

THE IRWIN S. CHANIN SCHOOL OF ARCHITECTURE OF THE COOPER UNION
M.Arch II Schedule
Spring 2021

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9AM	ProSeminar ARCH 401 Kogod 10AM-12:50PM online 2 credits	NYC: 5000 Yr History CU 102 Gersten 9-9:50AM online 1 credit GradSemUrbanStu ARCH 483.25 Vidler 10-11:50AM online 2 credits	GradSemUrbanStu ARCH 483.26 Bates 9-10:50AM online 2 credits GradSemThHistCrit ARCH 485.40 Zinguer 11AM-12:50PM online 2 credits	GradSemThHistCrit ARCH 485.51 Akawi 10-11:50AM online 2 credits GradSem Tech ARCH 482.33 Kallipoliti 12--1:50PM online 2 credits	GradSem Tech ARCH 482.25 Morrow Wu 9-10:50AM online 2 credits GradSemThHistCrit ARCH 485.28 Bokov 11AM-12:50PM online 2 credits GradSemThHistCrit ARCH 485.33 Gersten 11AM-12:50PM online 2 credits
	GradSemUrbanStu ARCH 483.27 Lotfi-Jam	Grad Design ARCH 411 Agrest 2-5:50PM online 6 credits	Grad Design ARCH 411 Agrest 2-5:50PM online GradSemTech ARCH 482.32 Aranda, Keene 6-8:50PM online 2 credits	Grad Design ARCH 411 Agrest 2-5:50PM online	Shop Tech FA 100RB 1-2:50PM online 1 credit
2PM	1-2:50PM online 2 credits				

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Spring 2021 Graduate Seminar Descriptions

ARCH 482.25 GRADUATE SEMINAR IN TECHNOLOGY

Gina Morrow, Xiaoxiao Wu

Friday 9-10:50AM

online

2 credits

Structural drawings have a distinct set of graphic conventions that clearly show the way loads travel through a building from the roof to the ground and how different structural materials (wood, concrete, and steel) resist these loads through their connections and framing strategies. The legibility of this graphic, technical language can readily reveal the clarity (or lack thereof) in the inherent geometry and material systems of buildings. In this class we seek to explore the meanings and connotations that plan, elevation, and section take on in the discipline of structural engineering. We will study engineering concepts through the reading and production of structural drawings, proceeding thematically by relating primary structural systems to their accompanying drawing forms. These systems will be examined through a sequence of drawing and analysis exercises with which students will work in groups to develop a structural design and set of drawings. In the second half of the semester a series of advanced, discrete topics will be introduced including structural detailing, the differentiation of material systems, and complex geometry. Concurrent with the lectures on advanced topics, students will research the original drawings for a structure of their choosing and develop an interpretive drawing that describes a particular behavior or feature of the structural system discovered in the source drawings. Through this collective research we hope to probe the conventions and the history of structural drawings to better understand this form of technical language which is often relegated to the background of architectural discussions but plays a critical role in the design of buildings.

ARCH 482.32 GRADUATE SEMINAR IN TECHNOLOGIES

Benjamin Aranda, Sam Keene

Wednesday 6-8:50PM

online

2 credits

MACHINE LEARNING FOR ARCHITECTURE & ART

Machine Learning for Art & Architecture is a cross-disciplinary seminar in Architecture, Art and Engineering schools where machine learning is used towards creative experimentation. Machine Learning describes a growing field of programming for systems that learn on their own and have the ability to improve without explicit instruction. A particularly novel aspect of this field is the ability to learn from large sources of data allowing for distinctly new kinds of exploration in many fields. Because these large datasets, whether found or created, act as the raw material in the learning process, they are fundamental to the results and critical to any idea of creative authorship with these tools. The seminar challenges students to create their own datasets and experiment with Machine Learning techniques in a highly speculative manner. The first part of the class explores the current state of the art of machine learning. Through a month-long survey, students become familiar with the predominant algorithms used for data analysis and creative output. They develop a proficiency using Neural Networks and the various generative techniques they foster. The intent of the class is to place students in a collaborative environment of art, architecture and engineering students, experimenting together on a subject matter that requires

creative abilities in the student's respective fields along with the technical proficiency of computer programming. This seminar is a continuation of similar classes taught by Benjamin Aranda and Sam Keene, where critical questions around the problem of machine learning guide class discussion such as, what does it mean for an artist, architect, or engineer to be assisted by machine intelligence and how might these new tools impact the idea of authorship? The second part of the class involves the creation of group projects that are guided by their own specific challenges to the creative process with a machine learning technique.

