilities. Animation forms explored over the semester include direct-on-film, roto-scoping, 3D stop-motion, hand-drawn and 2D under-the-camera. *Spring 2025. Pre-Req: AV I. 3 credits*

FA 381 **Sound Design: Places, Spaces, Field Recordings, and Layered Time**
Fall 2024. Pre-Req: AV I and Pre/Co-Req: AV II. 3 credits

FA-387.1 **AV Projects Topics: TV Shows**

The primary assignment for this course is straightforward: to produce a talk show, collectively, as a class. Our work on such a project will then lead us down numerous paths of historical and theoretical inquiry as we examine every aspect of the talk show—its functions as a social environment as well as a cultural idiom. These efforts will include the study of linguistics and nonverbal communication at a granular level, to better understand the mechanics of speech and the expressive vocabulary of the body. We will also consider the shifting conceptions of conversation across eras, with readings ranging from Cicero's "On Duties" to Jonathan Swift's "Hints towards an Essay on Conversation" to Sherry Turkle on "the power of talk in the digital age." Finally, we will approach the talk show as a televisual genre, tracing its evolution, with special attention to both its stylistic character and its role in shaping the public sphere. As a production exercise, the class will provide opportunities for students to work collaboratively, and learn how to plan and execute an ambitious project.

Spring 2025. Pre-Req: AV I and Pre/Co-Req: AV II. 3 credits

FA-387.2 **AV Projects Topics: Deformers**

This course will be focused around viewing, discussing, and producing audio/visual works that, through experiencing them, deform you. These are works that distort the norm, disrupt convention, and disregard expectation to produce effects both physiologically and psychically altering. If Transformers are "More Than Meets the Eye," Deformers contort the eyes and the mind, in ways both transitory and lasting, ever so slightly warping what was there before.

Students will work independently on self-directed projects after proposing a work or set of works that directly engage with the course topic. Class time will be used for screenings and listening sessions, discussion and analysis of works and related writing, artist visits, individual presentations, and one on one visits with the professor.

Spring 2025. Pre-Req: AV I and Pre/Co-Req: AV II. 3 credits

FA-388A **Advanced Projects in Experimental Film and Animation**

Fall 2024. Pre-Req: AV I and Pre/Co-Req: AV II. 3 credits

FA-389A **AV Projects: Cinema and Language**

Fall 2024. Pre-Req: AV I and Pre/Co-Req: AV II. 3 credits

Drawing

FA-240A **Drawing I**
Fall 2024. May not be repeated. 3 credits

FA240B **Drawing**
The course is designed to explore the phenomena of drawing as basic to the visual language of all disciplines. The fundamental notion of observation and analysis in drawing is investigated. As preparation for work in an advanced level, the course involves further development of drawing skills and techniques, as well as an emphasis on individual aesthetic development. Assignments and group critiques are central to the course. *Spring 2025. May not be repeated. 3 credits*

FA-341 **Advanced Drawing**
This course is for students seeking further growth in drawing, either as individual studio focus or as a tool for ideation and methodologies within other disciplines. Advanced study in drawing interrogates historical notions of traditional draftsmanship and the contemporary contexts of the discipline. Students are encouraged to explore and experiment with drawing as a way to further develop visual understandings of pictorial, sculptural or temporal space. The course is intended to help students use drawing as a critical and procedural tool within individual art practice. Group critiques and drawing sessions as well as individual meetings with the instructor are integral components of the course. *Spring 2025. Pre-Req: Drawing. 3 credits*
**Beginning Spring 2026, Drawing will no longer be a pre-requisite for Advanced Drawing.*

FA-341A **Advanced Drawing**
Fall 2024. Pre-Req: Drawing I. 3 credits

FA-343A **Advanced Drawing**
Fall 2024. re-Req: Drawing I. 3 credits

FA-345A **Advanced Drawing**
Offered to students working independently in any medium. Must be self-motivated. Class meetings will include workshops with traditional and non-traditional drawing materials, as well as group and individual critiques. *Fall 2024. 3 credits. Pre-Req: Drawing I.*

Graphic Design

FA-211 **Graphic Design I**

Fall 2024. May not be repeated.3 credits

FA-212 **Graphic Design II**

The complex relationship between word and image is explored. The study of semiotics, emphasizing the philosophy of communication, provides a rich historical and intellectual base for projects combining verbal and pictorial information. Building on the aesthetic and technical skills learned in Graphic Design I, assignments reflect a range of disciplines within the design field with an emphasis on the use of design to distill and interpret complex information and the creation of dynamic and integrated graphic systems. Computer instruction will be provided as it relates to specific projects.
Spring 2025. May not be repeated. 3 credits

FA-215 **Typography**

Fall 2024/Spring 2025. Pre-Req: GD I and Pre/Co-Req: GD II. May not be repeated. 3 credits

FA-315A-1FA-315 **Advanced Design: Zine Scenes: History and Practice of Zine Making**

Fall 2024. re-Req: Graphic Design II, Pre/Co-Req: Typography. 3 credits

FA-315A-2 **Advanced Design: Book Design**

Fall 2024. re-Req: Graphic Design II, Pre/Co-Req: Typography. 3 credits

FA-315A-3 **Advanced Design: Advocacy through Type and Symbols**

Fall 2024. Pre-Req: Graphic Design II, Pre/Co-Req: Typography. 3 credits

FA-315B **Advanced Design: Product Design**

In this course, students will learn how to critically conceptualize, develop, and iterate on interactive web-based products. Through a mix of lectures and tutorials, we will explore the web as a creative medium and investigate past and present efforts that expand on and challenge the product design process. Projects will be guided by comprehensive research, wire-framing, and developing an interactive system using both prototyping software and basic HTML, CSS, and JavaScript. No prior coding experience is required. *Spring 2025. Pre-Reqs: GD I and GD II, Pre/Co-Req: Typography. 3 credits*

FA-320 **Advanced Design: Visual Identities**

Issues unique to creating a coherent, yet diverse visual system will be analyzed and applied in a variety of contexts. Concepts and methods for integrating symbols, images, words and objects will be explored.
Spring 2025. Pre-Reqs: GD I and GD II, Pre/Co-Req: Typography. 3 credits

FA-321 **Advanced Design: Icons, Marks, and Emojis**
From the thumbs up in a text message to the power-off button on an appliance, the swoosh on a sneaker to the cloud on a weather report, we rely on icons, marks, and emojis to help us communicate. In this course, students will be exposed to a wide range of systems that use non-verbal forms to communicate function, type, identity, or emotion and will draw and develop their own through a series of assignments.
Spring 2025. Pre-Reqs: GD I and GD II, Pre/Co-Req: Typography. 3 credits

Painting

FA-130A **Painting I**
Fall 2024. May not be repeated. 3 credits

FA-130B **Painting II**
This course is centered around the material, conceptual and historical concerns of painting media within individual studio practice. There is an emphasis on individual projects or assignments and the studio as generative space. The course is intended to clarify and evolve each student's individual relationship with paint media in preparation of advanced study in painting. Individual studio critiques and group critiques will enhance the development and articulation of each student's concerns in painting and image-making. The objectives of the course will be supported by readings, films, lectures and field trips that expand the historical and contextual understandings in the practice of painting. *Spring 2025. Pre-Req: Painting I. May not be repeated. 3 credits*

FA-331 **Advanced Painting**
This course offers students individual and group contexts to discuss their work and personal development as an artist. Students engage with relevant, practical, historical and contemporary discussions around painting. There is an emphasis on personal development. Clarification of interests, content, material processes center students within the context of advanced study. Individual and group critiques offer students opportunities to further locate their practice and voice as an artist. Various media and experiences such as lectures, films, reading and field trips expand classroom and individual studio space learning. *Spring 2025. Pre-Req: Painting I and Painting II. 3 credits*

FA-331A **Advanced Painting**
Fall 2024. Pre-Req: Painting I and Painting II. 3 credits

FA-332A **Advanced Painting**
Fall 2024. Pre-Req: Painting I and Painting II. 3 credits

FA-339A **Advanced Painting: Katz Guest Artist Series**
Fall 2024. Pre-Req: Painting I and Painting II. 3 credits

FA-339.1 **Advanced Painting: Katz Guest Artist Series**
The Katz Guest Artist Series is named after and funded by Cooper Union alumni Alex Katz. This course introduces contemporary emerging and established artists in the fields of Painting & Drawing guided by a Cooper Union faculty. The course offers students the opportunity for further growth within the context of advanced study through conversations around professional practices and individual development. Students interact with each guest in lectures, one-on-one studio visits and group critiques. Lectures introduce students to a wide range of practice and perspectives in Painting or Drawing within a classroom setting or field trips to guest artist studios. There is time for critical discussion about the material presented. Individual studio spaces become sites for creation, research, presentations and meetings with faculty and guest artists. In this way, the course reflects the professional space of the artist studio. Students develop a deeper connection to their personal language and practice through a rigorous studio visit and lecture schedule. Students experience the "real world" model of studio visits in which visitors not familiar with their work or immediate concerns engage them. In this way students develop the communication of their work and interests outside of the traditional classroom structure. Group critiques and media such as readings and film expand and clarify student development and course objectives. *Spring 2025. Pre-Req: Painting I and Painting II. 3 credits*

Photography

FA-206 **Lens/Screen/Print I**
Fall 2024/Spring 2025. May not be repeated.3 credits

FA-207 **Lens/Screen/Print II**
Fall 2024/Spring 2025. Pre-Req: L/S/P I. May not be repeated. 3 credits

FA-362.1 **Photography: Studio Lighting**
The course will primarily address lighting, including the use of hot lights, flash, and strobes, with specific studio equipment such as sweeps, diffusers, backdrops, tethered shooting, Lightroom, and Capture One. Retouching and color correction in Photoshop will be covered. *Spring 2025. Pre-Req: L/S/P I and Pre/Co-Req: L/S/P II. 3 credits*

FA-364.1 **Advanced Photography: Open Studio**
Students will advance their practice by producing work using photographic material(s), cameras or any photographic device of their choice. Work will be discussed in group critiques as well as individual conferences with the instructor. Photographic issues and representation will be the subject of readings and class discussions.
Spring 2025. Pre-Req: L/S/P I and Pre/Co-Req: L/S/P II. 3 credits

FA-366 **Advanced Photography: Alternate Processes**
Fall 2024. Pre-Req: L/S/P I and Pre/Co-Req: L/S/P II. 3 credits

FA-368A **Advanced Photography: Henry Wolf Chair**
Fall 2024. Pre-Req: L/S/P I and Pre/Co-Req: L/S/P II. 3 credits

FA-368.1 **Advanced Photography: Henry Wolf Chair**
This course is intended to help students clarify and further the growth of their own work through group and individual critiques, classroom presentations and discussions with a contemporary photo-based artist in the position of the Wolf Chair.

