Master of Architecture
&
Master of Science in Architecture

Graduate Architecture Programs

College of Architecture &
The Built Environment

Jefferson
Thomas Jefferson University

Welcome!

This is an introduction to the Graduate Architecture Programs at Thomas Jefferson University in Philadelphia

In this presentation we will review:

- A Program Description
- The Plan of Study
- Graduate Programs
- Outcomes
- Facilities & Career Services
- Professional Associations
- Samples of Student Work
- Success Stories

Jefferson
Thomas Jefferson University

Please email us with any questions or requests as these are exciting times

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Jefferson East Falls Campus in Philadelphia

Locational Advantage

- Green campus, close to Center City and many amazing communities
- Strong relationships with the community and local industry partners
- Philadelphia is our living urban lab

College of Architecture & The Built Environment

8 Grad, 5 Undergrad & 2 On-Line Programs

- Balance between theory and practice, design excellence and making
- Unique combination of disciplines = interdisciplinary collaboration
- Preparing future leaders in their fields
- Core Values **Sustainability**
  Social Equity
  Design Excellence

College of Architecture & The Built Environment

Nexus Learning: A Core Teaching Value

- Active, Collaborative
- Real-World Learning
- Infused with the Liberal Arts / Hallmarks

Emphasis on Developing

Curiosity and Confidence
Empathy and Collaboration
Initiative and Ethical Reflection
Contextual Understanding/Global View

College of Architecture & The Built Environment

In Good Hands

Highly accomplished faculty

- Award winning teachers, researchers, and practitioners
- High number of licensed professionals
- Balance between full-time and part-time instructors

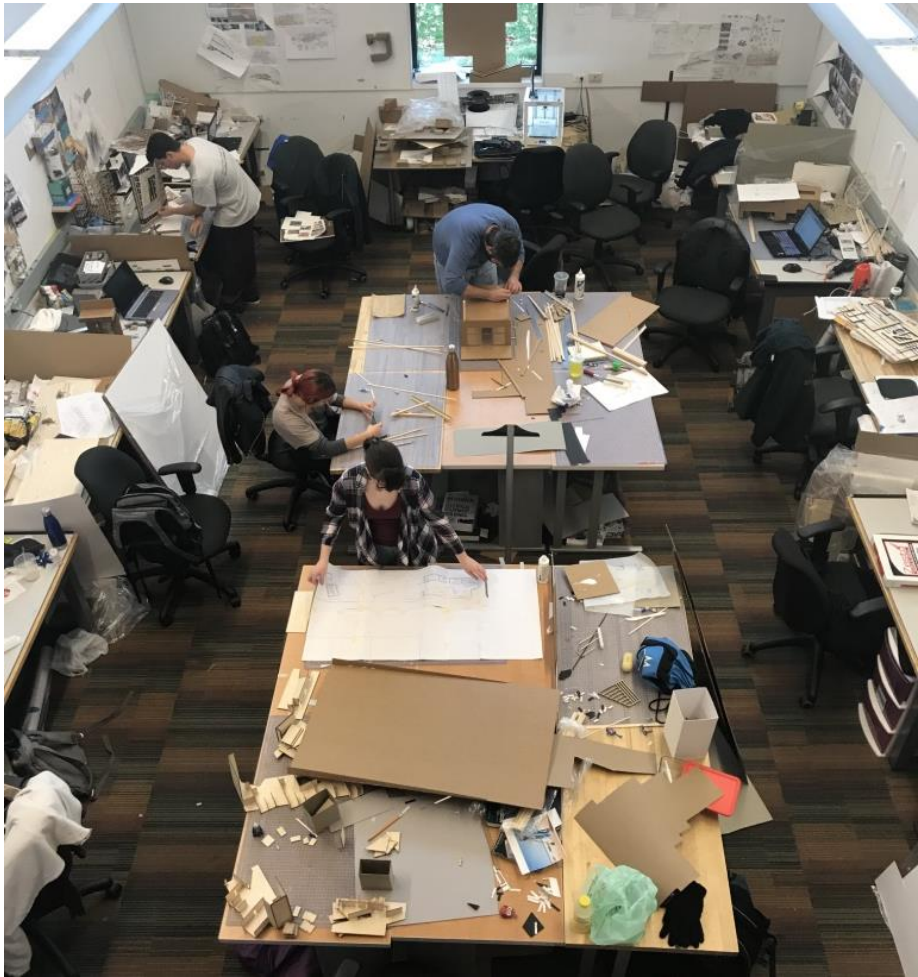
Faculty Research

- Smart and Healthy Cities (E. Stach, K. Ku)
- High Performance Buildings , Façade Technology (J. Doerfler, E, Stach, M. Gindlesparger)
- Air Quality + Breathing Wall Systems (A. Messinger, M. Gindlesparger)
- Parametric and Computational Design (K. Ku, Loukia Tsafoulia)
- Building Envelopes & Textiles (K. Ku)
- Lighting Design (L. Baumbach, D. Kratzer)
- Humanitarian + Public Interest Architecture (C. Harnish, K. Douglas, D. Kratzer)
- Park-in-a-Truck (K. Douglas, M. Tucker)
- Design Informatics (K. Ku)

Lab For Urban and Social Innovation (LUSI)

- Director: Professor Kim Douglas
- Faculty: C. Harnish, D. Kratzer, S. Frosten, M.Tucker

- Research and design
- Community engagement with human-centered design methodology
- Partnership with Philadelphia Collaborative for Health Equity
- Park-in-a-Truck Program



Malawi Center for Health & Design

- Director: Professor Chris Harnish

- Design-Build
- Malumu Hospital in Blantyre / Masterplan and Buildings
- KZH Hospital collaboration in Lilongwe
- Collaboration with Sydney Kimmel Medical College

Center for the Preservation of Modernism

- Director: Professor Suzanne Singletary, PhD

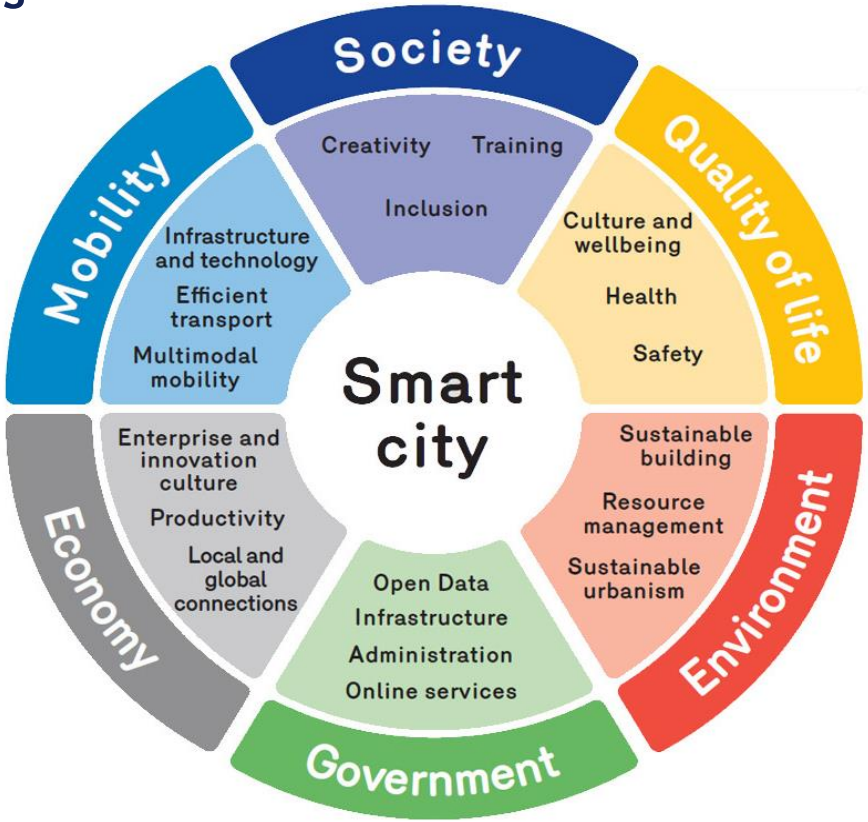
- Research, Archive, Symposia, Publications
- Hassrick House, Richard Neutra
- Collaboration with DOCOMOMO US, Preservation Alliance, Terragni Archive

