NJ School of Architecture The Hillier College of Architecture and Design New Jersey Institute of Technology



The School of Athens by Raffaello Sanzio da Urbino

ARCH 396 Architecture Studio VI

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Course Hours: Monday 1:00-5:20 PM and Thursday 1:00-5:20 PM. Office hours (on request) will be established by individual section instructors.

Prerequisites: ARCH 395 or ARCH 363. This course is a continuation of ARCH 395.

INTRODUCTION

The Designing for the Community studio (ARCH396) aims to analyze and address the diverse user and space-making typologies of social interactions and engagements. Communal spaces have played a crucial role in human settlements for millennia, serving as the heart of social, political, and economic life. The Athenian Agora, for instance, was not just a marketplace but a vibrant center where citizens gathered to discuss politics, philosophy, and daily affairs. Similarly, the Roman Forum was a bustling hub of activity, hosting public speeches, criminal trials, and gladiatorial matches. These spaces were **meticulously designed to encourage interaction and engagement**, reflecting the values and priorities of their societies. They provided a physical space where ideas could be exchanged, goods traded, and community bonds strengthened.

The design of these early communal spaces was intentional, aiming to **create environments that fostered a sense of community and civic participation**. Open areas, colonnades, and public buildings were strategically placed to facilitate movement and interaction. These spaces were accessible to all, promoting inclusivity and social cohesion. Over time, communal spaces evolved, but their core purpose remained the same: **to bring people together**. Whether in ancient times or modern cities, well-designed communal spaces continue to be vital for fostering social connections, cultural exchange, and a sense of belonging within communities.

Building on this legacy, studio IV will focus on designing environments that build communities, encourage social participation/interactions, and provide equal access and opportunities for social and cultural advancement. This will be realized through two projects (1) the Science + Art Academies (high school) and (2) the Senior Center, contextualizing communal space-making within broader occupant types and spatial locations. The high school project will allow students to explore space- and form-making and integrate it with the landscape and existing campus masterplan. The formal (tectonic) and spatial expressions will need to be supported by the environmental performance including daylighting and energy. The Senior Center will provide opportunities to work with existing urban fabric and buildings. The program will address the specific needs of its users and demonstrate universal design principles.

COURSE OUTCOMES

The following are the studio course outcomes:

Researching Precedents: Students will gain the ability to identify and analyze architectural precedents

Site Assessment and Program Contexts: Students will gain the ability to critically (i) assess site conditions and its multiple contexts, and (ii) evaluate and interpret given programs based on the study of historical and contemporary programmatic, formal precedents, and user needs.

Design Conceptualization: Students will gain the ability to synthesize a broad array of human, environmental, and technological conditions to develop innovative educational facilities. Students will hone creative thinking, critical judgment, and capacity to deal with spatial complexity.

Representation and Communication: Students will hone the ability to express designs through a wide range of visual representation styles including, two- and three-dimensional drawings, sectional perspectives, and exploded axonometric. Students will also gain skills to verbally present their work.

DESIGN METHODOLOGY

- 1. Read selected sections of the course book: A Pattern Language... by C. Alexander.
- 2. Pose questions:
 (i) How can design encourage interaction and engagement
 (ii) How architecture can bring people together
 (iii) How can the environment foster a sense of community and civic participation
- 3. Design starts with identifying precedents
- 4. Work from the outside in and inside out, always correlate forms and spaces

IMPORTANT DATES

Project 1:	The Science + Art Academies		
	Site Analysis + Site Design Strategies + Massing	1/30	
	Progress Review I (swap review)	2/10	
	Progress Review II	2/24	
	Final	3/10	
Project 2:	The Senior Center		
	Progress Review: Site Investigations + Early Design	3/31	
	Mid-Project Review	4/17	
	Final	5/5	

COURSE SCHEDULE

Each student is expected to attend all class meetings, to verbally participate in class discussions, as well as to develop additional work and ideas beyond the minimum requirement.

The semester is arranged as follows:

WEEK 1 1/23	Introduction Science + Art Academies In-Studio Setup and Introductions Introduction to semester work and studio expectations (1 PM WLH1) Lecture on American Campus planning by the Dean Gabrielle Esperdy <u>Project1 distributed</u> Individual studio group time		
WEEK 2 1/27	Science + Art Academies: Site + Massing Individual studio group time		
1/30	Review: Site Analysis/Synthesis + Site Design Strategies+ Massing		
WEEK 3 2/3 2/6	Science + Art Academies: Preliminary Design Individual studio group time: Program diagrams Individual studio group time: Preliminary program allocations and floor plans		
WEEK 4	Science + Art Academies: Preliminary Design		
2/10	Project 1: Progress Review I (swap review)		
2/13	Individual studio group time Revit: Meeting Regulatory Requirements (Path of Travel, Occupancy Types and Loads) via Zoom (Andrzej Zarzycki)		
WEEK 5	Science + Art Academies: Schematic Design		
2/17	Individual studio group time: Preliminary Design Package (site design, floorplans, elevations, perspectives, and other appropriate visualizations).		
2/20	Individual studio group time		
	\Box Lecture on Measurable Design Decisions (John Cays)		
WEEK 6	Science + Art Academies: Design Development		
2/24	Project 1: Progress Review II (all final project scope at the SD level of resolution)		
2/27	Individual studio group time: Design Development □ Revit: Daylight Analysis Workshop via Zoom (Andrzej Zarzycki)		
WEEK 7	Science + Art Academies: Design Development		
3/3	Individual studio group time: Design Development		
3/6	Individual studio group time: Presentation Preparation		
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WEEK 8	Science + Art Academies: Final Design		
3/10	Project 1: Final Review		
3/13	Project 1: Final Submission to Google Drive/Kepler Project 2 distributed (site visit) Individual studio group time: Site Analysis/Synthesis)		
WEEK 9	Spring Recess—No Classes		
3/16 3/20	No Classes No Classes		
WEEK 10	The Senior Center: Site Analysis/Strategies + Massing		
3/24	Individual studio group time: Massing + Program Diagram		
3/27	Individual studio group time		
WEEK 11	The Senior Center: Conceptual Design		
3/31	Progress Review: Site Investigations (analysis + synthesis), Early Design		
	Last Day to Withdraw from Classes		
4/3	Wellness Day - No Classes Design Showcase		
WEEK12	The Senior Center: Schematic Development		
4/7	Individual studio group time		
4/7	Last Day to Withdraw		
4/10	Individual studio group time		
WEEK13	The Senior Center: Design Development		
4/14	Individual studio group time		
4/17	Mid-Project Review (all final scope at the SD/DD level of resolution)		
WEEK 14	The Senior Center: Documentation		
4/21	Individual studio group time: Desk critiques		

4/24	Individual studio group time: Desk critiques
WEEK 15	The Senior Center: Presentation
4/28	Individual studio group time: Desk critiques
5/1	Individual studio group time: Desk critiques
WEEK 16	The Senior Center: Final Review
WEEK 16 5/5	The Senior Center: Final Review <u>Final Review</u>

Final Grades due, Sunday, May 18th

See the academic calendar: https://www.njit.edu/registrar/spring-2025-academic-calendar

ASSIGNMENTS

The studio work will involve two projects requiring individual work:

Project 1: The Science + Art Academies, Drew University Campus, Madison, NJ

Create a visionary blueprint for a high school that stimulates artistic creativity with scientific exploration, while integrating seamlessly with the existing college campus environment. The design should balance aesthetics, functionality, and educational excellence. The project involves conducting a thorough site analysis, formulating a design concept, developing detailed floor plans, and defining both interior spaces and exterior facades. The design should be contextualized within the surrounding Drew University campus while providing an innovative and aspirational take on educational facilities.

Additional assignment information will be distributed before the assignment start date.

Reference

Alexander, Christopher. *A pattern language: towns, buildings, construction*. Oxford University Press, 1977.

Project 2: The Senior Center, Newark, NJ

This assignment focuses on the design of a comprehensive community center in Newark, NJ, that caters to the needs of the elderly population. The design should create a welcoming, safe, and engaging environment that promotes social interaction, physical activity, and mental well-being.

The Senior Center program will include wellness and medical offices to enable body-mind synergies. Additionally, the project needs to emphasize accessibility and universal design principles. =

Additional assignment information will be distributed before the assignment start date.

EVALUATION

Completion of ALL assigned projects and presentations is required to complete this course. All assignments are due at the beginning of class. Your performance will be graded based on the successful completion of the class objectives, projects, presentation, and documentation requirements. The NJIT- Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students.

Project 1: The Science + Art Academies	45%
Project 2: The Senior Center	45%
Digital Documentation (Required) and Participation	10%
Final Kepler/Canvas Posting (due May 6 th)	
Final Google Drive Folder (due May 6 th)	

COURSE GRADING CRITERIA

The final grades are broken down as follows:

A	4.0	Superior	92 100%
B+	3.5	Excellent	86 91.99%
В	3.0	Very Good	80 - 85.99%
C+	2.5	Good	74 – 79.99%
С	2.0	Acceptable	67 – 73.99%
D	1.0	Minimum	60–66.99%
F	0.0	Inadequate	below 60%

Regulatory Requirements

Here are the specific requirements that must be satisfied as part of each project's Regulatory Requirements (ADA, Life Safety, Egress). See individual assignment sheets for grading values assigned to this section.