ARCH 482.33 GRADUATE SEMINAR IN TECHNOLOGIES

Lydia Kallipoliti

Thursday 12-1:50PM

online

2 credits

EDIBLE, OR, THE ARCHITECTURE OF METABOLISM

During the COVID-19 pandemic, the question of 'where our food comes from' became eminently important. The fragility of our production processes and the mobility networks that transport commodities and food, have urged new forms of localization and design of circular economies. "Food" in this course will be approached both literally and metaphorically. On the one hand, food explores architectural strategies of local production and self-sufficiency (e.g. urban agriculture, renewable energy); on the other, it integrates in the built environment operations that use by-products of urban life (e.g. livestock, agriculture, forest residues) as resources. The objective is to replace traditional linear systems of "make, use and dispose" with circular systems that limit material and resource loss or explore alternative pathways. With buildings being responsible for approximately 40% of energy consumption, 36% of CO2 emissions, and the building industry being one of the heaviest waste generators globally, it is indispensable for architecture to respond, pushing for alternative design and construction models, moving away from the current prevailing models-both intensely resources-consuming and contaminating. Rather, therefore, than a consuming built environment, this course will investigate strategies to produce a built environment able to generate resources – food, energy or materials.

ARCH 483.25 GRADUATE SEMINAR IN URBAN STUDIES

Anthony Vidler

Tuesday 10-11:50AM

online

2 credits

ARCHITECTURE AND THE CITY: FROM URBANISM TO URBAN DESIGN, 1945-2020

Reconstruction after World War II stimulated the production of a wide variety of approaches to the relationship of architecture to the city. Responding both to the war damage and to the historically blind destruction caused by "urban renewal" projects, and at the same time critical of the pre-War paradigms of CIAM and Modern Movement "urbanism," architects and urban theorists proposed new formulations that took into account social, visual, and historical conditions while attempting to adapt cities to the increasing demands of circulation, servicing, and public access. Selected cases will be analyzed in detail; participants will select their own for research projects. Case studies will include proposals by Kevin Lynch (*The*

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Image of the City, 1960); Melvin Webber and Richard L. Meier ("The Non-Place Urban Realm," 1966); Aldo Rossi (*The Architecture of the City*, 1966); Cedric Price (Potteries Thinkbelt, 1966); Alison Smithson (*Team X Primer*, 1968); Denise Scott-Brown and Robert Venturi (*Learning from Las Vegas*, 1972); O.M. Ungers (*The Green Archipelago*, 1977); Colin Rowe and Fred Koetter (*Collage City*, 1978); Rem Koolhaas (*Delirious New York*, 1966), Plater-Zyberk, et al (*The New Urbanism*, 1993) and will be studied in relation to competitions for the rebuilding of cities including London (MARS plan 1943), Berlin (Hauptstadt Berlin, 1950), Tokyo (Kenzo Tange Master Plan, 1960), Rome (Roma Interotta, 1978), Venice (Cannaregio, 1978), etc.

ARCH 483.26 GRADUATE SEMINAR IN URBAN STUDIES

Gary Bates

Wednesday 9-10:50AM

online

2 credits

SVALBARD – TACTICS FOR A POST-SOVEREIGN POLAR RESEARCH OUTPOST

Svalbard is a revealing sensor within the complex matrix of global political, informational, and economic systems. With less than 2,700 inhabitants, this unincorporated area foreshadows an emerging post sovereign state. Feigned interest in natural resources has enabled (46) nation states to innocuously manifest a strategic presence on the archipelago while advancing non-linear interests. Coal, technology, research, and environmental tourism all overlap in various forms and with a multitude of benefactors, many of whom blur or overextend the boundaries of neutrality encoded in the original Svalbard Treaty. The accumulation of interests, contradictions, and conflicts, amid a massive consolidation of technology are the foundations of this new structure, or rather new state. Svalbard's strategic position as a logistical juncture within future global shipping routes, optic cable paths, and geopolitical systems is quietly creating an enormous amount of speculation. The melting ice opens new definitions of boundaries for oil drilling rights and fishing zones. Strategic positioning by Russian and China keeps coalmining running while triggering a new market for land acquisition. NASA-funded satellite parks spearhead scientific research on the environmental effects of climate change. Meanwhile, new exotic forms of tourism are emerging: Arctic, polar sports, ghost towns, and science tourism. Through Svalbard the studio will investigate climate research where climate change is most visible, tourism where the environment is most fragile, food production in polar conditions, clean energy to replace nonrenewable resources, alternative forms of housing, polar technology and space research where conditions are most suitable. As these landscapes quietly transform, the future of Svalbard will impact all of us.