This course will investigate concepts of the archive in art and broader culture, thinking closely about systems of control, capitalism, surveillance, and the internet as a form of giant archive. The course will also explore existential impulses and the archive, and photography as being inherently archival. Students will explore different modes of working with and against existing archives in their own work, using an expanded definition of the term. *Spring 2025. Pre-Req: L/S/P I and Pre/Co-Req: L/S/P II. 3 credits*

Printmaking

FA-250 **Screen Printing**
Fall 2024/Spring 2025. May not be repeated. 3 credits

FA-251 **Lithography**
Fall 2024/Spring 2025. May not be repeated. 3 credits

FA-252 **Etching**
Fall 2024/Spring 2025. May not be repeated. 3 credits

FA-253 **Paper: Materiality and Sustainability**
Fall 2024/Spring 2025. May not be repeated.3 credits

FA-354A **Experimental Printmaking**
Fall 2024/Spring 2025. Pre-Req: 2 Printmaking Classes (Etching, Lithography, Relief, Paper: Materiality and Sustainability, or Screen Printing). 3 credits

FA-355A **Relief**
Fall 2024/Spring 2025. May not be repeated. 3 credits

Sculpture

FA-391A **Sculpture: Open Studio**
Fall 2024/Spring 2025. 3 credits

FA-392.1 **Sculpture: Reasoning with Things**
This is a sculpture studio course that takes a concrete approach to the development of critical discourse about works of art through making and discussing objects. It exercises the student's ability to analyze the activity of making sculpture in particular—and advances the student's understanding of how to proceed in the studio. Problems of structure, materials, meaning, intention, and context are the subjects of class discussion. Together we will look at examples of artists practice which fall within these themes, visit related exhibitions, and host visiting artists.
Spring 2025. 3 credits

FA-393A **Sculpture: Making, Craft, and Concept**
Fall 2024/Spring 2025. 3 credits

FA-394A **Sculpture**
Fall 2024/Spring 2025. 3 credits

Studio Electives

FA-281 **Project in Sound Art**
Fall 2024/Spring 2025. May not be repeated. 3 credits

FA-290 **Performance I**
Fall 2024. May not be repeated. 3 credits

FA-301 **Teaching as Collaborative Social Practice**
Fall 2024/Spring 2025. 3 credits

FA-313 **Art of the Book**
Fall 2024. 3 credits

FA-326 **Interactive Design Concepts: AI + Play**
Fall 2024. 3 credits

FA-327 **Computational Studio**
Fall 2024/Spring 2025. 3 credits

FA-384A-1 **Projects**
Fall 2024. 3 credits

FA-384A-2 **Projects: Exhibition: Design and Practice**
Fall 2024. Pre-Req: Juniors/Seniors. 3 credits

FA-384A-3 **Projects**
Fall 2024. 3 credits

FA-384.1 **Projects**
Students work independently on self-initiated projects under the guidance of professors and visiting artists. *Spring 2025. 3 credits*

FA-384.2 **Projects**
The course will collapse the material properties of artworks with our ways of perceiving now. It will be structured around lectures and student's work. Cultural and global ways of understanding will be foregrounded with specificity. The enormous abys between place and understanding will be studied as a generative space of thought and work. To have a sense of the density of specific practices will be a constant in the class. Student work, which can be in any media, will be discussed in either four or two-hour group critiques. *Spring 2025. 3 credits*

FA-395.1 **Advanced Performance**
Advanced classes aim to deepen the practice of the student technically as well as conceptually, while bringing up current debates and questions in performance. Advanced Performance classes are offered according to themes devised by each individual instructor. Students are encouraged to develop semiautonomous ways of working over the course of the semester, this includes supervised, independent or collaborative projects. This course will afford students the opportunity to build a coherent body of work. *Spring 2025. 3 credits*

FA-399.1 **Special Topics: What can art do?**
This Projects class is newly designed to respond to the sensation that many artists, students, and teachers report - that our work appears to have no effect on an ailing world. The course will provide a forum for imagining and building alternative forms of work, self-design, and ethics through weekly in-class projects, collectively designed actions, and organized play. *Spring 2025. 3 credits*

FA-399.2 **Special Topics: Robotic Sculpture**
This is a studio course focused on the intersection of sculpture, robotics, and performance art. With an emphasis on interdisciplinary collaboration, the class will engage students in the conception, design, and creation of robotic sculptures under the guidance of internationally acclaimed artist Chico MacMurtrie, Artistic Director of Amorphic Robot Works. Over the course of the semester, we will explore the role of robotic art within political and social contexts, while investigating the unique challenges and creative possibilities of working with both inflatable and mechanical robotic forms. *Spring 2025. 3 credits*

Electives

RS-201-G **Science: Astronomy**
Fall 2024/Spring 2025. 3 credits

RS-201-H **Science: Laws of Nature**
Fall 2024. 3 credits

RS-201-I **Science: Properties of Ceramic, Metals, and Glass**
Fall 2024/Spring 2025. 3 credits

RS-201H **Science: Physics**
The course is the survey of major concepts, methods and application of physics. It will chart the history of the discipline, tracing the development of ideas about motion, time, space and the structure of matter from the early Greek philosophy to the present day. The main topics will include Newton's mechanics, conservation principles, electro-magnetism, thermodynamics and modern physics. Special attention will be given to the radical changes in our understanding of reality brought about by the advances in the main branches of modern physics: special and general relativity, particle physics and quantum mechanics. The course will introduce essential concepts from these fields, such as spacetime curvature, uncertainty principle, complementarity, entanglement, dark matter and energy, etc., and discuss their scientific and philosophical implications.
Spring 2025. 3 credits

TE-216 **Calligraphy**
Fall 2024. May not be repeated. 2 credits

TE-390 **Casting Techniques**
Fall 2024/Spring 2025. . May not be repeated. 2 credits

TE-217 **Painting Techniques and Materials**
This course provides training in the safe handling of painting materials, contemporary applications and techniques in oil- and acrylic-based media. Practices in color mixing, color matching, glazing, uses of supplementary media, creating textures, effects, surfaces and customizing paint from dry pigments will be covered through instructor lead demonstrations and assignments. Students will receive hands-on practice with various techniques by producing original works. In addition, students will be introduced to the origins, history and contemporary evolution of paint as a material. Relevant examples will be presented through various media and field visits. *Spring 2025. May not be repeated. 2 credits*

TE-272 **Steel Metalworking: Techniques and Materials**
This is a process-intensive course exploring various methods of steel forming and fabrication across a broad range of methods. A diverse range of Metalworking tools will be introduced to give students the capability of forming steel through forging, blacksmithing, gas and arc welding, and machine tooling. The material's properties and transformation will be discussed in relationship to histories of use—both in art making and as an industrial material, expanding studio practices in concordance with the wider curriculum, and the broader field of fabrication now used in much contemporary art and design. *Spring 2025. May not be repeated. 2 credits*

SE-401B **Contemporary Arts Issues**
This seminar addresses issues essential to an understanding of contemporary aesthetic thought and critical practice as explored by artists and theoreticians. Integral to this discussion is an examination of the role of art in contemporary society, the changing concept of the avant-garde and the relationship of art to culture. The format of the seminar provides for required readings, oral and written reports, guest speakers and regular museum and gallery visits. *Spring 2025. 2 credits*

ALBERT NERKEN SCHOOL OF ENGINEERING

OVERVIEW

With an average enrollment of about 450 undergraduate students, engineering is the largest of The Cooper Union's schools. The school maintains small class sizes in courses and laboratories in order to provide for personal attention. It offers a bachelor of science (B.S.) degree program in computer science and bachelor of engineering (B.E.) degree programs in chemical, civil, mechanical and electrical engineering. The Chemical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, under the commission's General Criteria and Program Criteria for the Chemical, Biochemical, Biomolecular and Similarly Named Engineering Programs. The Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, under the commission's General Criteria and Program Criteria for the Civil and Similarly Named Engineering Programs. The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, under the commission's General Criteria and Program Criteria for the Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs. The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, under the commission's General Criteria and Program Criteria for the Mechanical and Similarly Named Engineering Programs.

The Computer Science (CS) Program was launched in 2024 and will admit the first class in September of 2025. Like the other engineering majors, the computer science program integrates theory with practical application from the onset, starting with collaborative projects in the first year and progressing through specialized projects. Students develop industry-ready skills by focusing on group dynamics, project management, software development, debugging, and presentation skills modeled on real-world practices and enhanced through experiential learning opportunities. Key focus areas include artificial intelligence, cybersecurity, robotics, distributed systems, and user-centric computing.

The integrated master's program offers the opportunity to earn both a bachelor's and a master's degree in an engineering discipline at The Cooper Union within four, five or six years.

Degree programs are designed to prepare students to enter the workplace immediately after graduation or to pursue graduate study. An extraordinary number of Cooper Union engineering graduates go on to earn Ph.D. degrees at the nation's most prestigious graduate schools. Others go on to study in fields such as medicine, law or business. Many graduates rise to leadership positions in industry, education and government.

The early curricula are based on intensive study in the sciences, mathematics, computer science and engineering sciences, which serve as preparation for deeper immersion within the engineering fields. Building on this strong base of mathematics and sciences, and emphasizing the integration of knowledge, these curricula promote an understanding of nature, the limitations of our present knowledge and the potential for advancing that knowledge.

Defining characteristics of the School of Engineering's programs are the emphasis on project-based learning and opportunities for undergraduate research. Students and their peers regularly join the faculty in solving real-life problems that exist in contemporary society. Multi-disciplinary teams, frequently cooperate with outside professionals, who act as mentors. Superior analytical abilities and thorough grounding in disciplinary fundamentals and design enable students to collaborate on these projects. Results may be published, presented at conferences or even patented.

A strong background in design threads throughout the curriculum, starting with the first year. These design experiences take into consideration factors such as environmental issues, sustainability, economics, teamwork, societal impact, safety and political climate—showing students that a "design" is much more than a purely technological solution.

Some design problems are offered in collaboration with foreign universities to increase awareness of the global nature of the engineering profession (e.g., The Cooper Union's study abroad and international exchange programs). Others may involve collaboration with industry, hospitals and/or other US universities.

Diverse electives are offered so that students can add a background in business and finance, additional mathematics and sciences or a "concentration" in an additional area of study.

Like The Cooper Union's other schools, the Albert Nerken School of Engineering is intimately involved with the New York metropolitan area. Sometimes, the city and its infrastructure are used as a laboratory. The school also draws on the region's abundant talent and resources, including an outstanding array of engineers and scientists employed at major corporations, governmental agencies and consulting firms in the New York region. The school calls on physicians, lawyers and other specialists to collaborate on research and mentoring and to give unique insights into contemporary

problems and social issues confronting modern engineers. Many of these professionals are alumni and may serve as adjunct faculty members lending a dynamism to the classroom.

Students benefit from an uncommonly close interaction with dedicated faculty, some of whom are alumni, in a conservatory style environment. Our faculty bring their diverse experiences to the classroom and laboratory setting and serve as role models to our students. See the work that our faculty and students have produced. Our students are encouraged to participate in The Cooper Union's rich seminar and cultural programs as well as to attend talks by guest speakers. They join various professional societies, many of which have chapters at The Cooper Union. Students are inspired to qualify for membership in national engineering honor societies. They also participate in student government and sports, and take advantage of the vast cultural environment offered by New York City and the neighborhood.

The School of Engineering strongly encourages undergraduate research activities and permits juniors and seniors to register for graduate level courses, when deemed appropriate. This enrollment does not guarantee admission to the master's program however. A Cooper Union undergraduate may declare the intent to complete an integrated degree in the second semester of the junior year or apply to the graduate program in one of the degree-granting departments during the second semester of the senior year

Graduates of The Cooper Union are recruited by major national and international corporations, consulting companies, new ventures and graduate schools nationwide. Alumni are found in the top management and research leadership of many American corporations; hold key positions in federal, state and city agencies; and distinguish themselves on university faculties and administrations nationwide. Through their many and varied professional accomplishments, alumni have earned for the school its reputation for excellence.

Humanities and Social Sciences Minor

The Faculty of Humanities and Social Sciences offers students minors in a variety of fields and topics. For more information, please visit the HSS minor website.