1. All stairs and ramps need to follow the building code and ADA guidelines;

- 2. HP parking;
- 3. Dead-end corridors need to meet code requirements;
- 4. Doors need to swing in the direction of egress;
- 5. Maintain at least 18" (pull-side) / 12" (push-side) on all the doors;
- 6. Provide areas of refuge;
- 7. All spaces need to be ADA compliant, bathrooms need to show a 5-foot circle;
- 8. Occupancy types need to be indicated in plan diagrams and occupancy loads need to be calculated;
- 9. Egress door width calculations;
- 10. Life-safety floor plans with the distance of travel graphically indicated;
- 11. Door spacing diagrams for all large assembly spaces;

DOCUMENTATION

Digital documentation of the entire semester's work, including process and progress imagery, will be required from each student/group. This documentation will provide the Department with a review of your study, and information contained in the digital files might be used in future electronic or printed media publications, either in whole or in part. This record will also enable interested students, faculty, and others to have access to your work in the future.

DELIVERABLES

All work needs to be submitted to the Google Drive folder provided by the instructor:

Google Drive\ARCH396_S25 and by uploading works to the Assignments page of the Canvas platform (*https://canvas.njit.edu/* and to Kepler. Please use PDF formats for all Canvas uploads. The Google Drive folder should have all native files/formats. This includes final products as well as individual components.

WORK BACKUP

You are expected to keep multiple backups of all coursework and to have your current project files available at all times during class time. You are encouraged to keep a cloud storage account in addition to a physical backup.

NAAB CONDITIONS FOR ACCREDITATION

The following represent course learning objectives and the National Architectural Accreditation Board (NAAB) criteria satisfied by this course.

Student Criteria (SC): Student Learning Objectives and Outcomes

SC.1 Health, Safety, and Welfare in the Built Environment: *How the studio ensures that students understand the impact of the built environment on human health, safety, and welfare at multiple scales, from buildings to cities.*

Projects 1 and 2 emphasize community and physical well-being across diverse occupancy demographics by integrating inclusive and universal design strategies. Students develop critical thinking skills about the built environment from the perspective of human health and safety. Projects incorporate a range of environmental factors, such as daylighting, energy performance, and life cycle assessment in addition to life safety, egress, and ADA/Universal Design considerations.

SC.2 Professional Practice: How the studio ensures that students understand professional ethics, the regulatory requirements, the fundamental business processes relevant to architecture practice in the United States, and the forces influencing change in these subjects.

The curriculum is delivered using building information modeling (BIM) tools following professional practice and integrated project delivery pipelines. Students will follow local codes (IBC for NJ) and professional standards when considering egress, occupancy types, and occupancy loads.

SC.3 Regulatory Context: How the studio ensures that students understand the fundamental principles of life safety, land use, and current laws and regulations that apply to buildings and sites in the United States, and the evaluative process architects use to comply with those laws and regulations as part of a project.

Projects will address (1) accessibility (ADA), (2) means of egress, (3) local zoning requirements, and (4) environmental impact and building performance.

SC.4 Technical Knowledge: How the studio ensures that students understand the established and emerging systems, technologies, and assemblies of building construction, and the methods and criteria architects use to assess those technologies against the design, economics, and performance objectives of projects.

The semester projects are proposed to develop a specific type of building construction assembly, starting with balloon frame or light gauge metal framing (off-the-shelf materials), second with loadbearing walls (masonry blocks, precast panels), followed by steel frame construction, and CLT panels on the concrete base.

SC.5 Design Synthesis: How the studio ensures that students develop the ability to make design decisions within architectural projects while demonstrating synthesis of user requirements,

regulatory requirements, site conditions, and accessible design, and consideration of the measurable environmental impacts of their design decisions.

Projects will synthesize design, programmatic, building technology, human factors, and environmental considerations. Specifically, they will address: (1) program interdependencies between various community spaces and educational facilities, (2) the form-making with the longspan structural strategies, and (3) environmental impact and building performance simulations using BIM tools.

SC.6 Building Integration: How the studio ensures that students develop the ability to make design decisions within architectural projects while demonstrating integration of building envelope systems and assemblies, structural systems, environmental control systems, life safety systems, and the measurable outcomes of building performance.

Projects will demonstrate design development-level integration of structural systems, building envelope systems and assemblies, passive environmental control systems, and life safety/ADA regulations.

ACADEMIC INTEGRITY

Academic integrity and honesty are of paramount importance. Cheating and plagiarism will not be tolerated. The NJIT Honor Code will be upheld, and any violations will be brought to the immediate attention of the Dean of Students. All students are responsible for upholding the integrity of NJIT by reporting any violation of academic integrity to the Office of the Dean of Students.