ARCH 483.27 GRADUATE SEMINAR IN URBAN STUDIES

Farzin Lotfi-Jam

Monday 1-2:50PM

online

2 credits

SIMULATION: THEORIES, ENVIRONMENTS, AND EVENTS

In September 2020 the German government announced EUR 32 million in funds for the cities of Hamburg, Leipzig, and Munich to develop the Connected Urban Twins project. This comes after

Wellington City Council in New Zealand proposed developing a National Digital Twin as an economic recovery response to the COVID-19 pandemic, and four years after the Singapore government in collaboration with Dassault Systèmes launched Virtual Singapore, a "dynamic three-dimensional city model and collaborative data platform" of Singapore. A Digital Twin, the latest product being marketed to cities by global logistics companies, is a virtual replica that maps data from objects in the physical city to digital proxies in a simulated city in order to produce a real-time representation of the patterns of urban life. At stake in this urban technology is the reliance on a computational model to make the city legible to decision makers, and to use this model to compute, control, and imagine urban futures. How, this seminar asks, are simulations and models like digital twins reading and representing cities. What does this mean for urban life? This critical technology course will simulate how the city is being simulated. A hybrid seminar-workshop, the class will combine readings and discussions with design workshops. Students will trace the emergence of a field of knowledge—spanning military, commercial and entertainment domains—concerned with making human decisions quantifiable and computable. We will look at how models of behavior from the cognitive sciences have been translated into object-oriented programming models. We will examine postwar military techniques that have made vast, distributed, and interactive combat simulations possible. We will see how these theories and techniques have converged in the last decade on the city in order to anticipate the behavior of human subjects. We will use the Unreal Gaming Engine—a software package for developing immersive simulations—to analyze and animate historical theories, contemporary algorithms, and global marketing campaigns that simulate the city.

* No prior technical knowledge necessary.

ARCH 485.28 GRADUATE SEMINAR IN THEORY, HISTORY, CRITICISM

Anna Bokov

Friday 11AM-1:50PM

online

2 credits

AVANT-GARDE AS METHOD: VKHUTEMAS AND THE PEDAGOGY OF MODERNISM

This course is conceived as an investigation into the origins of modernism through the lens of a radical avant-garde school – Higher Art and Technical Studios, known as Vkhutemas, which was a counterpart of the Bauhaus. Established in 1920, Vkhutemas created an entirely new type of interdisciplinary design education, by combining elements of beaux-arts and polytechnic models with the pioneering achievements in art and science. Like the Bauhaus, the groundbreaking Soviet institution articulated the ideals of the modern paradigm into a systematic body of knowledge, which could be taught as a design curriculum. Both schools served as incubators for the main protagonists of modern movement, from Wassily Kandinsky and El Lissitzky to Moisey Ginzburg and Hannes Meyer, allowing them to channel their intellectual explorations into innovative pedagogical platforms. While the course examines Vkhutemas in particular, it also asks larger questions about the nature of design pedagogy and the corresponding technologies of knowledge. Vkhutemas not only challenged the canons of professional education but transformed the very role of an architect, making it far more collaborative, experimental, and socially engaged. Using projects

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produced by the school and its affiliated organizations as case studies, the course encourages students to draw their own conclusions about new modes of design education, based on methodology rather than mastery, and to imagine new trajectories for architecture and its teaching, moving forward. The course is structured around the experiments of Vkhutemas – ranging from foundational exercises to advanced student projects, as well as key texts and design works of the protagonists themselves. Examining these will provide a more profound understanding of the means, methods, and theoretical underpinnings of the modern movement. The final project of the course will include critical writing and production of two and three-dimensional analytical works and will be conducted in conjunction with the upcoming centennial exhibition at the Cooper Union in the fall of 2021.