Hassrick House, Richard Neutra, 1957, Philadelphia

Institute for Smart & Healthy Cities

- Co-Lead: Edgar Stach, PhD
  Barbara Klinkhammer, Dean

- Transdisciplinary Research and Design to advance the development of the urban environment into smart and healthy cities
- Research opportunities for graduate students
- Collaboration with multiple non-profit organizations and industry partners



Two TJU Architecture Graduate Programs

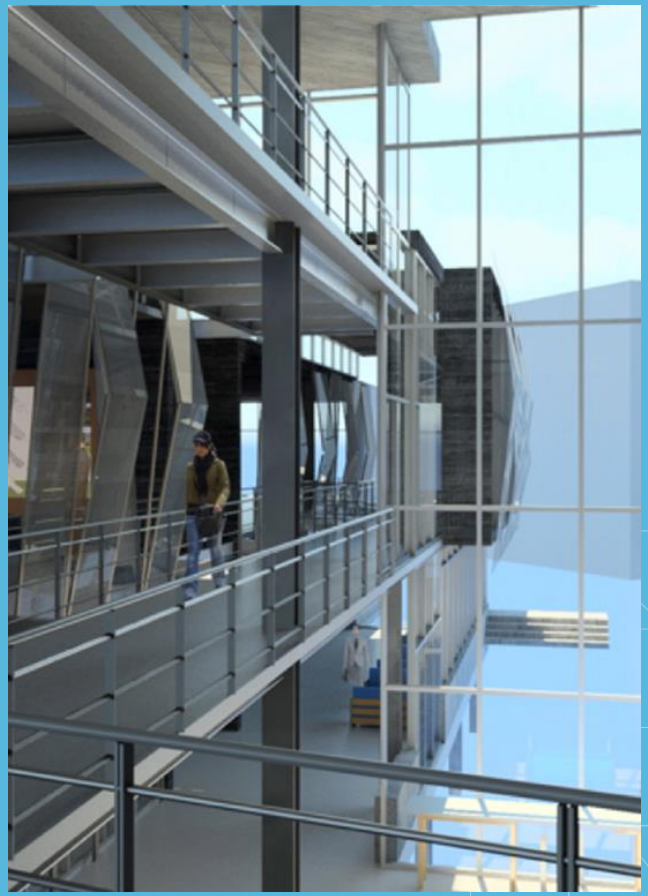
Master of Architecture Program

- A two track 2/3.5 year professional graduate degree program for students interested in becoming professionally licensed architects

Master of Science in Architecture

- A 1.5 to 2 year degree graduate program for students seeking an architectural research specialization that does not require licensure

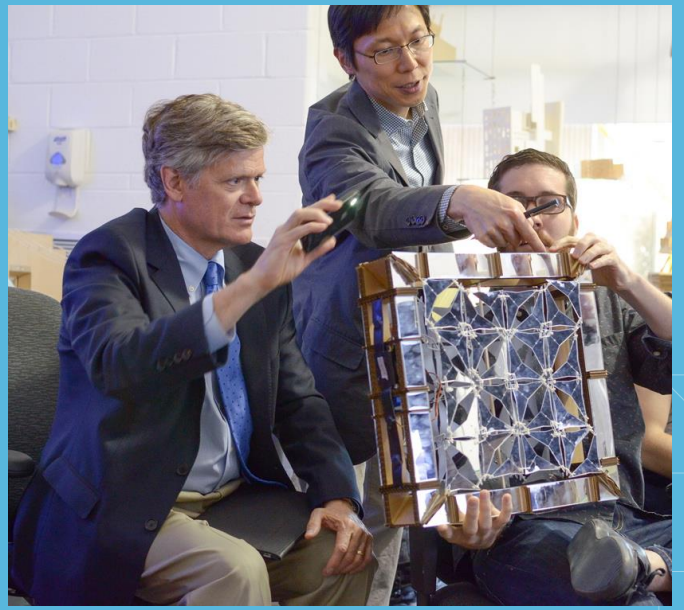
- No GRE is required for application to either program



Master of Architecture Program

2 Tracks for students interested in becoming professionally licensed Architects

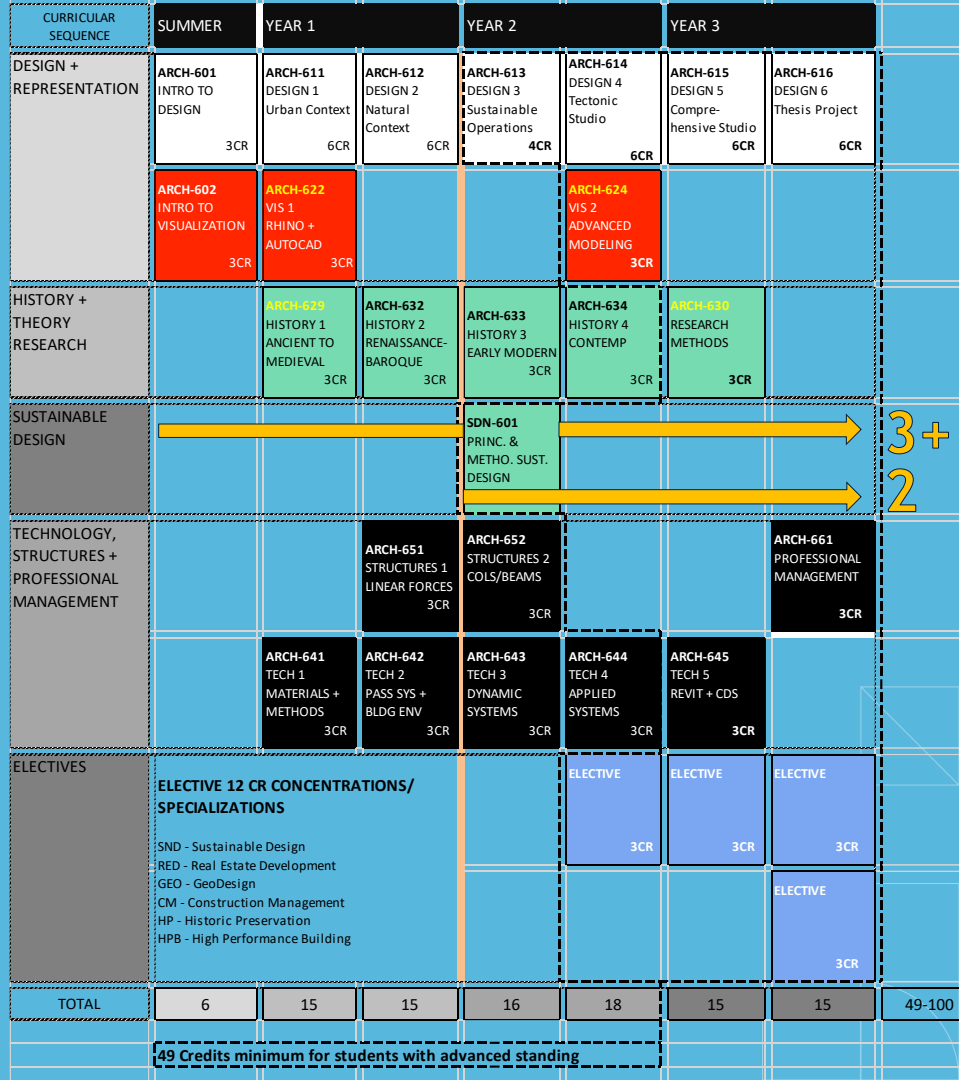
- The 3.5 year track is for students without an architecturally related bachelor degree
- The 2 year track is for students with a pre-professional bachelor degree in architecture or international 5 year degree
- The MArch is a NAAB accredited degree program -degree is required to be eligible for licensure (National Architectural Accrediting Board)