The identity of the student filing the report will remain anonymous. All students are expected to adhere to the University Code on Academic Integrity: *https://www.njit.edu/dos/academic-integrity* and to the Code of Student Conduct: *https://www.njit.edu/dos/policies/conductcode/index.php*

The HCAD library has assembled resources for a students on using images, citing, and plagiarism: https://researchguides.njit.edu/c.php?g=671665&p=4727920

ABSENCES

Each student is expected to attend all class meetings, to verbally participate in class discussions, as well as to develop additional work and ideas beyond the minimum requirements. Everyone is expected to be punctual and prepared for each assignment. Excessive lateness will be counted as if a student is absent. After three recorded absences, your grade will be lowered by ½ grade point for each additional absence, if the absence is not approved by the Dean of Students (DOS).

The NJIT office of the Dean of Students (DOS) maintains a way for students to explain absences that instructors can use to regulate absenteeism. By providing verifiable documentation through filing an online Student Absence Excuse Request form related to the absences within 14 days, a student can ask for accommodation and that their absences not affect their grade. Once the absence has

been verified, the DOS will communicate with the instructor. Nonetheless, the DOS only verifies documentation, and it remains the instructor's discretion to provide any accommodation and the student's responsibility to follow up with the instructor. Accepted reasons for absence include bereavement, medical concerns, military activity, legal obligations, or university-sponsored events. Additional DOS information outlined here: https://www.njit.edu/dos/student-excusals

AI TOOL USAGE

Student use of artificial intelligence (AI) is permitted in this course for all assignments and activities. If and when students use AI in this course, the AI must be cited as is shown within the <u>NJIT Library AI citation page</u> for AI. If you have any questions or concerns about AI technology use in this class, please reach out to the course coordinator.

DESIGN TOOLS

All mid and final project reviews will be delivered via digital presentations accompanied by highquality and high-resolution imagery (diagrams, drawings, and renderings).

A critical part of any design process is a set of tools used to conceptualize design, develop alternatives, and validate design decisions. While the decision process in architecture involves both subjective and objective criteria, in this studio we will emphasize tools and methodologies that provide measurable and evidence-based design thinking. For this reason, all students in this course <u>are strongly encouraged</u> to utilize a Building Information Modeling (BIM) platform. Specifically, <u>students are expected to develop all design</u>, <u>simulation</u>, and <u>evaluation work utilizing</u> <u>Autodesk Revit with building performance and environmental assessment add-ons (plugins)</u>, <u>such</u> <u>as Insight and One-Click LCA</u>, or Rhino-based alternatives. The necessary tutorials will be offered via the LinkedIn Learning (LiL) platform and in-class hands-on tutorials. Please also note that the actual BIM (Revit) model will be required for the final submission.

TUTORIALS

To support student learning NJIT offers free access to LinkedIn Learning (LiL) platform with more than 15,000 courses covering business, creative, and technology subjects. This studio course will utilize software tutorials offered by LiL.

To access tutorials, go to <u>this page (https://www.linkedin.com/learning/</u>) and sign in with your NJIT credentials. Specifically, students are expected to watch and absorb material covered by the following Revit tutorials:

Learning Revit 2024

https://www.linkedin.com/learning/learning-revit-2024/how-do-you-get-revit

Please watch the following sections: 1. Getting Started, 2. Building a Model, 3. Working with Views

Revit 2023: Essential Training for Architecture

https://www.linkedin.com/learning/revit-2023-essential-training-for-architecture-imperial-andmetric/revit-2023-for-architecture

Please watch the following sections: 1. Core Concepts, 2. Interface Basics, 3. Starting a Project, 4. Modeling Basics, 7. Stairs, 8. Complex Walls

Additional tutorials will be offered throughout the semester to respond to project needs and customize learning.

PAST STUDENT WORK

The following examples are past student work utilizing the BIM design pipeline

2nd Year Design Studio

See the recorded video presentation from the Fall semester.

Integrated Studio (Advanced Studio II)

- Spring 2022: https://miro.com/app/board/uXjVO7XEwzs=/
- Spring 2021: https://miro.com/app/board/o9J_llNtE3k=/
- Spring 2020: https://miro.com/app/board/o9J_ktLowik=/

https://miro.com/app/board/o9J_ktLOcAY=/

https://miro.com/app/board/o9J_ktLMZrU=/

https://miro.com/app/board/o9J_ktLMYY8=/

https://miro.com/app/board/o9J_ktLMYbU=/

https://miro.com/app/board/o9J_ktFTxWY=/