CURRICULUM

Computer Science

Freshman Year Credits

Fall Semester:	Credits
ESC000.1 Professional Development Seminar	0
HSS 1 Literary Forms and Expressions	3
Ma 110 Introduction to Linear Algebra	2
Ma 111 Calculus I	4
CS 101 Survey of CS	3
ECE150 Digital Logic Design	3
EID101 Engineering Design & Problem Solving	3
Total Credits Fall Semester	18

Spring Semester:	Credits
ESC000.2 Professional Development Seminar	0
HSS 2 Texts and Contexts: Old Worlds and New	3
ECE251 Computer Architecture	3
CS 160 Introduction to Procedural Programming	3
MA 113 Calculus II	4
PH 112 Physics I: Mechanics	4
Total Credits Spring Semester	15.5

Sophomore Year Credits

Fall Semester:	Credits
ESC000.3 Professional Development Seminar	0
HSS 3 The Making of Modern Society	3
Ma 225 Vector Calculus	3
MA 226 Probability	3
PH 213 Physics II: Electromagnetic Phenomena	4
PH 291 Introductory Physics Laboratory	1.5
CS 261 Data Structures and Algorithms	3
CS 291 CS Sophomore Projects	1.5
Total Credits Fall Semester	19

Spring Semester:	Credits
ESC000.4 Professional Development Seminar	0
HSS 4 The Modern Context: Figures and Topics	3
PH 214 Physics III: Optics & Modern Physics	3
MA 336 Mathematical Statistics	3
CS 361 Advanced Data Structures and Algorithms	3
CS 331 Data Visualization	3
Technical Elective	3
Total Credits Spring Semester	18

Junior Year Credits

Fall Semester:	Credits
CS 357 Operating Systems	3
CS 371 Introduction to Artificial Intelligence & Machine Learning	3
CS 366 Software Engineering	3
ECE 352 Computer Hardware & Electronics	3
MA 326 Linear Algebra	3
Free Elective	3
Total Credits Fall Semester	18

Spring Semester:	Credits
ECE 303 Communication Networks	3
CS 321 Distributed and Cloud Computing	3
CS 394 CS Junior Projects	3
CS 211 Ethics of CS	3
MA 352 Discrete Mathematics	3
CS Elective	3
Total Credits Spring Semester	18

Senior Year Credits

Fall Semester:	Credits
CS 395 Senior CS Projects I	3
HSS elective	3
CS elective	3
Technical elective	3
Free elective	3
Total Credits Fall Semester	15

Spring Semester:	Credits
CS 396 Senior CS Projects II	3
HSS elective	3
Technical Elective	3
Free Elective	3
Total Credits Spring Semester	12
Total credits required for degree	**135**

Geotechnical Laboratory

This facility is maintained to meet the program's needs in soil mechanics, foundation engineering and specialized geotechnical studies such as soil stabilization, etc. This laboratory is used in CE331, CE361, CE369 and by master's students for their research. It contains the following major items of equipment:

- Two tri-axial/CBR/unconfined compression machines for the confined strength determina-tion of soil samples. Confined pressures up to 100 psi can be achieved with this equipment
- High and low range consolidation units with the capability of testing samples from 2.5 to 4.4 inches in diameter- several units are available in the laboratory for simultaneous student use
- Complete set of equipment to perform the California Bearing Ratio Test
- Constant head and variable head permeability equipment
- Relative density set, including a vibrating table
- Equipment for determining the direct shear strength of soil samples
- Complete set of standard testing sieves with two mechanical sieve shakers
- Complete set of equipment for Proctor Tests
- Complete set of equipment for Atterberg Limits Test

COURSES
CHEMICAL ENGINEERING

Undergraduate

ChE 232 **Chemical Engineering Thermodynamics I**
This course will apply the first and second laws of thermodynamics to batch and flow processes for single component systems. Topics include energy and entropy balances, fundamental property relationships, applications of steam tables, and an introduction to fugacity, residuals, and choosing appropriate thermodynamics models. *Prerequisites: Ch 160 or ChE 22. 3 credits*

ChE 332 **Chemical Reaction Engineering**
This course focuses on modeling batch, semi-batch, continuously stirred tank reactors (CSTR), plug flow reactors (PFR) and packed bed reactors. Initially, isothermal, isobaric, single reaction systems are studied and the basics of kinetics are covered. The second portion of the class focuses on topics including heat effects, catalytic reactors, pressure drop through packed beds, biological systems, micro-reactors, and membrane reactors. *Prerequisites: ChE 221, and either Ch 160 or Ch 161. 3 credits*

ChE 342 **Heat and Mass Transfer**
In this course, we will build upon our knowledge of fluid mechanics and thermodynamics to learn the principles of heat and mass transfer. Although the principles of heat and mass transfer have widespread usage in the chemical process industry, these principles are also applied in food science, pharmaceutical, and other industries. First, we will begin by learning the three principle modes and mechanisms of heat transfer. After developing a strong understanding of how heat and energy are transported, we will consider mass transfer as an analogous transport process by which matter is transported by diffusion. We will then consider how both energy and mass are transported by convective motion and apply the analogies and relationships between convective momentum, heat, and mass transfer. Throughout the course, we will use multiphysics simulation software to help us enhance our transport phenomena learning experience. Lastly, we will apply all of these principles to the design of heat transfer equipment, particularly heat exchangers. To accomplish this, we will learn process simulation software to aid us in heat exchanger design. *Prerequisites: Ma 240, ChE 221, ChE 232, and ChE 341. 4 credits*

ChE 352 **Process Simulation and Mathematical Techniques for Chemical Engineers**
Using practical numerical methods and computer software, you will solve chemical engineering problems in mass and energy balances, thermodynamics, fluid flow, heat transfer, separations, and chemical reactor analysis. In the process you will learn about algorithm performance, error analysis, and debugging. This course will not evaluate you very much on translating physical situations to appropriate models; this is a course on handling the models themselves. In this course, you will encounter the types of chemical engineering problems familiar from your previous coursework, but now at a more realistic complexity and scale. *Prerequisites: ChE 341 and Ma 240. 3 credits*

ChE 372 **Chemical Engineering Laboratory II**
This second laboratory course emphasizes the application of engineering fundamentals to real manufacturing processes and unit operations. The experiments cover traditional engineering applications, primarily in separation processes, as well as newer technologies that students may encounter in industry. The course is designed to provide hands-on experience which complements theories and principles discussed in chemical engineering courses. The course will require application of statistics and design of experiments. Preparation of detailed lab reports, posters, oral presentations, and other technical communications are important components of the course. *Prerequisite: ChE 371. 2 credits*

ChE 382 **Process Evaluation and Chemical Systems Design II**
This is a continuation of ChE 381 and is the "capstone design course" in chemical engineering. All aspects of chemical engineering are integrated into the design of a chemical process plant. The design process consists of flowsheet development, equipment selection and sizing, utility requirements, instrumentation and control, economic analysis, and formulation of safety procedures. A plant design is carried out in class and the course includes the use of professional simulation packages such as Aspen Plus. AIChE National Student Design Competition projects are often included in this course. *Prerequisite: ChE 381. 4 credits*

Graduate

ChE 444 **Computational Modeling of Materials and Molecules** (Starting Spring 2025)
Project-based course on modern practices of molecular simulation in the context of engineering systems. The history of computer and molecular simulations, physical and mathematical modeling of molecules, development of molecular simulations, best practices in scientific computing in the context of modeling molecular systems, contemporary open-source simulation packages for molecular dynamics and Monte Carlo methods, analysis and measurement of simulation data, effective visualization of computer simulations, applications relevant to material property prediction in engineering contexts, and recent developments in molecular simulation methods.
Same as EID 444. Prerequisites: CS 102 or ECE 160 and Ch 160 or Ch161 or ESC 330. 3 credits

ChE 488 **Convex Optimization Techniques**
This course discusses in detail different methods for the optimization of systems of engineering and economic interest using the techniques of linear and nonlinear programming. The focus is on convex optimization, which is the solution of problems with only one best cost, design, size etc. We will consider problems such as least squares, supply chain management, batch process networks, network flow, dynamic programming, portfolio optimization and other examples across all engineering disciplines. Students will learn about optimization theory and problem formulation, with some computational component. By the end of the course, students should be able to: create optimization problems from a physical situation, identify whether the problem can be solved or not, transform problems into equivalent forms, list optimality conditions for problems, find the dual of a problem and identify its relation to the primal,and use at least one method to solve a convex programming problem using a computer. *Same as EID 488. Prerequisites: ChE 352 or ME 251, Ma 326 (co-enrollment is fine). 3 credits*

CIVIL ENGINEERING

Undergraduate

CE 151 **Urban Transportation Planning**
Historical background and evolution of current procedures used in the urban transportation planning process. Covered are the historical framework, urban development theories, land use, trip generation, trip distribution models, traffic assignment techniques, modal split and introduction to urban transportation systems. *Prerequisite: none. 3credits*

CE 220 **Civil Engineering Fundamentals**
Planning, execution and interpretation of drawings and specifications for civil engineering projects. Sample drawingsand specifications. Contractual requirements. Sample contracts. Permitting, scheduling and cost estimation. Basic operations of design and construction firms. Interface with other disciplines on civil engineering projects. *Prerequisite: EID 101. 3 credits*

CE 331 **Introduction to Geotechnical Engineering**
Introduction to various indexing tests of soils, clay mineralogy, permeability, seepage and flow nets, stress distribution in soil masses, one dimensional consolidation theory, strength characteristics of soils, application of Mohr's Circle to soil mechanics, stability of slopes. *Prerequisite: ESC 201, ESC 340. 4.5 credits (3 hours of lecture, 3 hours of laboratory).*

CE 341 **Design of Steel Structures**
Study of behavior and design of structural steel components and their connections. Understanding and development of design requirements for safety and serviceability, as related to latest structural steel specifications by the American Institute of Steel Construction (A.I.S.C.). Current design emphasizing LRFD, fabrication and construction practices. Composite design. *Prerequisite: CE 321; corequisite: CE 322. 3 credits*

CE 343 **Water Resources Engineering** (same as EID343)
Problems in conservation and utilization of water. Hydrologic techniques. Surface water and ground water supplies. Water transmission and distribution. Flood control, navigation and irrigation. Introduction to open channel flow and pipe networks. Design of hydraulic structures. Experimental aspects of hydraulic phenomenon. Emphasisis placed on basic experimental techniques, design of experiments, selection and use of appropriate instrumentation and interpretation of results. *Same as EID 343. Prerequisite: ESC 340; Same as EID 343. 4.5 credits (3 hours of lecture, 3 hours of laboratory).*

CE 348 **Environmental and Sanitary Engineering** (same as EID348)
Engineering (same as EID 348) Topics include types of environmental pollution and their effects; water quality standards and introduction to laboratory analyses of water quality parameters; sources and estimates of water and wastewater flows; physicochemical unit treatment processes. Integrated lecture and design periods cover water supply network, wastewater collection system and water treatment design projects. *Prerequisites: CE/EID344. 3 credits*

Graduate

CE 427 **Behavior and Design of Prestressed Concrete Structures**
Behavior and design of prestressed members in flexure, shear, bond and torsion; continuous beams; columns; prestressed systems; loss of prestress. Emphasis is placed on ultimate strength design and the background of latest ACI code.
Prerequisite: CE 342. 3 credits

CE 429 **Advanced Concrete Design**
The course covers ACI 318 building code requirements at a more advanced level than typically encountered in an undergraduate concrete design course. Development and anchorage of reinforcement. Design of beams for combined bending, shear and torsion. Moment redistribution in continuous beams. Moment-curvature relation. Serviceability requirements. Creep and deflection. Design of slender columns. Yield-line analysis of two-way slabs. Design of deep beams and column brackets by the strut-and-tie method. *Prerequisite: CE 342. 3 credits*

CE 470 **Urban Security** (same as EID470)
Design of urban systems to protect against terrorism. Analysis of blast loads. Blast mitigation design considerations. Technology transfer:military/defense to civilian sector. Response spectra. Pressure-Impulse Curves. Stand off distances. Blast mitigation measures for buildings, bridges and tunnels. Prevention of progressive collapse in tall buildings. Design of glazing. Retrofit upgrade of existing urban infrastructure.Proposed changes in New York City Building Code to protect against terrorism. Insurance issues forcommercial buildings.
Same as EID 470. Prerequisites: CE 322 or ME 301 and permission of instructor. 3 credits

CE 471 **Engineering Risk Analysis**
The main objective of this course is to introduce students to the basic terminology and tools related to probability theory, statistics, and decision theory in the context of solving civil engineering problems. A secondary objective is to expose students to the many uncertainties inherent in civil engineering and to the tools that are available for modeling and analyzing such uncertainties. Topics to be covered include probabilistic modeling, statistical inference, Bayesian statistics, and decision under uncertainty.
Prerequisites: MA 224 (Probability) or graduate standing.