Master of Architecture Program

Advanced Standing Determination

- Upon application, a prospective student's previous degree coursework is reviewed and advanced standing determined
- Courses completed as part of other degrees which meet the requirements of the MArch courses will be waived
- An Academic Study Plan with anticipated courses and schedule is generated at time of deposit



Jefferson | CREATE WHAT'S NEXT

PLAN OF STUDY

Master of Architecture Studio Sequence

The core of our program is the Design & Visualization Studio

- The Design Studios Conclude with a Thesis/ Capstone Project on student's interest
- Design 3 is Collaboration with Sustainable Design & Interior Architecture grad students
- The Vis Studios start with hand drawing and end with 3-D modeling/ digital fabrication

CURRICULAR SEQUENCE	SUMMER	YEAR 1		YEAR 2		YEAR 3	
DESIGN + REPRESENTATION	**ARCH-601** INTRO TO DESIGN 3CR	**ARCH-611** DESIGN 1 Urban Context 6CR	**ARCH-612** DESIGN 2 Natural Context 6CR	**ARCH-613** DESIGN 3 Sustainable Operations **4CR**	**ARCH-614** DESIGN 4 Tectonic Studio **6CR**	**ARCH-615** DESIGN 5 Compre-hensive Studio **6CR**	**ARCH-616** DESIGN 6 Thesis Project **6CR**
	ARCH-602 INTRO TO VISUALIZATION 3CR	**ARCH-622** VIS 1 RHINO + AUTOCAD 3CR			**ARCH-624** VIS 2 ADVANCED MODELING **3CR**		

PLAN OF STUDY

Master of Architecture History Theory Sequence

The History Theory sequence sets up a strong cultural & sustainable foundation

- These courses set a context for understanding architecture & our study abroad programs
- The Research Methods class focuses on graduate level research for the Thesis Project

CURRICULAR SEQUENCE	SUMMER	YEAR 1		YEAR 2		YEAR 3	
HISTORY + THEORY RESEARCH		ARCH-629 HISTORY 1 ANCIENT TO MEDIEVAL 3CR	ARCH-632 HISTORY 2 RENAISSANCE-BAROQUE 3CR	ARCH-633 HISTORY 3 EARLY MODERN 3CR	ARCH-634 HISTORY 4 CONTEMP 3CR	ARCH-630 RESEARCH METHODS **3CR**	
SUSTAINABLE DESIGN				SDN-601 PRINC. & METHO. SUST. DESIGN **3CR**			

PLAN OF STUDY

Master of Architecture Technology Sequence

A seven course sequence moving from basic materials to building performance

- Technology is considered “a means for making” though hand and computer work
- Advanced computer software is used to study building energy & material performance

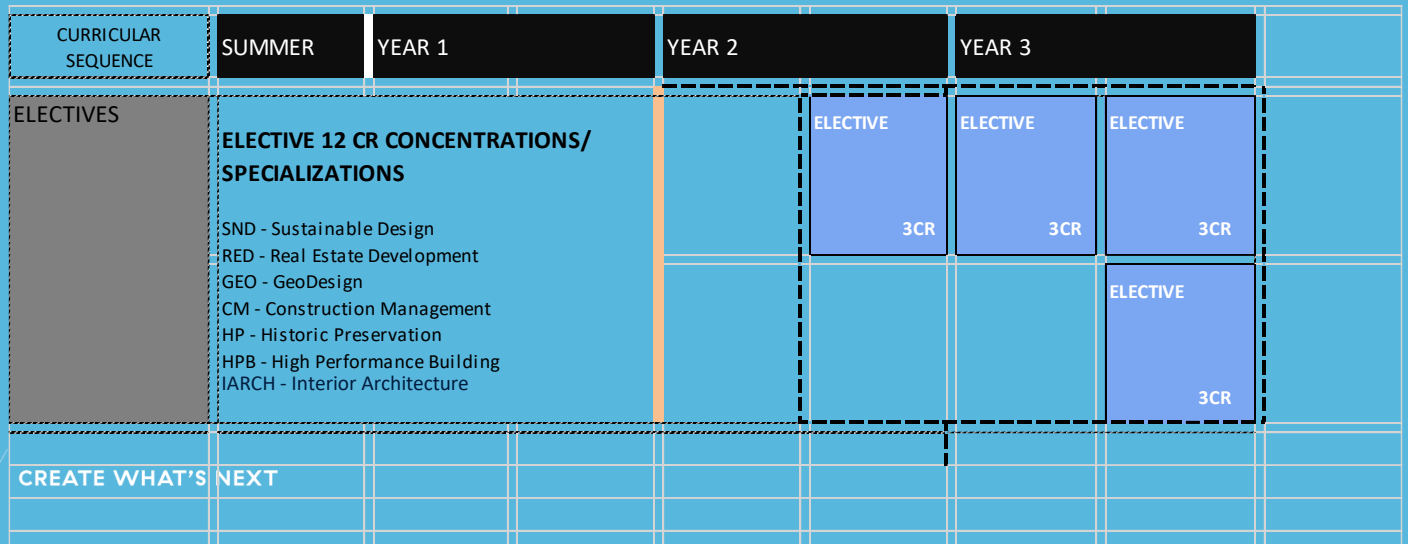
CURRICULAR SEQUENCE	SUMMER	YEAR 1		YEAR 2		YEAR 3	
TECHNOLOGY, STRUCTURES + PROFESSIONAL MANAGEMENT			**ARCH-651** STRUCTURES 1 LINEAR FORCES 3CR	**ARCH-652** STRUCTURES 2 COLS/BEAMS 3CR			**ARCH-661** PROFESSIONAL MANAGEMENT **3CR**
		ARCH-641 TECH 1 MATERIALS + METHODS 3CR	**ARCH-642** TECH 2 PASS SYS + BLDG ENV 3CR	**ARCH-643** TECH 3 DYNAMIC SYSTEMS 3CR	**ARCH-644** TECH 4 APPLIED SYSTEMS 3CR	**ARCH-645** TECH 5 REVIT + CDS **3CR**	

PLAN OF STUDY

Master of Architecture Elective/ Certificate Sequence

The elective sequence sets up focused Certificates & areas to explore

- In the last three semesters, students use electives to widen personal education
- Ideally, students use the electives to enrich the Thesis/ Capstone project
- Students can complete professional internship for credit