ARCH 485.33 GRADUATE SEMINAR IN THEORY, HISTORY, CRITICISM

David Gersten

Friday 11AM-12:50PM

online

2 credits

HINGES, MIRRORS AND ECLIPSES

Today, in these early days of the 21st century, the most common observation is transformation itself: cultural, technological, social, political, ecological and economical, we are in the midst of re-alignments and re-articulations of every aspect of our lives. The world is facing significant crises, the biological risks of the current pandemic are likely a first wave, setting in motion multiple systemic transformations, with billions of people at risk, we face a multitude of critical questions and challenges. There are people, communities, and institutions across all disciplines and across the globe that are increasingly confronted by the need for new models of asking the extraordinarily complex questions of our time. The Seminar, Hinges, Mirrors and Eclipses is grounded in the idea that the spatial, poetic and material imaginations afford us unique means of registering and creating transformation, of engaging the world and making a contribution. Working from the principle that our capacity to act in the world is grounded in our capacity to recognize and comprehend transformation, the course covers a large arc of content, asking questions of our world, our disciplines and our humanity. With examples from the over 50,000 year histories of art, architecture, poetry, film, theater, science, technology, finance, politics, industry, biology, religion and literature, we will move through a close examination of the nature of transformation. Much of this discussion focuses on turning points or hinges in these histories, including: The invention of the elevator, train and telegraph, the invention of modern incorporations, modern banking and electricity, the Copernican turn, Darwin and the transformations of Yoruba polytheism, the birth of the Greek theatre and the emergence of photography and film, the birth of 'the Nuclear' and the rise of GRIN technologies: Genetics, Robotics, Information technology and Nanotechnology. From the Cave Drawings to block-chain and the dawn of Crypto-currencies, the conversations will explore many forms of knowledge, agency, action and transformation. The transformations of our time contain great promises and great challenges. In the broadest sense, education holds the capacity of developing new questions, new

pathways of understanding and forms of knowledge that address the challenges of our increasingly complex world. Education offers the capacities to understand, to withstand and ultimately to create transformations that embody our best hopes and aspirations.

ARCH 485.40 GRADUATE SEMINAR IN THEORY, HISTORY, CRITICISM

Tamar Zinguer

Wednesday 11AM-1:50PM

online

2 credits

THE MASK OF ARCHITECTURE

The plague doctor in the 17th century wore a mask with a long beak sure to keep anyone at bay, and large enough to hold scented herbs that were to protect against the miasma, or smell, thought to carry the disease. Worn on top of a long coat, the ominous figure of this 'healer' was more likely to ward off bad spirits than to provide a soothing cure. Centuries later, the mask emblemizes our current moment. The entire world, in sync, has donned a new attire in a very short time. During a divisive period, when differences of opinion clearly pull people apart, this small piece of fabric has been embraced out of necessity regardless of beliefs and backgrounds. Subjects and objects usually amalgamate in the mask, calling into question what is being masked, and what is being signified. In architecture, the mask has a long cultural history and has become significant numbers of times. Since the Middle Ages, in town squares, men have masked themselves as animal characters and danced, taking over the streets in noisy rituals that drew crowds. A meeting point between outside and inside, the mask has traditionally been associated with the façade. The facades of Adolf Loos for example, 'masks of modernity', were white, impenetrable and shielding a much more private interior. Some anthropomorphic facades designed during the 1970's by Takefumi Aida (b. 1938), a Japanese postmodern architect, appeared to smile, hence questioning the performative expression of a house and the fictions that it shrouds. John Hejduk's Masques (1970s-80s) were not merely buildings but cultural acts, creating dialogues between city and characters. In this seminar, we will look at these examples and many more, finding case studies, and creating together a compendium of architectural masks. We will hear and read from sociologists, psychologists, artists and art historians about the mask. Working individually and in a group, we will write short essays, compile critical texts and gather illustrations to create by the end of the semester an anthology, ready-for-publication, which will connect today's predicament with other instances of terror and fear, cover and disguise, screens and veils; masked instances of architecture, audience and camouflage.