CE 473 **Earthquake and Wind Engineering**
Concepts of earthquake engineering and seismic resistant design. Earthquake ground motion. Dynamics of SDOF and MDOF. Lateral load resisting systems. Code provisions for seismic design. Seismic performance based design. Soil structure interaction. Concepts of wind engineering. Wind velocities and wind loads. Code provisions for wind loads. Wind loading on unique structures. Wind tunnel tests and result interpretation. *Prerequisite: CE425. 3 credits*

CE 485 **Green Sustainable Cities**
Design and modeling of green streets green walls, green roofs, blue roofs, and green parking lots; concepts and practical considerations. Study of evapotranspiration, radiation, and drainage of vegetative systems. Sustainable management and reuse considerations of urban storm water; sustainable and positive environmental impact design concepts. Management and reuse/recycle considerations for urban gray water. Examples of international projects and case studies. Team design projects with class powerpoint presentations. *Prerequisite: permission of instructor. 3 credits*

ELECTRICAL ENGINEERING

Undergraduate

ECE 210 **MATLAB Seminar: Signals & Systems**
A weekly hands-on, interactive seminar that introduces students to MATLAB, in general, and the Signal Processing Toolbox in particular. Students explore scientific computation and scientific visualization with MATLAB. Concepts of signal processing and system analysis that are presented in ECE 211 or other introductory courses on the subject are reinforced through a variety of demonstrations and exercises. It is strongly encouraged for students taking a first course in signals and systems, or for students expecting to use MATLAB in projects or courses.
Prerequisite: MA 113. Recommended co-requisite: ECE 211 or equivalent. No credits

ECE 211 **Signal Processing**
This course presents a unified approach to signals and systems. Signal-space concepts for representation and approximation: inner product, orthogonal expansions, projection, Lp-norms, eigenanalysis, least-square problems, SVD. Phasors, complex baseband, line spectra. Sampling, aliasing and imaging. Analog and digital LTI systems in the time, frequency and transform domains: convolution, frequency response, transfer functions. Fourier, Laplace and z-transforms. FIR and IIR digital filters. Block diagrams, stability, feedback, initial conditions, transient modes, damping factor, Bode plots. Analog and digital state-space, transition and transfer function matrices. Random signals and vectors: correlation matrices, Gaussian vectors and signals, white noise, stationarity, ergodicity, power spectral density, ARMA models. Extensive use of MATLAB.
Prerequisite: Ma 113; corequisite or prerequisite: ECE 210. 3 credits

ECE 241 **Electronics I**
Semiconductor physics: band theory, carrier distributions and transport mechanisms. PN-junctions, PN junction devices. Diode circuits. BJTs and CMOS: current relationships, operating region. Biasing circuits, DC Analysis; small-signal models, AC analysis. BJT/CMOS amplifier configurations. Projects utilizing Virtuoso/Spectre industry standard tools. *Prerequisite: ECE 240. 3 credits*

ECE 251 **Computer Architecture**
Computer abstractions, performance measures; number representations and ALU operations; accumulators, registers and stack-based design; instruction sets, addressing modes; data path and control, microprogramming; memory hierarchy; I/O, bus design and data transfer; interrupts. Focus on MIPS with extensions to ARM. Hardware descriptive language (HDL). Course work includes assembly programming and the design of a simulated processor using Verilog. *Prerequisite: ECE 150. 3 credits*

ECE 302 **Probability Models & Stochastic Processes**
Topics in probability, random variables and stochastic processes applied to the fields of electrical and computer engineering. Probability, events, random variables, expectation, moments, characteristic functions, conditional probability and expectation. Functions of random variables, random vectors, Gausian random vectors, Poisson points. Bounding and limit theorems. Relations among important distributions and probability models. Stochastic processes: stationarity, ergodicity, Brownian motion, Markov processes. Deterministic systems with stochastic inputs, correlation and power spectral density, ARMA models. Hilbert space and applications: orthogonality principle, discrete Wiener and Kalman filters, linear prediction, lattice filters.
Prerequisites: Ma 224 and ECE 300, or ECE 310 or permission of instructor. 3 credits

ECE 303 **Communication Networks**
Analysis and design of communication networks. Network protocols, architecture, security, privacy, routing and congestion control, Internet, local area networks, wireless networks, multimedia services. Physical layer, multiple access techniques, transport layer. Introduction to probabilistic and stochastic analytic techniques for communication networks. *Prerequisites: ECE 150 and Ma 224. 3 credits*

ECE 335 **Engineering Electromagnetics**
This course emphasizes time-varying fields, with topics presented from electrostatics and magnetostatics as necessary. Maxwell's equations, constitutive relations, phasor vector fields, wave and Helmholtz equations, potentials, boundary conditions. Planewaves in lossless and lossy materials, polarization, incidence. Transmission lines: transient analysis, TDR, phasoranalysis, standing wave diagrams, Smith chart, impedance matching. Guided waves: TEM, TE and TM modes, dispersion, evanescence, cavity resonators. Microwave network analysis and device characterization with scattering parameters. Antennas, antenna arrays and Fourier optics. Additional topics from microwaves and optics will be covered as time allows. Students use a vector network analyzer to perform measurements at high frequencies.
Prerequisites: Ma 223, Ph 213, ECE 240 and ECE 211. 4 credits

ECE 345 **Integrated Circuit Engineering**
Feedback theory, frequency compensation. Integrated circuit fabrication and technology. Device modeling, thermal effects. VLSI CAD design tools. Circuit layout, extraction and simulation. Design and analysis of multistage MOS operational amplifiers, OTA architectures. Nonlinear circuits, comparators. Analog switches. Digital phase-locked loops. Sample and hold circuits. Data converter architectures. Switched capacitor circuits. Bandgap reference circuits. MOST digital circuit design and layout, hierarchical approaches. Final design project is a mixed analog/digital circuit (e.g., Flash A/D converter, phase-locked loop), which is sent for fabrication.
Prerequisites: ECE 342. 3 credits

ECE 366 **Software Engineering & Large Systems Design**
This course teaches about the development stages of large, robust, expandable software systems developed as part of a team. Topics include project management, capturing requirements, system design, UML, program design, testing, delivery and maintenance. The class will develop a large project as a team using Java throughout the semester. Tools, libraries and techniques necessary for the project will be covered in class,e.g., Eclipse, Javadoc, XML, SOAP, servlets, threads and processes, Swing, JUnit, mySQL, JDBC, etc. The specific resources might change from semester to semester. *Prerequisite: ECE 365. 3 credits*

ECE 394 **Junior Electrical Engineering Projects II**
Principles learned in ECE 393 are applied to the design, construction and characterization of electrical and computer engineering projects of significant complexity. Assignments typically involve both analog and digital design, and students are free to pursue any solution that satisfies the engineering requirements and meets with the instructor's approval. Formal and informal lectures are given on safety, circuit operation and design, and construction techniques; participation in design reviews and technical reports. *Prerequisite: ECE 393. 3 credits*

ECE 396 **Senior Electrical Engineering Projects II**
This course concludes the senior project begun in ECE 395. Students submit two complete theses, one in short form and the other in long form, and give at least two presentations,one short and one long. The initial goal is to a achieve a functioning system. Afterwards, students undertake the completion of the prototyping cycle, which may involve improving the circuit implementation (such as by employing PCBs populated with surface mount chips), adding a user-friendly interface, obtaining precise performance evaluations, or developing demonstrations and a user's manual. Advanced students are strongly encouraged to complete their project early and commence a master's thesis. *Prerequisite: ECE 395. 3 credits*

Graduate

ECE 408 **Wireless Communications**
Survey of cellular mobile radio systems and formats, including market trendsand technological advances. The emphasis is on CDMA and 3G systems,and emerging schemes such as WiFi networks, although TDMA systems will be discussed as well. Propagation and multipath fading channel models and simulation. Cellular system capacity, traffic models, multiple-access techniques, hand off and power control algorithms. Modulation formats, detection schemes and performance. Mitigating fading: pulse shaping, DFE, MLSE (Viterbi). DSP algorithms for baseband processing. *Prerequisite: ECE 300. 3 credits*

ECE 435 **Medical Imaging**
A survey of modern techniques for medical imaging relevant in clinical and research settings, and associated techniques of image processing. Review of optics; classical microscopy; CT; fluorescence and 2-photon microscopy; interferometry; phase microscopy; ultrasound, CAT and OCT; MRI and f-MRI. Introduction to wavelet theory and sparse coding. Limits and noise sensitivity of various modalities (e.g., speckle nise in OCT, diffraction limit in classical microscopy, phase noise in interferometry); denoising and contrast enhancement. Feature extraction from medical images and 3D stacks. *Prerequisite: ECE 211. Recommended prerequisite: ECE 310. 3 credits*

ECE 442 **Communication Electronics**
Circuit design for advanced communications applications. Design of high-frequency amplifiers, oscillators and mixers using large signal analysis. Effects of noise and non-linearities are examined from the diode and transistor level to board level. Communication subsystems of interest include phase locked loops, modulators and demodulators (AM, PM FM), and signal processors for multiple access systems (TDMA, FDMA, CDMA). Course work includes computer-aided simulation and design projects. *Prerequisites: ECE 300 and ECE 342. Corequisite: ECE 335. 3 credits*

ECE 444 **Bio-instrumentation and Sensing**
The basic human vital signs and some related elementary physiology viewed from an engineering standpoint with special emphasis placed upon current electronic measurement methods. Electrocardiographic and electromyographic signals. Safety problems related to electrical isolation. Guarded, fully isolated, modulated carrier operational amplifiers and microvolt-level amplification. Solid-state "grain of wheat" pressure sensors, microelectrodes, thermal probes, ultrasonic transducers and other biosignal sensors. Course work includes instrumentation and sensing projects.
Prerequisites: ECE 211 and ECE 342. 3 credits

ECE 448 **Power Electronics**
Principles of power electronics. Operating characteristics of Bipolar Junction Transistors, IGBTs, MOSFETs and Thyristors, power converters, basic switching circuits, AC/DC, DC/DC, DC/AC converters and their applications. Students are required to design, construct, diagnose and test power electronics converters.
Prerequisites: ECE241. 3 credits

ECE 464 **Databases**
Engineering and design of databases. Topics to be covered may include: data models, database and scheme design; schema normalization and integrity constraints; query processing and optimization; distributed and parallel databases; SQL and XML.
Prerequisite: ECE 365. 3 credits

ECE 466 **Compilers**
The theory, design and implementation of a practical compiler. Finite automata, LL and LR parsing, attribute grammars, syntax-directed translation, symbol tables and scopes, type systems and representations, abstract syntax trees, intermediate representation, basic blocks, data and control flow optimizations, assembly language generation including register and instruction selection. Students apply tools such as Flex and Bison to writing a functional compiler for a subset of a real programming language such as C. *Prerequisites: ECE 251 and ECE 365. 3 credits*

ECE 471 **Selected Topics in Machine Learning**
Advanced topics in machine learning, selected according to student and instructor interest. *Prerequisite: permission of instructor. Open to all students. 3 credits*