PLAN OF STUDY

Master of Science in Architecture

A Research/ Specialization Degree

- Program offers students the platform to shape an education that furthers their architectural experience to develop advanced knowledge and expertise in areas of personal interest and specialization.
- Students can take advantage of numerous institutes including Smart & Healthy Cities, Center for the Preservation of Modernism & The Lab for Urban & Social Innovation
-

- Led by CABE faculty, students shape a thesis/ directed research project
- Students can work directly with renowned and research active faculty on their specific research areas such as
  - Future Smart Cities
  - Responsive Architecture
  - Environmental Sustainability & Design
  - Informal Settlements
  - Social Architecture
  - Health & Wellness
  - High Performance Buildings
  - Façade Technology

This work leads to published research and professional collaborations

PLAN OF STUDY

Master of Science in Architecture

- Students initially complete of a trio of foundation courses:
  - Sustainability Design Studio
  - Principles of Sustainable Design
  - Research Methods
- Students then build a suite of electives from across the College & University to build a graduate level research collaborative foundation for a thesis/ directed research project led by CABE faculty
-

Master of Science in Architecture Academic Plan

Jefferson | College of Architecture and the Built Environment

Student **ID** **Plan** Number One Date 8.24.2019
Plan By **Kratzer** Updated

Full Time = *6 credits minimum for full-time status and financial aid*
Associated = *Courses that are taken together in same semester*
*Electives = *Can be taken at any time and over summer if offered but must be Jefferson Courses.*

FALL 2019	(10 Credits)		
SDN 622	SUSTAINABLE DESIGN STUDIO	4.00	Associated (recommended)
SDN 601	PRINC & METHODS OF SUST. DSGN	3.00	Associated (recommended)
ARCH 630	RESEARCH METHODS	3.00	
SPRING 2020	(9 Credits)		
ELECTIVE	ELECTIVE	3.00*	See Options Below
ELECTIVE	ELECTIVE	3.00*	See Options Below
ELECTIVE	ELECTIVE	3.00*	See Options Below

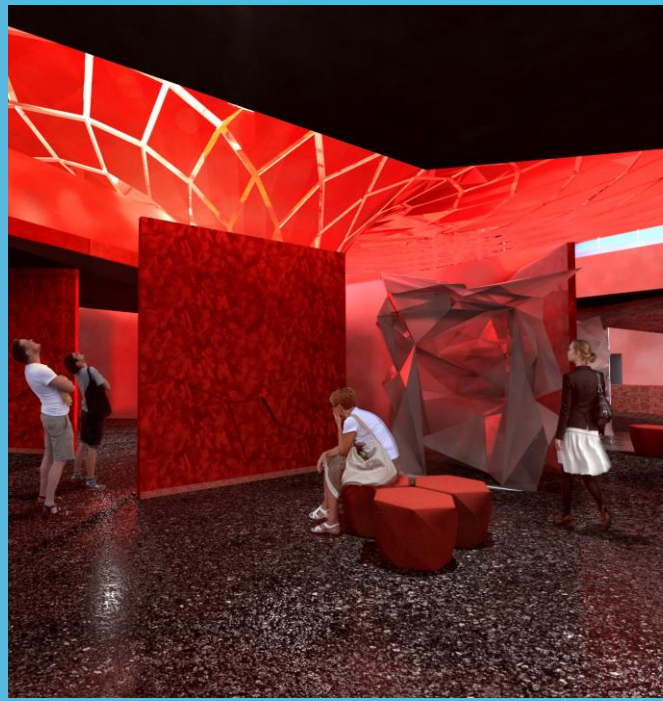
SUMMER 2020
It is possible to take classes in Summer to shorten your schedule.

FALL 2020	(6 Credits)		
ARCH-901:	GRADUATE THESIS PROJECT I	3.00	Required
ELECTIVE	ELECTIVE	3.00*	See Options Below
SPRING 2021	(6 Credits)		
ARCH-901:	GRADUATE THESIS PROJECT I	3.00	Required
ARCH-902:	GRADUATE THESIS PROJECT II	3.00	Required

Total Program Credits: **31 credits**

Master of Architecture &
Master of Science in Architecture
Scholarships and Assistantships

- All students are automatically considered for Dean's Scholarships based on GPA and academic experience
- Graduate Assistantships are competitive and grant partial tuition waiver. Application Deadline: March 1
- Research and Teaching Assistantships are hourly paid positions for students with experience in portions of the curriculum and/or areas of faculty research. Application Deadlines: May 15 for Fall & Oct 1 for Spring Semesters



Master of Architecture &
Master of Science in Architecture

STEM Designation

- MArch & MS Arch are science, technology, engineering and mathematics (STEM) designated programs
- This allows international students to be eligible for an extension of the Optional Practical Training (OPT) period for up to 36 months.
- OPT is a type of work authorization for F-1 student visa holders that provides an opportunity for employment in the United States (US).

College of Architecture & Built Environment

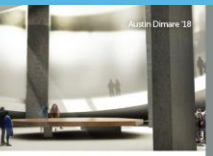
Potential Research Collaboration Areas

- Historic Preservation
- Photography
- Interior Design
- Landscape Design or Planning
- Sustainable Design
- Construction Management
- GIS/ GeoDesign
- Business
- Real Estate Development

PROGRAM DESCRIPTION

College of Architecture & Built Environment

Elective Inter-College Options & Research Collaboration Opportunities



017 College of Architecture and the
uilt Environment graduates post a 100%
b and graduate school placement rate.

ARCHITECTURE (MArch)
The Master of Architecture, a STEM-designated program, is a first professional degree geared towards a non-design major or with a pre-professional undergraduate degree in the architecture and design fields. With studios at the heart of the program, students explore today's most creative design approaches using cutting-edge technologies to address the challenges of the contemporary built environment.

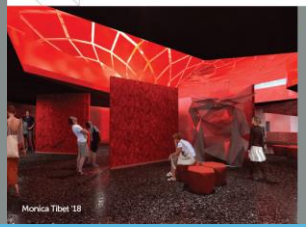
ARCHITECTURE (MS)
The Master of Science in Architecture is an advanced post-professional, research-based, STEM-designated degree for students with a professional degree in architecture, engineering or allied discipline. Students in this program have the opportunity to focus their studies on a specific area of architecture and directly apply their research to their current work or to fit their career path. This program provides its graduates with an additional credential that enables them to pursue research and entrepreneurial practices, careers in academia, or expand the knowledge of the profession. Featured concentrations include Façade Design Technology and High Performance Building.

CONSTRUCTION MANAGEMENT (MS)
Students learn advanced real-world problem-solving techniques from a faculty of experienced industry professionals. This program develops a keen understanding of construction technology, business, architecture and engineering, using this knowledge to manage construction processes on time and within budget, from project inception through completion. Construction Management is a STEM-designated program with online, on-campus and certificate options. Accelerated Dual Degree (1+1) options are available in combination with Sustainable Design or Real Estate Development.

GEOSPATIAL TECHNOLOGY FOR GEODESIGN (MS)
This program leverages advanced geospatial technology, or GIS, in identifying and finding innovative solutions to urban design and urban planning problems. Emphasizing GIS-based tools, 3D parametric design and modeling, sustainable design approaches, collaboration and innovation within an integrated process, this STEM-designated graduate program is intended to empower students to find resilient solutions to 21st-century urban challenges resulting from population growth, decreasing resources, natural disasters, and climate change.