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ARCH 485.51 GRADUATE SEMINAR IN THEORY, HISTORY, CRITICISM

Nora Akawi

Thursday 10-11:50AM

online

2 credits

ARCHIVES AND ASHES: ARCHITECTURE AND THE POLITICS OF MEMORY AND FORGETTING

There is a stunning contrast between the simultaneous totality of both destruction and inscription enveloping the world today. On the one hand, vast regions of the world, and the lives of those inhabiting them, are considered discardable. They are left to drown or burn by climate violence and the war industry, sending into oblivion the knowledge, the claims, and the evidence that pertain to them, their ancestors, and their future generations. On the other hand, practically everything around and about us is being recorded, engraved, stored, disseminated, valued, and sold. What do we make of this seemingly irreconcilable contradiction? The meaning of 'archive' originates from the Greek *arkheion*: the address or residence of the superior magistrates, the archons, those who commanded. Archiviolic power is the power to destroy the archive (Derrida, 1996). Indeed, the power to record and to erase are one and the same. Architecture acts sometimes as accomplice, and others as stage in the practices of collective memorialization or designed forgetting. Archives, both digital and physical, are also the sites of resistance against erasure and oblivion. Through a close look at theoretical frameworks, historical references, and contemporary archival practices, this seminar will address the intersection of architecture and the politics of the archive.

Understanding that archives are constituted of selected fragments, frictions, and fictions, we will consider the potentials of archives to act as a site of contestation and argumentation, holding multiple narratives and enabling negotiation and dissent. We will pay particular attention to emancipatory archival practices, particularly in communities whose record and memory have been systematically targeted: from South Africa to Armenia, and from Gaza to the Bronx. From a close and critical study of a precedent, students develop an argumentative archival methodology to be tested in their past, present, or future design work.

CU 102 NEW YORK CITY: A 5000 YEAR HISTORY, PART II

David Gersten

Tuesday 9-9:50AM

(meets virtually once a week with a final 3-hour, in-person class)

online

1 credit

Today, the world is facing significant crises. With billions of people at risk, we face a multitude of critical questions. The biological risks of the current pandemic are likely a first wave, setting in motion multiple systemic challenges and transformations: economic, social, political, cultural, technological, and ecological. We are in the midst of realignments and rearticulations of every aspect of our lives. There are people, communities, and institutions across all disciplines and across the globe that are increasingly confronted by the need for new models of asking the extraordinarily complex questions of our time. "New York City, a 5000 Year History" begins with the idea that New York City can be understood as a microcosm of world cultures, a living ecosystem of cultural diversity in a state of continuous transformation. With as

many as 800 spoken languages, New York City is arguably the most linguistically diverse city on earth, containing a multitude of human, spatial, temporal, material, systemic, and structural elements interacting in multiple time frames. This creates a living laboratory to explore and develop new questions that address the challenges of our increasingly complex world. With examples from over 5,000 years of art, architecture, engineering, science, technology, biology, finance, industry, politics, poetry, film, music, theater, religion, and literature, the course is a close examination of New York City and the nature of transformation. With guest speakers from a wide range of backgrounds and experiences, much of the discussions will focus on turning points or hinges in these histories. These will include: the invention of the elevator, train, telegraph, and water infrastructures; the invention of modern incorporations and modern banking; the Atlantic Slave Trade, Jim Crow, redlining, and mass incarceration; the carbon economy and the climate crises; the transformations of Yoruba polytheism in music, literature, and the visual arts; the birth of the Greek theatre and the emergence of photography and film; the advent of 'the Nuclear' and the rise of GRIN technologies (Genetics, Robotics, Information technology and Nanotechnology). From the Cave Drawings to the dawn of Blockchain, the conversations will explore many forms of knowledge, agency, action, and transformation that create and move through New York City. Over its 160-year life, The Cooper Union has given voice to urgent questions, making critical contributions to countless transformations and social movements. Today, the need for social movements, for civic engagement, and exploratory works of empathy and ethics are as urgent as they have ever been. The very tangible potential to transform the lives of the most vulnerable creates an urgent call for spaces of communication and reciprocity where people can develop new understandings, perceptions and practices that respond to the scope of our challenges. "New York City, a 5000 Year History" covers a large arc of content, asks questions of our city, our disciplines, our humanity, and searches for new modes of creating the transformations that embody our best hopes and aspirations. New York City: A 5000 Year History (CU102) is offered in the Spring semester of 2021. It is a continuation of the fall semester with the course structured in such a way that it allows students to either continue from the fall or join in for the spring semester without having participated in the Fall. CU102 will include a semester-long research project focused on the linkages between New York City and the United Nations Sustainable Development Goals (SDGs).