ECE 474 **Bayesian Machine Learning**
Machine learning from a primarily Bayesian perspective. Conjugate priors. Bayesian linear regression, model evidence, linear classification using generative models, logistic regression and the Laplace approximation. Kernel methods and Gaussian process regression. Mixture models, expectation maximization, hidden Markov models, sampling methods and Markov chain Monte Carlo.
Prerequisites: MA 223, MA 224; either ECE 211, ChE 352 or ME 251. 3 credits

ECE 478 **Financial Signal Processing**
Quantitative finance is presented from a signal processing perspective. Probability measure and stochastic processes: filtrations, Radon-Nikodym derivative, martingales, Markov processes; discrete-time and continuous-time random walks, Wiener process, Ito calculus, stochastic differential equations, Black-Scholes; introduction to statistics. Modeling and analysis of financial concepts such as arbitrage, replicating portfolios, hedging, liquidity, derivatives, volatility, futures, options. Markovitz portfolio theory, capital asset pricing model, the greeks, portfolio optimization, sparse methods, trading strategies. Analysis of single and multiple correlated nonstationary time series, GARCH. Machine learning in finance. Course work includes programming projects in Python or MATLAB to analyze real financial data.
Prerequisite: ECE211 and MA224. 3 credits

MECHANICAL ENGINEERING

Undergraduate

ME 103 **Statics**
This foundation course develops a sound problem-solving methodology based on engineering applications involving forces acting on non-accelerating structures. Topics include equivalent system of forces; equilibrium; moments and couples; centroids and distributed forces; forces in structures (trusses, frames, machines); friction forces. *Corequisite: ME 104. 2 credits*

ME 104 **Measurements Laboratory**
The course, taken concurrently with Statics, includes laboratory modules that focus on the measurement of force from both mechanical and electrical signals. Students develop laboratory and technical communication skills. *Corequisite: ME 103. 1 credit.*

ME 211 **Design and Prototypin**g
A mechanical engineering hands-on workshop geared towards the understanding and practice of basic engineering design and fabricationtools. Topics include hand tools, simplemachining, mold making, casting, materials, fasteners, adhesives, and finishes. 3-D digitizing, solid modeling, rapid prototyping and computer interfacing will also be presented. Team projects will familiarize the students with typical tools and processes employed in realizing a design concept, from sketch to functional prototype. Each student will participate in and contribute to the team-learning and creation process. *Prerequisites: EID 101. This course is open to art and architecture students with a prerequisite waiver. Open to all students. 2 credits*

ME 301 **Mechanical Vibrations**
Mechanical systems with single and multiple degrees of freedom longitudinal, torsional and lateral vibrations; free and forced oscillations; vibration testing, dynamic stability, vibration isolation, design criteria. Computer-aided design assignments and vibration project. *Prerequisites: ME 200 and Ma 240. 3 credits*

ME 311 **Mechanical Design**
Mechanical design of basic transmission elements; design optimization by blending fundamental principles and engineering judgment; design criteria for the various frictional machine elements. Design projects provide authentic involvement in problems from industry; design projects make use of computer, experimental and modeling techniques. *Prerequisite: ME 310. 3 credits*

ME 342 **Heat Transfer: Fundamentals and Design Applications**
One-dimensional steady-state conduction. Two-dimensional steady state conduction and transient conduction: finite-difference equations and computational solution methods. Convection; introduction to laminar and turbulent viscous flows; external and internal forced convection problems, including exact and numerical solution techniques; free convection. Introduction to radiation heat transfer and multimode problems. Open-ended design projects will include application to fins, heat exchangers, tube banks and radiation enclosures and will make use of computer-aided design techniques. *Prerequisite: ESC 340. 3 credits*

ME 353 **Mechatronics** (Same as EID353)
Topics include computer architecture, PIC processor overview, dynamic modeling, sensors, data acquisition, digital PID control theory, and utilization of assembly language to code the controller. Students will design, build and test a controller board and present a final prototype of a control system. Engineering economics will be introduces and integrated into the final project.
Same as EID 353. Prerequisite: ME 351 or ECE 211 (Signals) or ChE 361. Open to all students. 3 credits

ME 360 **Engineering Experimentation**
Election, calibration and use of subsystems for the measurement of mechanical, thermal/fluid and electrical phenomena. Laboratory work includes investigations of heat exchangers, fluid systems and internal combustion engines. Emphasis is placed on data collection and statistical reduction, computational methods and written and oral presentation skills. *Prerequisites: ESC201 and ESC330. 3 credits*

ME 394 **Capstone Senior ME Design**
The application of open-ended design work to the synthesis of engineering devices and systems for the satisfaction of a specified need. Consideration of market requirements, production costs, safety and esthetics. Projects are carried out in small groups and are supervised by the instructor in accordance with professional practice. The goal of the course is to create a working design, clearly defined in drawings and specifications. *Prerequisite: ME 393. 3 credits*

Graduate

ME 401 **Advanced Mechanical Vibrations**
Combined analytical and experimental approach to mechanical vibration issues; characterization of the dynamic behavior of a structure in terms of its modal parameters; digital data acquisition and signal processing; experimental modal analysis procedures and excitation techniques; extraction of modal parameters from measured frequency response functions. Students will acquire hands on experience with impact hammer and shaker data acquisition and analysis.
Prerequisite: ME 301. 3 credits

ME 405 **Automotive Engineering Fundamentals**
An introductory course in modern automotive design, covering aspects of prime movers, aerodynamics, brakes, tires, steering, transmission, suspension and handling, chassis and advanced hybrid powertrain concepts. Simulations and physical prototyping give students a hands-on approach to the design, optimization, fabrication and testing of various vehicle subsystems in a team-based learning environment.
Pre-requisites: ESC 251 and ESC 330, or permission of instructor. 3 credits

ME 407 **Introduction to Computational Fluid Dynamics**
The need for and applications of computational fluid dynamics (CFD). Introduction to CFD analysis and commercially available codes. Governing equations and numerical solution methodologies for basic fluid flow systems. Geometric modeling and grid generation. Examination of various physical models. Use of a commercial CFD code.
Prerequisite: ESC 340 or ChE 341. 3 credits

ME 433 **Rocket Science** (same as ChE 433)
Transient and steady-state control volume balances (mass, momentum and energy) that involve compressible flow phenomena are applied to (primarily) aerospace applications. Fundamental topics include variable mass accelerating control volumes, variable area adiabatic flows, normal and oblique shock waves, expansion fans, friction effects (Fanno flow) and heat transfer effects (Rayleigh flows). Numerical and analytical techniques are developed. Applications include basic trajectories, water rockets, converging/diverging rocket nozzles, RAM and SCRAM jets, supersonic wakes from underexpanded and overexpanded nozzles, gas exchange in reciprocating engines. *Prerequisite: ESC 330 and ESC 340. 3 credits*

ME 435 **Thermal Systems Design**
An advanced course on thermal systems (principally) for chemical and mechanical engineering students. The course focuses on the analysis of natural and human engineered systems that rely on heat transfer, generally in combination with force-momentum (velocity variation) and/or mass transfer. The course will perform analysis (often from first principles), modeling, and methodologies for a number of thermal systems. One of the major techniques is the development of linear systems of algebraic or differential equations. Homework and technical projects provide application of course content and analysis methods.
Prerequisites: ME 331 or ChE 331, ESC 340 or ChE 341, and ME 342 or ChE 342. 3 credits

ME 457 **Drone Control**
This course prepares students to do research in the rapidly evolving of field of autonomous navigation, guidance, and control of unmanned air vehicles (UAVs). In particular, students will learn about key concepts from rigid-body dynamics, aerodynamics, feedback control, and state estimation using sensors, to maneuver through obstacles. Traditional homework assignments are replaced with a semester-long simulation software development project in Python. Techniques developed will be applied in the form of student design projects. *Course pre/co-requisites: (Prerequisites ECE160 and ECE211) or (Prerequisite ME251 and Pre-/Corequisite ME351). 3 credits*

ENGINEERING SCIENCES

Undergraduate

ESC 201 **Mechanics of Materials**
Introduction to solid mechanics; analysis of stress and deformation. Extension; flexure; torsion. Axisymmetric problems, beam theory elastic stability, yield and failure theory. *Prerequisite: ESC 200 or ME 200. 3 credits*

ESC 221 **Basic Principles of Electrical Engineering**
Selection of topics from ESC 220. This class meets with ESC 220 for the first ten (10) weeks. *Prerequisite: Ma 113. 2 credits*

ESC 251 **Systems Engineering**
An introductory course to the mathematical modeling of systems. Topics include mechanical elements and systems, electric circuits and analogous systems, fluid elements and systems, analysis of systems using transfer functions, state space equations, analog simulation and digital simulation. Also covered are block diagrams, Laplace transforms, and linear system analysis. Computer projects will be assigned that will use MATLAB software.
Requisite: MA 240 (Must be completed prior to taking this course.). 3 credits

INTERDISCIPLINARY ENGINEERING

Graduate

EID 444 **Computational Modeling of Materials and Molecules** (Starting Spring 2025)
Project-based course on modern practices of molecular simulation in the context of engineering systems. The history of computer and molecular simulations, physical and mathematical modeling of molecules, development of molecular simulations, best practices in scientific computing in the context of modeling molecular systems, contemporary open-source simulation packages for molecular dynamics and Monte Carlo methods, analysis and measurement of simulation data, effective visualization of computer simulations, applications relevant to material property prediction in engineering contexts, and recent developments in molecular simulation methods.
Same as ChE 444. Prerequisites: CS 102 or ECE 160 and Ch 160 or Ch161 or ESC 330. 3 credits

EID 488 **Convex Optimization Techniques** (Same as ChE 488)
This course discusses in detail different methods for the optimization of systems of engineering and economic interest using the techniques of linear and nonlinear programming. The focus is on convex optimization, which is the solution of problems with only one best cost, design, size etc. We will consider problems such as least squares, supply chain management, batch process networks, network flow, dynamic programming, portfolio optimization and other examples across all engineering disciplines. Students will learn about optimization theory and problem formulation, with some computational component. By the end of the course, students should be able to: create optimization problems from a physical situation, identify whether the problem can be solved or not, transform problems into equivalent forms, list optimality conditions for problems, find the dual of a problem and identify its relation to the primal,and use at least one method to solve a convex programming problem using a computer.
Same as ChE 488. Prerequisites: ChE 352 or ME 251, Ma 326 (co-enrollment is fine). 3 credits

BIOLOGY

Undergraduate

Bio 202 **Biology for Engineers II**
This course will provide human biology fundamentals to springboard into research projects at the intersection of biology and engineering. Topics will include anatomy and physiology of musculoskeletal and other major organ systems not covered in Bio 101, imaging modalities, concepts behind diagnostic and therapeutic surgical procedures, and their limitations, human body repair, artificial organs, tissue engineering, immunology and cancer. Students will develop an extensive biological vocabulary and have requisite knowledge for further study in biomechanics, rehabilitation medicine, biomaterials, bioremediation, etc. *Prerequisite: Ch 110. Open to all students. 3 credits*

Bio 250 **Biotechnology in Environmental Systems**
Application of biotechnology to environmental challenges; microbiology; ecology; microplate reader assays; biomaterials; genetic modification of microbes, bioremediation, biosafety biomimicry. *Prerequisite: None. 3 credits*

CHEMISTRY

Undergraduate

Ch 161 **Physical Principles of Chemistry**
The study of physicochemical properties will be extended and advanced. The laws of thermodynamics, which involve energy, enthalpy, entropy and free energy concepts, will be applied to chemical systems. Other topics include: vapor pressures and colligative properties of solutions; the phase rule; kinetics of homogeneous reactions; reaction mechanisms and homogeneous catalysis; and electrolytic conductance and electrochemistry, with applications to the design of batteries, fuel cells and sensors.
Prerequisites: Ch 110, Ma 111. 4 credits