HISTORIC PRESERVATION (MS)
"The greenest building is the one already built." Our graduates preserve, re-envision, and re-purpose historic buildings as catalysts for healthy communities and a sustainable future. Students specialize in either preservation design or research and documentation, study the preservation of modern architecture at the iconic Bauhaus Building in Germany, contribute research at the Center for the Preservation of Modernism at Jefferson, and benefit from the wide range of historic styles in Philadelphia, America's first World Heritage City.

To learn more about our programs visit **Jefferson.edu/CABE**.



INTERIOR ARCHITECTURE (MS)
The MS in Interior Architecture program offers multiple tracks, meeting the needs of students with non-design backgrounds as well as those with interior design and architecture backgrounds who are looking to advance in their field. Interior architecture encompasses the entire interior environment and students learn to design with a focus on the human experience, environmental sustainability, and collaborative professional practices. The seamless integration of design excellence and technology is a highlight of the program.

REAL ESTATE DEVELOPMENT (MS)
Learn real estate development from the quadruple bottom line perspective—equitable, profitable, sustainable and creative placemaking. Industry practitioners prepare students to be leaders for the 21st century by addressing issues of gentrification, walkability, and market transformation. Accelerated Dual Degree (1+1) option in combination with Construction Management and certificate options are available.

SUSTAINABLE DESIGN (MS)
Developed by top sustainability practitioners and experts, this award-winning program fuses design, engineering and industry, emphasizing market-driven innovation to help you become a leader in global sustainability. Sustainable Design is a STEM-designated program. Online, on-campus and certificate options available. Accelerated Dual Degree (1+1) option in combination with Construction Management is available.

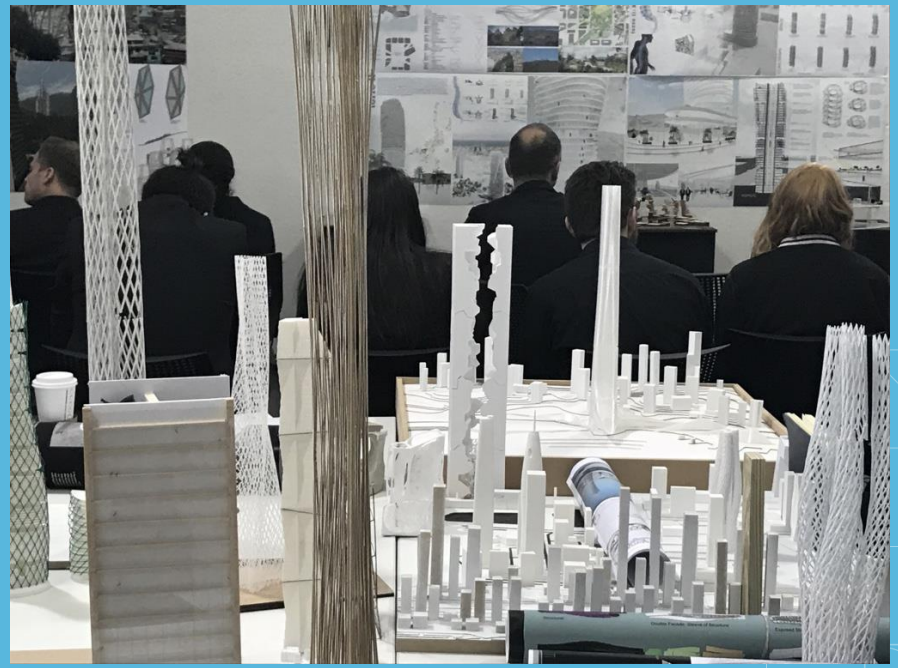
Sustainable integrated design skills are in demand due to rising energy costs and increased concerns about the environment.

PROGRAM DESCRIPTION

College of Architecture & Built Environment

Graduate Program Research Collaboration Opportunities

Master of Architecture
MS in Architecture
MS in Construction Management
MS in GeoDesign
MS in Historic Preservation
MS in Interior Architecture
MS in Real Estate Development
MS in Sustainable Design



College of Architecture & Built Environment

Study Abroad

Semester-long Programs

- UARC Rome
- DIS Copenhagen
- IE Univ. Segovia
- Bauhaus Germany

Nexus Abroad Summer Programs

- Central Europe, Southern Europe, India

Faculty-led Short Courses

- South Africa
- Czech Republic

OUTCOMES

RETENTION RATE

85%

Retention Rate for CABE in 2018

PLACEMENT RATE

100%

First Destination Report Class of 2019: Employment and Graduate School Success Rate for CABE

DISTINCTIONS

1 Fulbright Teaching Scholar: Professor Chris Harnish

FIVE TIME WINNER of John Stewardson Fellowship Competition

AWARDS

- 1st Prize in 2020, 2018, 2017, 2016, 2014 of John Stewardson Fellowship Competition (all PA Architecture Programs)
- *Architect Magazine* Studio Prize, 2019 (Malawi Studio)
- 1st Prize: 2014 ACSA International Student Steel Design Competition
- 1st Prize for Office Building: 2019 DOE Race to Zero Solar Decathlon Design Challenge Competition

EMPLOYERS OF JEFFERSON GRADUATES

- Gensler
- HOK
- Jacobs
- WRT
- Stantec
- Kieran Timberlake
- Ballinger
- WRT
- Nelson Worldwide
- Michael Graves
- EwingCole
- SmithGroup

CAREERS

JOB TITLE

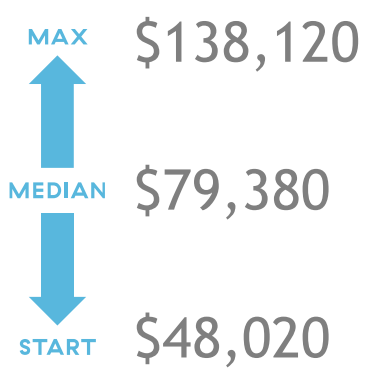
Architect

OUTLOOK

"Architects plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property."

"Employment of architects is projected to grow 8 percent from 2018 to 2028, faster than the average for all occupations."

SALARIES



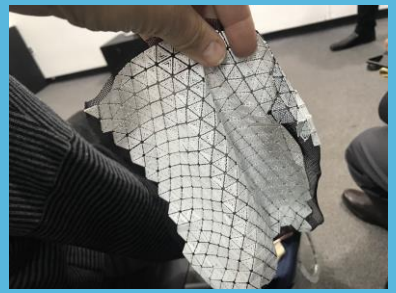
Sources: U.S. Bureau of Labor Statistics
https://www.bls.gov/oes/2018/may/oes171011.htm