Ch 232 **Organic Chemistry II**
Extension of Ch 231 to systematic study of aliphatic and aromatic compounds, with emphasis on functional behavior and interpretation of mechanisms and bond types, polyfunctional compounds, carbohydrates and heterocyclic compounds.
Prerequisite: Ch 231; co-requisite: Ch 233. 3 credits (2 lecture hours)

Ch 340 **Biochemistry**
This course in the fundamentals of biochemistry will cover the following: Chemistry of carbohydrates, lipids, amino acids, proteins, and nucleotides; bioenergetics; kinetics and mechanisms of enzymes; and an introduction to molecular genetics, and biochemical dynamics of DNA and RNA. *Prerequisites: Bio 201 and Ch 231. 3 credits*

Ch 362 **Physical Chemistry II**
Continuation of Ch 261 with emphasison electrochemistry, chemical kinetics and solid state chemistry. Selected topics. *Prerequisite: Ch 361. 2 credits*

Graduate

Ch 435 **Organometallic Chemistry**
Fundamentals of Organometallic Chemistry with an emphasis on homogeneous catalysts applied to organic transformations. Study of the electronic configuration, geometry, and stability of transition metal complexes. In-depth discussion of the mechanistic steps of the catalytic reactions and the kinetic methods to study them. Analysis of how steric and electronic properties of the ligands, oxidation state and coordination number of the metal influence catalytic activity and selectivity. Topics extend from historical discoveries to the advent of new catalysts. Through a combination of textbooks, research presentations, and scholarly journal articles, students will gain insights into how organometallic chemistry drives innovation in academic research and the chemical industry. *Prerequisites: Ch 232 or Ch 232.1. 3 credits*

MATHEMATICS

Undergraduate

Ma 341 **Differential Geometry**
Theory of curves and surfaces, curvature, torsion, mean and Gaussian curvatures length, area, geodesics, 1st and 2nd quadratic forms, conformal mapping, minimal surfaces, tensor formulation and applications. *Prerequisites: Ma 223. 3 credits*

Ma 347 **Modern Algebra**
Sets and mappings, the integers: well ordering, induction residue class arithmetic, Euler-Fermat theorems. Permutation groups: cyclic decompositions. transpositions, conjugate classes of permutations. Abstract groups: morphisms, subgroups, cyclic groups, coset decompositions. Factor and isomorphism theorems. Direct products of groups. Sylow's theorems. *Prerequisite: Ma 326. 3 credits*

Ma 352 **Discrete Mathematics**
Relations. Mathematical structures. Number theory. Algorithms. Complexity of algorithms. Cryptology. Recurrence relations. Graph theory. A shortest-path algorithm. Planar graphs. Trees. A maximal flow algorithm. Finite-state automata. Languages and grammar. Turing machines. The Church-Turing thesis. Unsolvable problems. *Prerequisite: Ma 110. 3 credits*

PHYSICS

Undergraduate

Ph 112 **Physics I: Mechanics**
Static equilibrium, kinematics, Newton's Law's, non-inertial frames of reference, system of particles, work and energy, linear and angular momentum, rigid body motion, conservation laws, oscillation. *Prerequisites: Ma 110 and Ma 111; Prerequisite and corequisite: Ma 113. 4 credits*

Ph 214 **Physics III: Optics and Modern Physics**
Geometric and physical optics, electrical and magnetic properties of matter. The quantum theory of light. The quantum theory of matter. Atomic structure.
Prerequisite: Ph 213 and Ma 223. 3 credits

Ph 348 **Flow Visualization**
Study of a broad range of fluid flow phenomena emphasizing the features and patterns characteristic of each. Introduction to visualization techniques used to reveal and capture details of these flows, leading to the application of these techniques to actual flows in the lab or in the field. Essential photographic methodology for still images and movies, including lighting, exposure, depth of field and digital image post-processing. Use of tracers, including dyes, vapor, bubbles and particles as well as optical tools, such as schlieren and/or shadowgraph. Natural and engineering flows will be examined, beginning with mathematical and physical analysis of visualizable properties, including buoyancy, interfaces, vorticity, streamlines and pathlines, and concluding with an actual image or movie. Motivated by the immense scientific and engineering importance of flow visualization in vehicle design, dispersal of environmental pollutants, biomedical flows and many others, flow images are an important form of technical communication and will be critiqued and improved, culminating in a final project exhibition.
Prerequisites: ESC-340 or ESC-140. Open to all students. 3 credits

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

HSS MINOR

School of Architecture

Irwin S. Chanin School of Architecture students in good academic standing (3.0 GPA or better) who complete a minimum of 15 elective credits (in addition to the HSS-1–4 core sequence) in a specific field of HSS may qualify for a Minor in that field. Students must earn a B or better grade in these elective courses.

Architecture students entering in AY 2024–2025 and onwards must complete a minimum of 12 elective credits for these Minors. All other criteria remain the same.

Architecture students may apply for HSS Minors in the following fields:

1. Art History
2. Economics and Public Policy (see note below)
3. History and Society
4. Literature
5. Science, Technology, and Society

A student's fourth semester is the best time to start an HSS Minor.

Please set up a meeting with the HSS Academic Advisor, to start the process.

School of Art

School of Art students in good academic standing (3.0 GPA or better) who complete a set number of elective credits (in addition to the HSS-1–4 core sequence and HTA-101–102) in a specific field of HSS may qualify for a Minor in that field. Students must earn a B or higher in all courses for them to be considered for the HSS Minor.

Please note, only HSS courses may count towards an HSS Minor.

HSS Independent Study Policy

An Independent Study is designed by a student and an HSS faculty member to deepen an investigation in a field or specialization not offered in the scheduled course offerings. The course of study and assignments for a 2-credit independent study typically consists of a reading list comparable to that required for a regular 2 credit course (HTA electives, for example), which can range from 30-50 pages of reading per week, and a total of 12 pages of polished writing for the semester. A 1-credit independent study requires 2 hours of work outside of class per week; a 2-credit independent study requires 4 hours of work outside of class per week. An Independent Study cannot exceed 2 credits.

Eligibility requirements:

- Juniors, seniors, or 5th year Architecture students;
- cumulative GPA of 3.0 or higher;
- successful completion of a previous course with the supervising HSS faculty member

COURSES

Core Curriculum

HSS 1 **Freshman Seminar**
A literature course concentrating on poetry and drama. Selected texts from antiquity and the Renaissance are common to all sections, with works from other genres, periods and cultures chosen by individual instructors. The course develops aesthetic appreciation of literary texts and encourages a range of critical responses. Through close reading, and extended discussion, students learn to articulate their responses in written and spoken form. *3 credits*

HSS 2 **Texts and Contexts: Old Worlds and New**
A study of texts and topics from 1500 to 1800, with emphasis on literary expression and cultural context. Topics include the formation of states, exploration, the encounter with the New World, the crises in religious orthodoxy, the origins of modern science and the beginnings of political and economic individualism. This semester develops both cultural and political understanding through close reading, class discussion and careful writing. *3 credits*

HSS-3 **The Making of Modern Society** A study of the key political, social and intellectual developments of modern Europe in global context. This course is organized chronologically, beginning with the Industrial and French Revolutions. Students develop an understanding of the political grammar and material bases of the present day by exploring the social origins of conservatism, liberalism, feminism, imperialism and totalitarianism. In discussions and in lectures students learn to study and to respond critically in written and spoken form to a variety of historical documents and secondary texts. Students must register for HSS-3-L1 as well as one HSS-3 section. All students enrolled in HSS-3 must attend the HSS-3 Monday lecture.

HSS-4 **The Modern Context: Figures and Topics** A study of an important figure or topic from the modern period whose influence extends into contemporary culture. The figures and subjects are chosen from a broad range of disciplines (including literature, history, politics, technology and art history, among others). Through concentration on a single figure or focused topic students are encouraged to develop a deep awareness of works of great significance and to understand them in the context of modernity. Guided independent writing projects and oral presentations give students an appreciation for what constitutes research in the humanities and social sciences.

History and Theory of Art, Core

HTA 101, 102: **Modern to Contemporary: An Introduction to Art History**
This two-semester art history core course, developed as part of the Foundation year for students in the School of Art but open to all students, is organized around a set of themes running through the history of modernity from the 18th century to the present. Within specific themes, significant works, figures and movements in art/design will be presented chronologically. Students will be able to identify and critically evaluate significant works, figures and movements in art/design in the modern period; be able to describe the main social and political contexts for the changes in art/design over the last two hundred years; and engage, in writing and class discussion, with theoretical perspectives on art/design production. The course will involve museum visits. Grading will be based on class participation, papers, and exams. *3 credits each semester*

Humanities & Social Sciences

HUM 231 **Dance in Epidemics and Pandemics: Experimental Dance from AIDS to COVID-19**
The moving body is the fundamental material and main subject of dance; the body is also fundamentally at risk to and a vector of transmissible diseases. In very different eras, two major public health crises - the AIDS epidemic, and the COVID-19 pandemic—have challenged how we relate to our own bodies, and dance has been uniquely situated to address these challenges as it works to conceive and shape the body. Some themes the course will engage include: How did the AIDS crisis cause American society to confront its understanding of sexuality (among other things), and what role did dance play in this confrontation? How has COVID highlighted existing societal inequities along racial and class lines, and how has a cultural practice like dance—that often depends on many people gathering together, and requires many financial resources—both reflected these inequities, as well as offered possibilities

for change? Finally, given the ongoing nature of COVID, what can our study of the AIDS crisis teach us about the current moment, in dance and in society? In examining the intersection of dance and these public health crises, this course will consider how sexuality, race, and class converge on the body, and use methods particularly developed by and through dance scholarship to analyze these essential issues with a multifaceted and interdisciplinary approach. Finally, we will ask what dance can do as we navigate through the lasting effects of the current pandemic. *3 credits*

HUM 250 **Shakespeare**
Our course will be devoted to really reading Shakespeare—understanding how the plays work, what characters say and do, the imagery and thematics of Shakespeare's dramas, and the performance practices of the Elizabethan and Jacobean era. We will also consider the cultural milieu of the plays—the historical, political, and religious world they inhabit—in order to deepen our access to Shakespeare's language and to hear it with both his ears and our own. *3 credits*

HUM 304 **Dance and Society**
This course will reflect on how various performance practices of the 20th century related to the world they were in. More generally, we will focus on moments of significant social change in American culture in the 1930s, 1960s, and 1990s, examining how performance practices embody and engage with that social change. Students will gain broad familiarity with how to read experimental art and performance in relation to its surrounding culture, and will research artists and/or movements of their choosing for their final projects. This course will take these questions and modes of engaging with performance to reflect on our current world, considering how we might better understand the social changes of our current day in light of our understand and construction of the past. *3 credits*

HUM 308 **Creative Writing**
Students will read a variety of experimental fiction and nonfiction in order to draw stylistic elements that they will include in their own writing. Additionally, students will complete a diverse range of creative writing exercises, which may lead to longer works that they have workshopped by the class. Students will leave the course with a portfolio of their own experimental writing and a deeper understanding of the relationship between form and function in literature. Readings include but are not limited to: Levels of Life (Barnes); Minor Feelings (Hong); These Possible Lives (Jaeggy); The Friend (Nunez); Department of Speculation (Offill); Grapefruit (Ono); Don't Let Me Be Lonely (Rankine); "The Depressed Person" (Wallace). *3 credits*

HUM 330 **Postmodernism and Technology**
This course will explore postmodern theory and practice and its relationship to the problems and solutions posed by technology in contemporary society. *3 credits*

HUM 348 **Greek Tragedy**
An in-depth introduction to Greek tragedy, both as literature and performance. The methodology throughout will be close-reading, using comparative translations, with portions of the texts performed in class. The genre of tragedy will be presented against the background of its historical and cultural context, Athens of the fifth century, BCE. The most significant surviving ancient critical treatise on Greek tragedy, Aristotle's Poetics, will be measured against the authority of surviving works. Some important secondary readings will be assigned, but the emphasis throughout will be on primary source materials. *3 credits*

HUM 356 **Issues in Contemporary Fiction**
Study of literary topics including particular genres, themes, sensibilities and critical approaches. The focus of this course will change in individual semesters. *3 credits*

HUM 387 **The Life and Death of Socrates**
Socrates, the son of a humble stonemason, Sophroniskos, was one of the most remarkable, controversial and influential human beings who ever lived. Though he left behind no written testimonial of his peculiar, singular genius, we know quite a bit about him through the accounts and recollections of his contemporaries, critics and followers, primary among them, Plato, Xenophon and Aristophanes. Based almost exclusively on readings of the major ancient texts, the course focuses less on the philosophy of Socrates, as filtered through the great and not unbiased lens of his most famous student, Plato, than on the man, his physical demeanor, his way of life, his loves, his friendships and especially his trial and death in 399 B.C.E. *3 credits*

HUM 391 **Philosophy of Ecology**

This course explores the development of ecology and its entanglement with philosophical questions about nature and society. How does this "subversive science," as it's sometimes called, challenge human-centered traditions of knowledge and dominant views of nature? In our time of planetary crisis, ecology asks us to think about the world in complex and relational ways, pointing to the radical possibilities of kinship with other species and care for the web of life that sustains us. Our course will begin by tracing ecological thinking from Linnaeus and Darwin to the foundational 20th century research that helped define ecology as a science, with the rise of plant succession studies, systems ecology, and energetics. Along the way, we will explore a multidisciplinary range of texts that help us to consider the implications of key ecological concepts and debates for critical perspectives on built and cultivated environments; class, race, and gender; and capitalist production, land use, and colonialism.

Looking at ecological relationships that span from our surroundings in New York City to other complex systems around the world, we will discuss questions drawn from eco-philosophical movements and fields such as environmental justice, deep ecology, ecofeminism, anthropology of science, and political ecology. We will ask: How does foregrounding the interconnections between things modify our understanding of social and natural categories? What role does imagination play in scientific methods and cultural representations of science? How might ecology help us rethink economy, design, and infrastructure? How does it shape our commitments to human and non-human others in the face of climate change, habitat loss, and mass extinction? What would it mean to live within the regenerative capacity of our ecosphere? *3 credits*

SOCIAL SCIENCES

SS 320 **Immigrants in Place**

In this course, students will critically interrogate majority aesthetic norms by studying a multiplicity of spaces occupied by immigrants in New York City. Students will be invited to critique the colonial heritage of spatial aesthetics in the West, placed in opposition to various immigrant experiences, considering immigration and immigrant groups in their varied historical, socio-economic, and political contexts. Students will take on individual research projects around specific New York City immigrant groups, beginning with the group's context and ultimately observing the group's aesthetics as projected internally and externally. Through reading, discussion, and workshops, students will become immersed in a chosen immigrant group's spaces in New York City and will use this knowledge to challenge majority spatial aesthetic norms. While ostensibly relevant to both art and architecture students, this course has much deeper appeal across the college regardless of discipline. We are living and studying in this city of immigrants, including Cooper students, many of whom are themselves first- or second- generation. The work raises personal cultural questions such as how one's own immigrant group perhaps influenced her/his/their path of study, how different such groups value art, architecture, and engineering, if critical perspectives on imperialism can alter the perception of one's own work, and so on—all this lending to a richer debate over cultural norms in the West. *3 credits*

SS 322 **History and Visuality in the 20th Centur**y

This course exposes students to methods of historical inquiry that uncover evidence beyond the written word. Historical contextualization of film and photography forms the basis of case studies that model the process of archival recovery and analysis from the perspective of the historian. Through this process, students will better understand the ways in which visual/material objects circulate, and how this circulation helps define social relations across geographic bounds. Along the way, students will consider how interpretations of historical phenomena can be impacted by critical interventions in the fields of archival studies and documentary studies. Site visits to Cooper Union's Library, its Archives and Special Collections, and the Lubalin Study Center for Design and Typography will reinforce these processes and provide opportunities for in-person engagement with material artifacts. Final projects will consist of rigorously researched, historically rooted multimedia works, with the opportunity to present at a community symposium. *3 credits*

SS 334 **Microeconomics**
Microeconomics is primarily the study of the determinants of prices and the distribution of income. The focus is on studying the strategic behavior of individual business firms, workers and consumers in dynamic interaction with the institutions that shape and constrain this behavior, while also being subject to change themselves through legal and political action. We will look at how certain aggregate patterns 'emerge' from the complicated interaction of interests while studying how societies can structure production and distribution systems toward specific goals. *3 credits*

SS 338 **What is Property? Black, Indigenous, and Feminist Theories of Property**
Assessments of personhood that depend on property ownership—of a plot of land, of earthly or artificial material, of self, of another person—can be found throughout political and economic thought. In this course, we will explore the conceptual and historical development of property in its racial, colonial, and sexual representations. What is the relationship between property and personhood? What political and economic ideas have informed subject positions of owner, owned, and dispossessed? How has the concept of the "possessive individual" affected the lives of Indigenous peoples, enslaved Africans, women, and workers? How have modern property relations and material possession been challenged by these groups, and what kinds of "re-possession" are possible in the face of dispossession?

Together we will identify historical patterns of ownership and dispossession and Black, Indigenous, and feminist critiques of them through analyses of race, empire, gender, segregation, occupation, surveillance, and social reproduction. We then consider how communities have experienced, upheld, and contested property logics. This second half of the course encourages us to think capaciously about material, legal, and symbolic infrastructures that both (1) reenforce patterns of dispossession and (2) forge conditions for radical struggle within, against, and beyond dis possessive property regimes. *3 credits*

SS 366 **Migration and Empire**
This course will focus on the stories of migration within the British Empire, and the ways in which colonial subjects moved, or were forced to move, to make new lives in places that were completely unfamiliar, except for the overarching context of Empire. Whether voluntary or forced, this migration changed not just the demographics of places around the world, but also profoundly transformed culture and the economics of labor. This migration took on many forms—from people seeking new work opportunities to those forced to move because of indenture, and from people fleeing wars and persecution to those seeking to reunite with separated families—and remains a contested topic in today's world. We will read about South Asian merchants who moved to East Africa to become critical economic entrepreneurs, about formerly enslaved Africans who were sent to the Caribbean to perform indentured labor, and the migration of the Chinese to Singapore as a replacement for "lazy natives," among other examples. And we will also focus on the ways in which the British Empire developed new tools and technologies of surveillance and permits—including the passport as we know it today—to control the movement of colonial subjects. The migration of various colonized people was a critical subplot in the story of Empire, and the course will highlight the ways in which these immigrants tried to overcome draconian colonial administrative states to build successful lives in foreign lands. *3 credits*

SS 371 **"Am I That Name?" Topics in Gender and Sexuality**
This course offers an introduction to the fields of inquiry that have come to be known as women's, gender, and/or queer studies, and to the feminist theory that informs those studies. Students will engage in an interdisciplinary examination of the ways in which gender (that is, feminity and masculinity) has been constructed by visual media, literature, political theory, and social, political, and economic institutions; the historical bases for these constructions; and the activism that challenges some of these gender constructs. We will pay particular attention to the interlocking of gender with other forms of hierarchy, including race, ethnicity, class, and sexuality. We will read current scholarship in works of literature, film, history, social science, and theory, but above all, we will work our way through some of the "canonical" texts which inform that current scholarship, theory, and indeed popular culture (and our own ideas about women and men, gender and sexuality) *3 credits*

SS 382 **Game Theory**
Game Theory can apply in life, business, and beyond. This course presents the study of strategic & interactive decision-making processes among rational parties so as to extract the maximum payoff. Using matrices and simple mathematical formulations, students will be introduced to various models, and in particular to the prisoner's dilemma, sequential games, and Pareto optimal solutions. *3 credits*

HISTORY AND THEORY OF ART

Electives

HTA 231 **History of Industrial Design**
In tracing the history of industrial design from its emergence at the beginning of the Industrial Revolution to the present, this course will examine not only aesthetics (of furniture and the decorative arts, typography, advertising, machinery, toys, etc.) but also the social and political forces that have shaped the many styles. Throughout, we will also demonstrate how movements in industrial design relate to parallel developments in the history of painting, sculpture, and architecture. *2 credits*

HTA 271 **The Hellenistic Age: Art & Society in an Ancient Multicultural World**
Following the campaigns of Alexander, the Greeks spread across the Middle East as far as Egypt, Central Asia and India, where they encountered many cultures vastly different from their own. The result was the creation of a diverse, multicultural world, connected by shared elements such as the use of the Greek language, but in which every individual region and society was unique. This diversity is especially evident in the art produced in this period, where we see the Greek obsession with human form, preferably nude, mixing with older artistic traditions in Egypt and Mesopotamia that relied on hierarchy and repetition to perform their functions. In Italy the Romans adopted aspects of Greek art as a means of disrupting their rather stodgy political ideology, with mixed results, whereas in India Greek motifs, popular for reasons as yet unknown, were pressed into the service of Buddhism.

We will focus especially on themes of interaction—how do old and new artistic traditions combine—and identit—what did these combinations mean to the people who made and used them?—as well as on the roles of power and resistance. *2 credits*

HTA 273 **History of Photography**
Our study of the history of photography will reckon with technological innovations embedded in the medium. The always changing materiality of image cultures shape our experiences and understanding of photography. We will study photography from the mid-19th century to the present through the social and economic conditions that define the processes of making images with such devices as the camera obscura, to Kodak's Brownie; analogue large format to Polaroid land cameras; 35mm point and shoots to camera phones; body cameras on police to the servers that store their data. Together we will investigate how photography, through these shifting modes of recording and distributing images, collaborates with other mediums and practices such as performance art, political organizing, and poetry. *2 credits*

HTA 298 **History of Graphic Design**
A study of important avant-garde and graphic design movements starting with the Industrial Revolution through the 20th century including: Futurism, Dada, Constructivism, De Stijl, the influence of the Bauhaus and the New Typography, the rise of the modern movement in America, pre and post-war design in Switzerland and Italy, the International Typographic Style, the New York School, corporate identity, postmodernism and more. We'll examine the evolving design styles and the role of the pioneer designer in society, with an emphasis on notable works, subjects and themes; and their cultural, political and social connections. Course includes slide lectures, readings, discussions, looking at original materials (posters, advertisements, booklets, etc.), individual research assignments and written essays. *2 credits*

HTA 300 **Single-Artist Seminar**
A course devoted entirely to the life and work of one important artist, selected anew from across the spectrum of world art each time it is offered. The seminar is designed to allow for an in-depth experience in the discipline of Art History that extends well beyond what is possible in period survey courses. *2 credits*