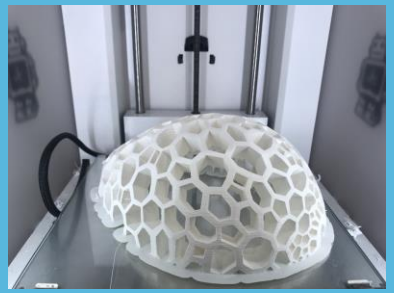
COLLEGE FACILITIES

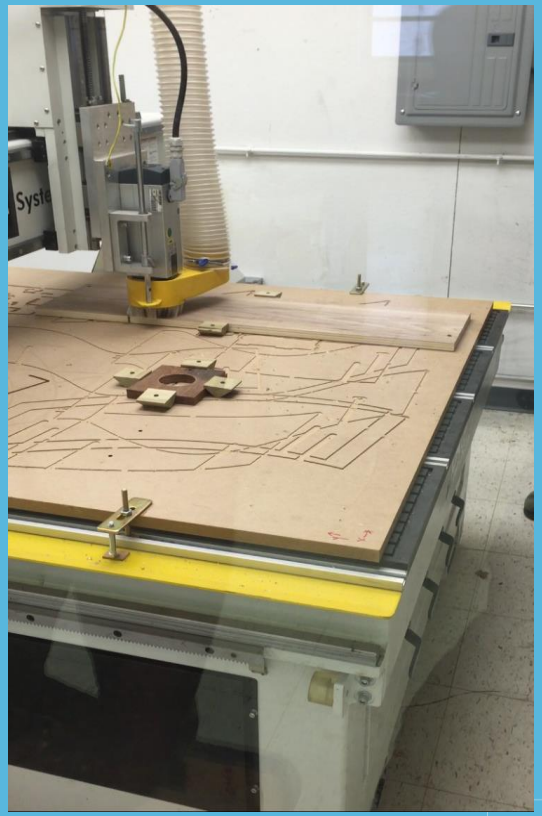
Fab Labs: Analog and digital fabrication spaces

- Comprehensive wood-shop
- Laser cutters
- CNC Router
- Over 30 3-D printers in studios

SEE Gallery



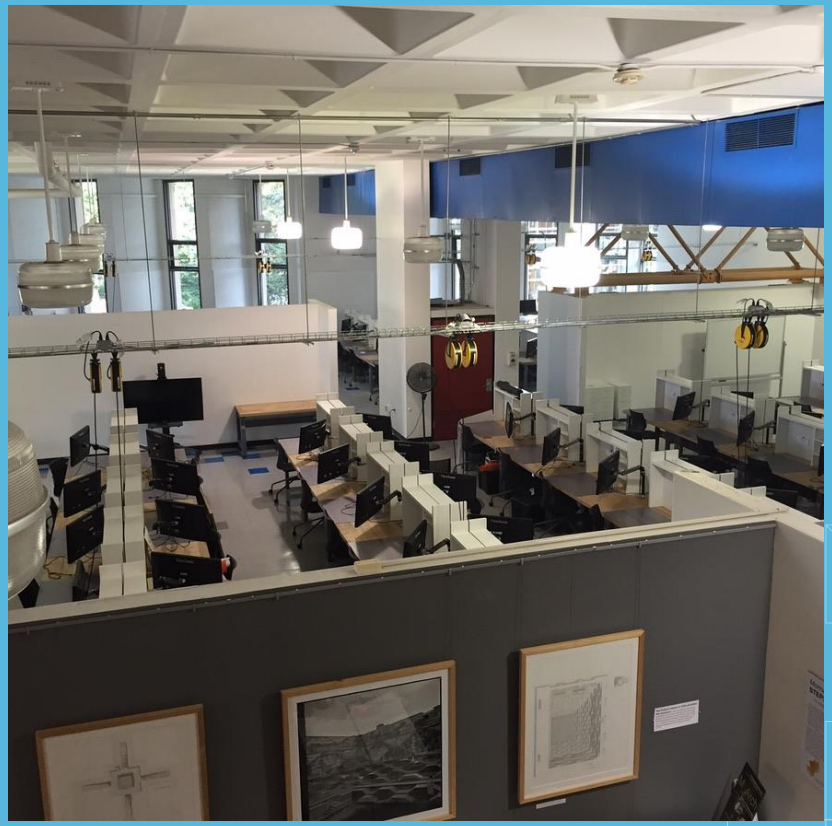




COLLEGE FACILITIES

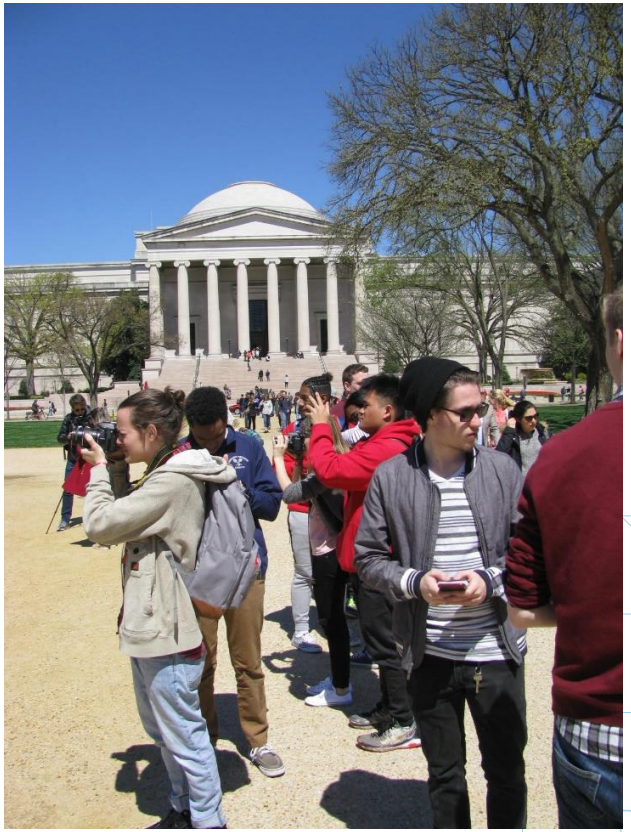
CABE has state of the art studio spaces with individual computer screens, distanced learning labs, computer labs, and active learning classrooms

Mirrors professional work environments



PROFESSIONAL ASSOCIATIONS

- American Institute of Architects (AIA)
  - National, State and Local Chapters
- Society of American Registered Architects (SARA)
  - National, State and Local Chapters
- National Council of Architectural Registration Boards (NCARB)
  - Association which allows architects to transfer licenses to other states
- U.S. Green Building Council (GBC)
  - LEED Rating Systems



Career Services

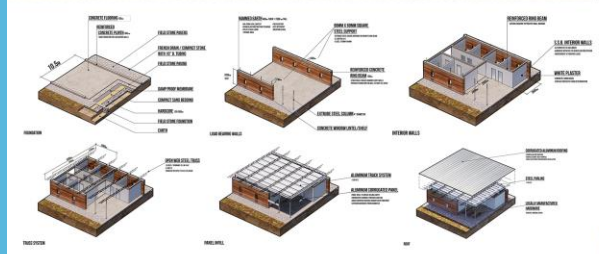
- Design Expo
- Portfolio Preparation
- *On-Line* portfolios
- Interview Days
- Professional Internships for Credit

Student Work

Comprehensive Design Projects & Research

In completion of designs, students are required to consider a full balance of Site, Program, Form, Technology and Sustainability.

In this example Hutton Moyer designed a health facility proposal fully considering the site, construction materials and program spaces.



CONSTRUCTION DELIVERY & ASSEMBLY

Malawi's construction industry faces a series of challenges when undertaking a large-scale project in rural settings. Poor transportation infrastructure, improper project management, inadequate material quality, and limited financing often lead to prolonged or stalled construction initiatives.[1]

HEALTH CARE STAFFING

There continues to be a shortage of health care staff within rural Malawi. Many of the skilled professionals leave for other opportunities in developed cities.[1] There is a disproportion of healthcare staff to patient:

39 nurses per 100,000 people
1 physician per 100,000 people.[2]

Due to inadequate staffing, patients are forced to wait long periods of time to be seen by a lack of physician. As a result, health care staff experience fatigue from constant demand.

UNCOMFORTABLE INTERIOR SPACE

Common health facilities built by the Malawi's department of building force occupants in narrow corridors with limited public space. Patient influx creates crowded corridors, increases chance of spreading airborne illnesses.[1]

Student Work

Inter-disciplinary Design & Research Projects

In our studios, students work collaboratively with students and faculty in other disciplines as they will in the real world.

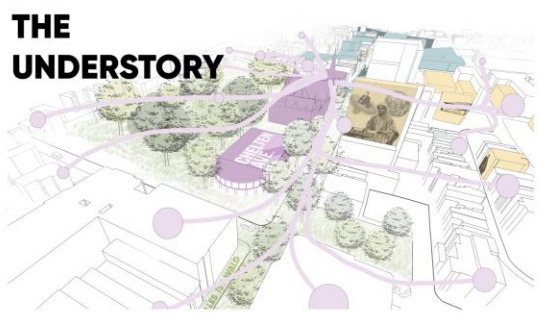
In this example Richard Jansen and his studio colleagues worked with the Jefferson Health Science program to design a collaboration center exploring natural organic systems.

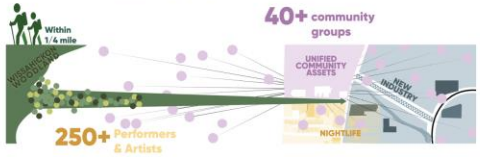
Student Work

Environmental Design & Research Projects

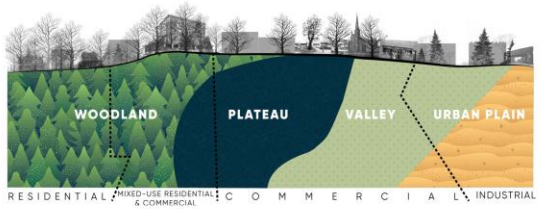
It is extremely important for future architects to utilize research as a fundamental design tool to better our built environment.

In this example, architecture and landscape architecture students joined forces to research the natural and built components of a site. Such research includes literal inventory as well as historiographical development





Chelten Avenue becomes a living timeline that unifies community assets and exemplifies the neighborhood's rich and vibrant understory

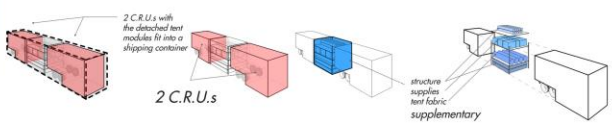


Student Work

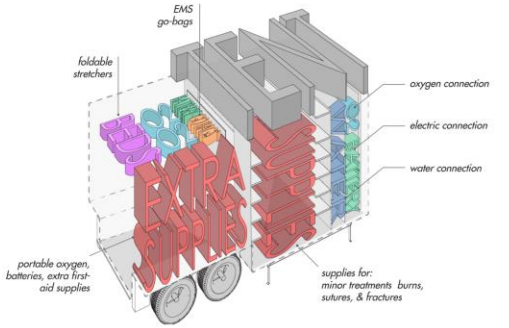
Social Sustainability Design & Research Projects

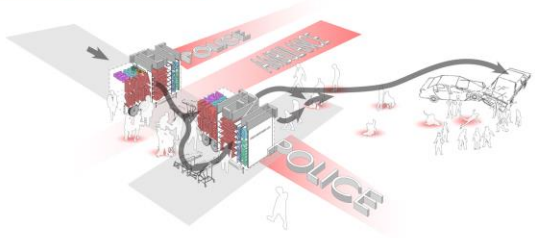
In completion of designs, issues of community, social equity and cultural sustainability are extremely important factors to study and incorporate.

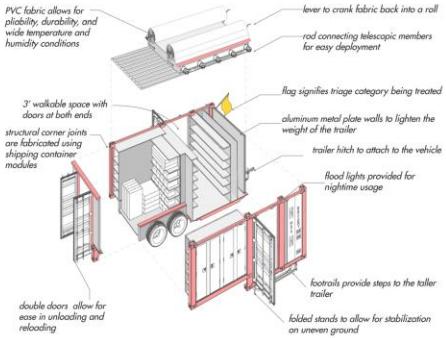
In this example Hardi Shah explored ideas to lower traffic fatality rates in Malawi, Africa.



*Could a **deployable, pre-fabricated mobile emergency response unit** help reduce the on-site road traffic accident mortality rate?*





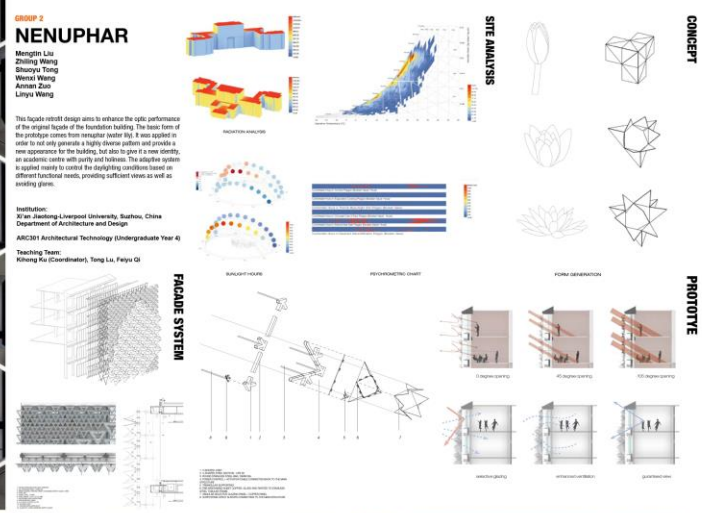


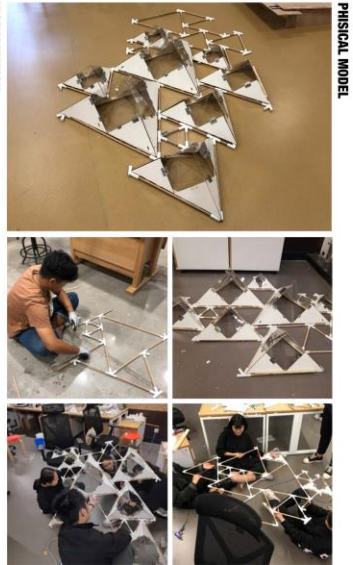
Student Work

Environmental High Performance Design & Research Projects

How well a building operates in concert with our environment is critical

In this example, Kihong Ku studied responsive facades treatments with his students at Xi'an Jiaotong Liverpool University in Suzhou, China while visiting for the 2018-19 academic year.