HTA 310 **Queer Art and Theory**
This course focuses on conversations between queer art practices, queer studies of contemporary art, and queer theory. The term "queer" is mobilized to both rework the slur of shame and injury into a term of self-identification and non-normative political positioning, and also as a critical questioning of the norms and categories of sexual identity and practice ("queering"). Queer theory has direct import for the study of contemporary art, as many of its key concepts have been developed in and through the visual, and scholars have taken up issues of gender, sexuality, and sexed embodiment as central to the formation of art historical narratives and their exclusions. In turn, queer artists contribute to queer theory by appropriating and contesting conventional art practices, mediums, and histories in order to visualize and produce alternatives. Rather than presenting a genealogical history of queer art, this course explores key theoretical texts that have shaped contemporary queer art practices, and at the same time, how queer art practices operate as their own theoretical propositions and interventions. This course also focuses on how the political aims of queer art and theory are crucially shaped by intersections of critical race, postcolonial, transgender, class, and crip politics. Investigating visual practices of queering as they intersect with queer theories and studies of contemporary art, we explore critical concepts and visual tactics that include abstraction, archival interventions, camp, disidentification, ecologies, performativity, necropolitics, public feeling, and worldmaking. *2 credits*

HTA 313 **Seminar in Art History**
A seminar based on a special topic in the study of Art History. The seminar may be repeated for credit with the permission of the dean of the Faculty of Humanities and Social Sciences. *2 credits*

HTA 313-L1 **Art of Colonial South Asia**
This seminar aims to teach students how to look at, think about, and engage critically with the visual culture of British India. Together, we will examine the repercussions of the Anglo-Indian colonial encounter on the disciplines of painting, decorative arts, photography, and architecture. We shall not only study the objects themselves, but interrogate the cultural, political, and intellectual circumstances under which they were produced, circulated, collected, and displayed. Finally, we will explore the legacy of the British empire today—its influence on contemporary art, the politics and practices of museum displays, repatriation debates, and beyond. The course will involve visits to museums around the city. For the final project, students will conceptualize their own exhibitions, selecting eight artifacts that present a broad view of the art of colonial South Asia. *Spring 2024*

HTA 313-M1 **Artists' Writing**
This course is an introduction to artists' writing from the postwar period to today, either as an integral or a complementary part of their practice. In this course, artists' writings will be discussed in relationship to the visual works. The content is roughly organized chronologically and according to various literary genres: biography, autobiography, homage, interview, poetry, fiction, auto-fiction, as well as opinion or position pieces and theoretical essays. An alphabetic indicative selection of authors discussed in this course includes Vito Acconci, Louise Bourgeois, Theresa Hak Kyung Cha, Liam Gillick, Philip Guston, Lynn Hershman Leeson, Allan Kaprow, Robert Morris, Yoko Ono, Nan June Paik, Lorraine O'Grady, Faith Ringgold, Martha Rosler, Carolee Schneemann, Hito Steyerl, KimSu Theiler, Lucia Vernarelli, as well as a number of artists' Manifesti authored collectively. This selection particularly focuses on representing the significant but often underrepresented field of writings by women artists. As the assigned texts are in English, issues of translation as well as writing in English as a second language will be addressed; students are also encouraged to discuss writings in other languages than English for their assignments. In addition to studying artists' texts, students will produce a significant amount of writing for this course (some of which will happen during class time) as well as be required to work closely with the Center for Writing and Learning. *Spring 2024*

HTA 313-N1 **Performance and Property**
Examining key texts from critical race theory to contract law, feminist approaches to reproduction to decolonial critiques of the museum, this course develops multiple overlapping challenges to property and situates them within histories of performed and embodied art. We will study the racial, sexual, and colonial politics of performance, considering in particular questions of subjection and objecthood; repetition and deviation; ritual and documentation; and preservation and decay. Together, we will ask: Can we use performance art to explore, contest, and renegotiate property? What is property's relationship to labor, occupation, law, and natural right, and how might performance rework those fundamental logics? What alternative methodologies and practices for the transmission and maintenance of cultural material does performance introduce in order to resist rendering expression and/or artwork into property? Students will develop a series of writing projects over the course of the semester and acquire a critical vocabulary to approach and write with performance art across culture and time. *Spring 2024*

HTA 313 U1 **Contemporary Art and Performance**
This course examines the interplay of contemporary art and performance—an interplay that we will study under the rubric of theater as a medium that demands active complicity in a specific physical relation. That approach will lead us to engage with embodiment and subjectification as expressions traversed by race, gender, and strong desire (sexuality). In that sense, performance will be investigated as a methodology anchored in the material conditions and objects from which it emerges, while also challenging reductive notions of "liveness" and "ephemerality" that have come to define it. Foregrounding Black, trans, and queer perspectives, contemporary performances will be read alongside performance studies, critical theory, visual art, art history, theater, and dance. Likewise, we will explore our own interval as interpreters through close reading, description, and analysis of live and recorded works, navigating the space between observation and participation. *2 credits*

HTA 313 W1 **Arts of China**
This seminar surveys major works of Chinese art from prehistory to the contemporary period. Students will examine a wide range of objects—from ritual bronzes and Buddhist cave temples to court painting, ceramics, gardens, and modern ink painting—in relation to their material, social, and historical contexts. Emphasis is placed on the interpretation of visual material through close looking, primary sources, and current scholarship. *2 credits*

HTA 316 **Monuments, Artist Interventions and the Struggle for Memory**
On August 12, 2017 white supremacist and Neo-Nazi groups converged on Charlottesville, Virginia to protest the city's planned removal of a Robert E. Lee statue. In the aftermath of the violence in Charlottesville, citizens in Durham, North Carolina took matters into their own hands, felling a Confederate soldier monument. This course considers the contentious debates involved in erecting and removing such artworks. We will ask: What visual strategies have artists used to commemorate controversial histories in the 20th-century Americas? How have subsequent generations questioned, reimagined, and subverted these strategies? The course centers on debates over racial justice and monuments to the US Civil War and slavery, but will also consider memorials to other violent histories across the Americas. Students will gain an understanding of public sculpture since the late 19th century, while also exploring embodied and ephemeral practices such as parades, reenactments, performance, and graffiti. *2 credits*

HTA 338 **View Source: Internet Art**
In 1989, the fall of the Berlin Wall and the invention of the World Wide Web signaled a new era of global capitalism, information exchange, and connectivity. For artists, the Internet became an ideal platform for networked computational experimentation, building on practices underway since the 1960s such as mail art, video art, cable television, and telematic and cybernetic art. Free from earlier closed government and academic networks, and exchanging the white cube for users' desktops, artists quickly gained access to new tools, audiences, and communities.

In this course, we will look closely at key works of Internet art from the 1990s to the dotcom crash in the early 2000s, including Donald Rodney's Autoicon (1997–2000), Aboriginal Territories in Cyberspace's CyberPowWow (1997–2004), Mendi + Keith Obadike's Black.Net.Art Actions (2001–2003), programming duo JODI's glitched out websites (1995–1999), and cyberfeminist collective VNS Matrix's online and irl agitprop (1991-1997). We'll approach each work and practice as a node in the larger history of Internet art, connecting it with other works and online communities to better consider the ways that artists seized on this digital cultural shift to explore issues of personhood, identity, community, consumerism, surveillance, globalism, narrative, access, and code. We will learn about Internet art distribution, display, and preservation by examining landmark online and independent exhibitions, its uptake by conventional art institutions, and ongoing archival efforts. We'll visit digital arts-focused local institutions and host guest artists and researchers to further our discussions. You can expect readings in media theory, postcolonial studies, posthumanism, cyberfeminism, queer theory, cultural studies, and art history, along with primary texts from early online forums and magazines. And, of course, we'll also watch the cult 1995 film, *Hacker*s. *2 credits*

HTA 351 **Modernism and Intermediality**

This course reevaluates the high modernist ideals of medium specificity and autonomy by animating artists' work across media and collaborations with creatives in other disciplines, including dance, performance, theater, music, craft, design, poetry, publishing—even forays into archaeology and ecology. Throughout, we will devise alternate vocabularies and frameworks to account for the period against the restrictive conventions of formalist criticism, which dictated that visual artists focus on the formal concerns of their given medium without recourse or reference to other disciplines, especially literature and popular culture. Problematizing the modernist project's exclusionary rhetoric of medium "purity" as vested in paradigms of gender, sexuality, race, labor, class, and nationality we will examine how intermedial projects rerouted and upended normative values. The course introduces attendant strategies such as embodiment, genre conflation, improvisation, ethical participation, and empathetic corporeality, alongside notions of alterity, disaffiliation, transmediality, subcultural codes and communication, collaborative kinship, and solidarity. Centering on artists and movements in Central, South, and North America between 1920-1960, we will chart how cross-disciplinary projects structured transnational networks through performance, publications, and exhibition-making. *2 credits*

ADMINISTRATION, FACULTY AND STAFF

THE IRWIN S. CHANIN SCHOOL OF ARCHITECTURE

Adjunct Faculty

Kian Wee Chen
Assistant Professor

Khaled Malas
Assistant Professor

Leah Meisterlin
Associate Professor

Guillermo Ruiz de Teresa
Assistant Professor

Anthony Titus
Professor Adjunct

THE SCHOOL OF ART

Deans

Adriana Farmiga, Dean
(as of Summer 2024)
BFA, The Cooper Union, New York, NY; MFA, Bard College, Annandale-on-Hudson, NY

Yuri Masnyj, Assistant Dean
BFA, The Cooper Union, New York, NY

Administration

Fia Backstrom
Associate Professor
Academic Advisor
(effective June, 2025)

Emmy Mikelson
Director of Studio and Technical Operations

Nazig Tchakarian
Director of Academic Operations
(effective February, 2025)

Alexander Tochilovsky
Director, Herb Lubalin Study Center of Design and Typography

Adjunct and Visiting Faculty

Michael Ambron
Adjunct Instructor

Benjamin Degen
Adjunct Instructor

Sara Cwynar
The Henry Wolf Chair in Photography (Spring 2025)

Ignacio González-Lang
Adjunct Instructor

Carlos Little
Adjunct Instructor

Chico MacMurtrie
The Robert Gwathmey Chair (Spring 2025)

Nadir Souirgi
Adjunct Instructor

Staff

Cyrus Blaze-Hodge
Technical Assistant, Art & Architecture Shop; Printmaking

David Derish
Technical Assistant

Cassie Jain
Technical Assistant, Photography

Harris Martinson
Technical Assistant, Art & Architecture Shop

Eva Rodríguez
Exhibitions & Special Projects Technician

Jess Rowland
Lead Audiovisual Coordinator, Film/Video

ALBERT NERKEN SCHOOL OF ENGINEERING

Adjunct Faculty

Moni Chauhan, Chemistry

Shivam Mevawala, Electrical Engineering

Eli Pines, Chemistry

Viviana Vladutescu, Physics

FACULTY OF HUMANITIES AND SOCIAL SCIENCES

Adjunct Faculty

Leila Ben Abdallah
Adjunct Assistant Professor

Neena Verma
Adjunct Instructor

Elizabeth Weckhurst
Adjunct Assistant Professor

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Lou Manzione ChE'75, vice chair

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Effective January 1, 2025

CABINET

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Natalie Brooks, vice president, administration

Troy Cogburn, vice president for enrollment

Hayley Eber, acting dean, The Irwin S. Chanin School of Architecture

Adriana Farmiga, dean, School of Art

Grace Kendall, acting dean of students; Title IX coordinator

Appointed Dean of Students and VP Student Affairs, July 14, 2025

Malcolm King, interim president

Steven McLaughlin announced as 14th president of The Cooper Union, April 21, 2025

Mindy Lang, creative director

Mokena Makeka, special advisor to the vice president of academic affairs

Michelle Marsh, interim chief of staff

Yuri Masnyj, assistant dean, School of Art

Kim Newman, media relations manager

John Ruth, vice president, finance and administration

Ruben Savizky, associate dean, Albert Nerken School of Engineering

Barry Shoop, dean of the Albert Nerken School of Engineering

Antoinette Torres, vice president, institutional effectiveness

Mersiha Veledar, acting assistant dean, The Irwin S. Chanin School of Architecture

Appointed Acting Associate Dean, May 31, 2025