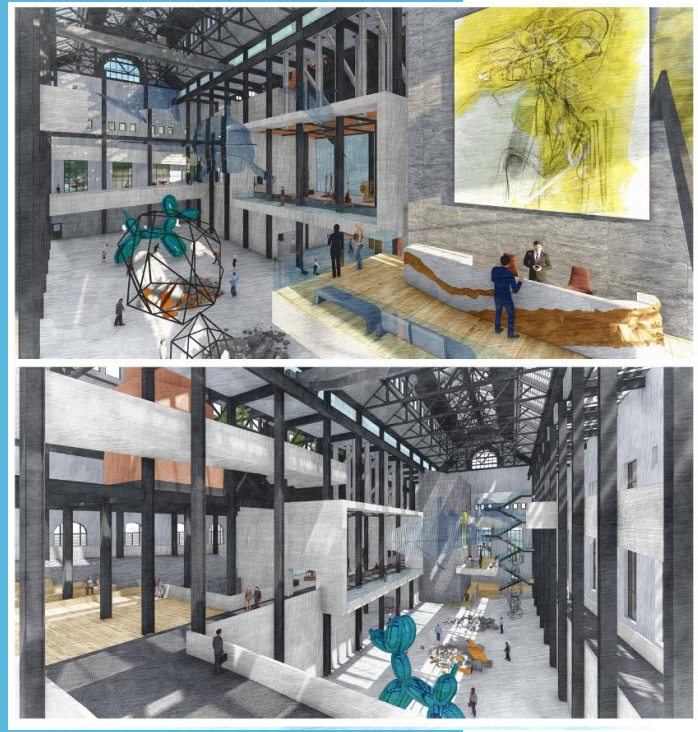


Student Work

Thesis/ Capstone Design Projects

MArch Program focuses on supporting students completing a thesis project based on their personal interests

In this example, Vietnamese student Nguyen Ton designed a revitalization of an abandoned NY State power station into an art center



PROGRAM STUDY
References

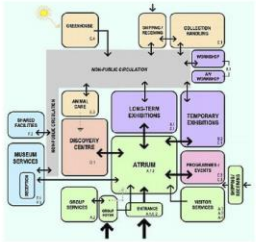


Figure 81. Canadian Museum of Nature – Functional Program
Source: www.lundholm.ca

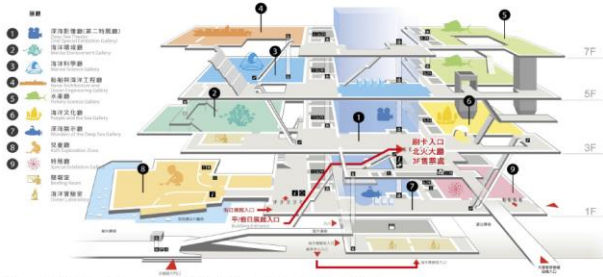


Figure 82. National Museum of Marine Science & Technology, Taiwan
Source: www.nmmst.gov.tw

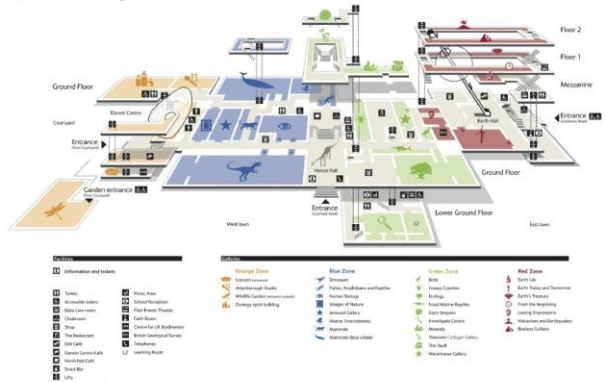


Figure 83. National History Museum, London, UK
Source: www.nhm.ac.uk

Student Work

Research Studios

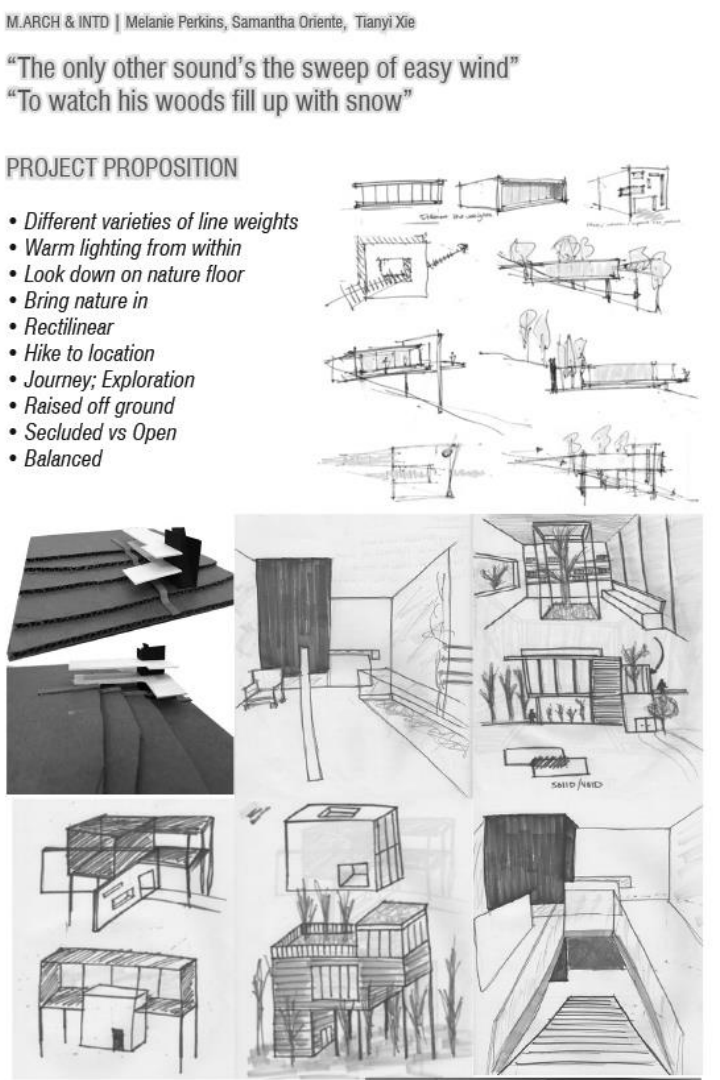
Research studios focus on such topics as Global Informal Settlements, Smart Future Cities, Responsive Technologies & Environmental Sustainability

In this example, students designed high performance buildings for smart city development in Hong Kong.

Hand Drawing Versus Computer Drawing?

A common question we receive is which type of drawing does our program emphasize? The answer is both. We believe the ability to sketch, hand draw, diagram and build models are fundamental architectural skills just as much as being proficient in digital rendering. Programs we use:

- Microsoft Office
- Adobe Creative Suite
- AutoDesk (AutoCad & Revit)
- Rhinoceros



FACULTY PROFILE

Chris Harnish, Associate Professor

Education:

- MArch, University of Oregon
- BA, Environmental Studies and English literature, Denison University

Professor Harnish specializes in such humanitarian architecture in Malawi and South Africa, examining the process of design and construction with the goal of positive culture and environmental impact in local communities. In 2016, Professor Harnish was awarded a Fulbright Teaching Scholar Fellowship for his proposal, “Equity, Sustainability and Resilience: Architecture as a Social Force in Humanitarian Development”.

Watch his video:
https://vimeo.com/361046725

SUCCESS STORIES

TJ Burghart 2014 Alumnus

- MASS Design Group in their Kigali, Rwanda office in Africa.
- Formerly AmeriCorps Construction Crew Leader at Habitat for Humanity Philadelphia Inc.
  - Education:
    - BArch Jefferson ’14 with Minor in Arch. History/Theory
    - AIAS Director Freedom by Design
  - *“I view architecture as a tool that has implications beyond its walls through the process. Spaces are where people come together to live. Details and moments of these spaces influence our daily experience and shape who we are. As a recent graduate, I continually seek to understand how we can improve our quality of life”.*

SUCCESS STORIES

Skylar Tibbits 2008 Alumnus

- Assistant Professor at MIT
  - Education:
    - BArch Jefferson ‘08
    - Minor Experimental Computation
    - MS in Design Computation
    - MS in Computer Science
  - *Skylar Tibbits is a co-director and founder of the Self-Assembly Lab housed at MIT’s International Design Center. The Self-Assembly Lab focuses on self-assembly and programmable material technologies for novel manufacturing, products and construction processes.*

Jefferson

Thomas Jefferson University