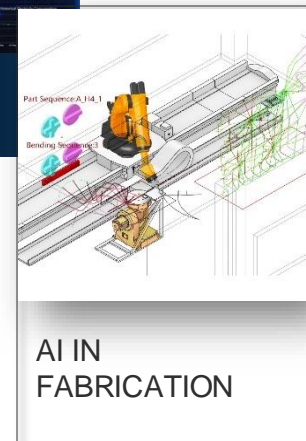
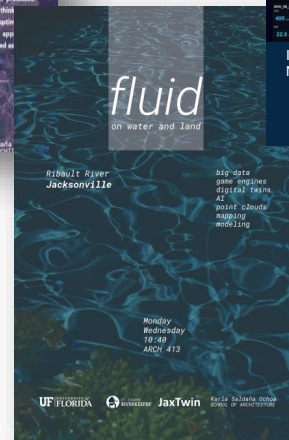
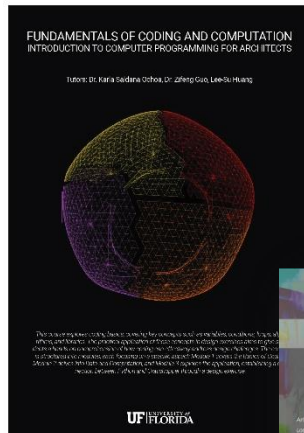
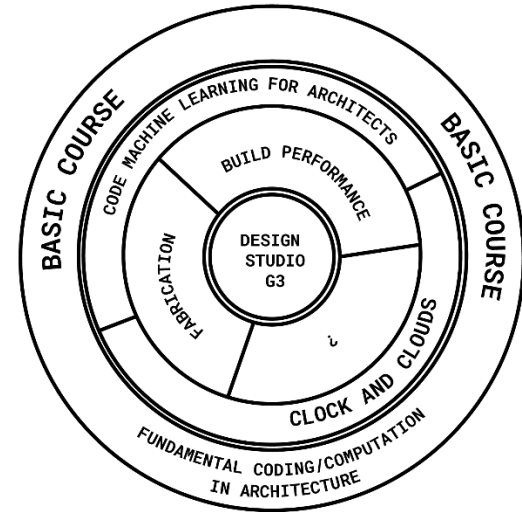


SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE



SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

The AI in Architecture Graduate Certificate provides a structured curriculum focusing on coding, computation, and theoretical/practical AI applications in architecture. It ensures students gain a competitive edge in the job market through comprehensive AI education, bridging the skills gap and preparing them for success in this dynamic field.



CERTIFICATE STRUCTURE

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

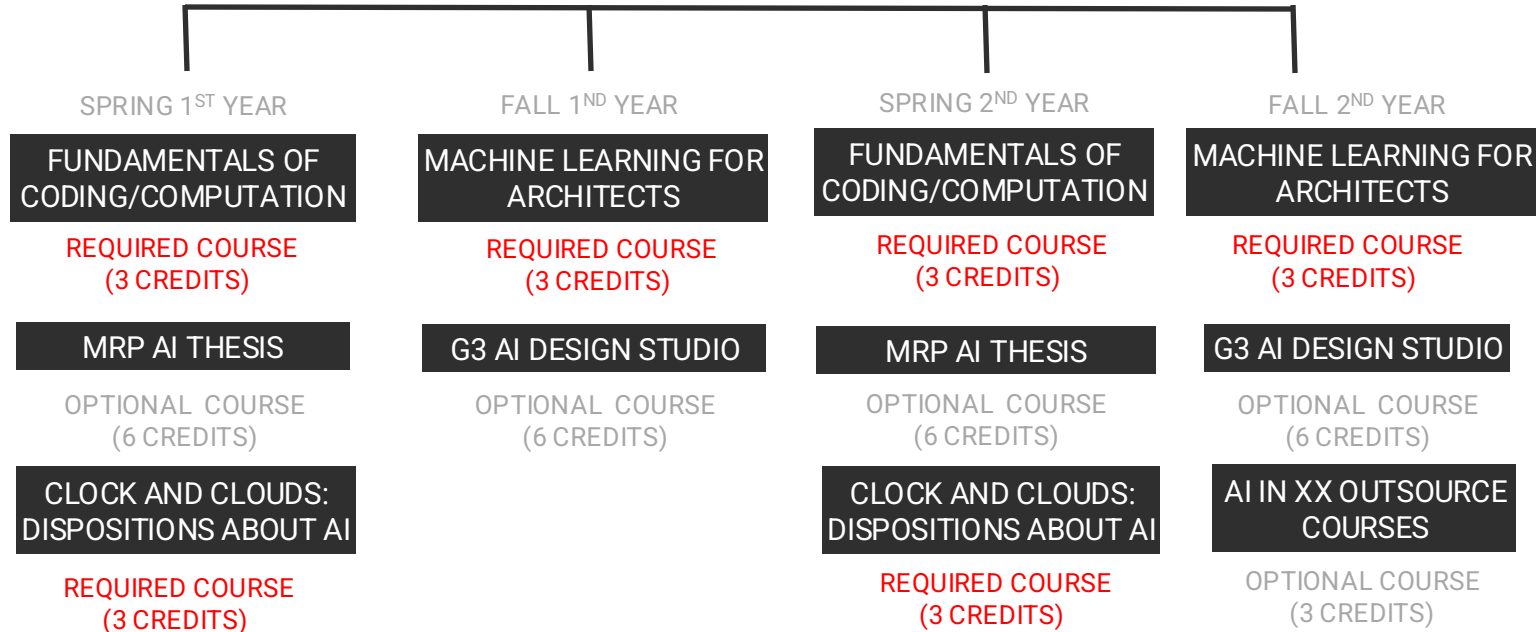


INTERNATIONAL SCHOLARS

DR. KARLA SALDANA OCHOA / DR. RICCARDO VILLA / DR. ZIFENG GUO

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

15 CREDITS IN TOTAL

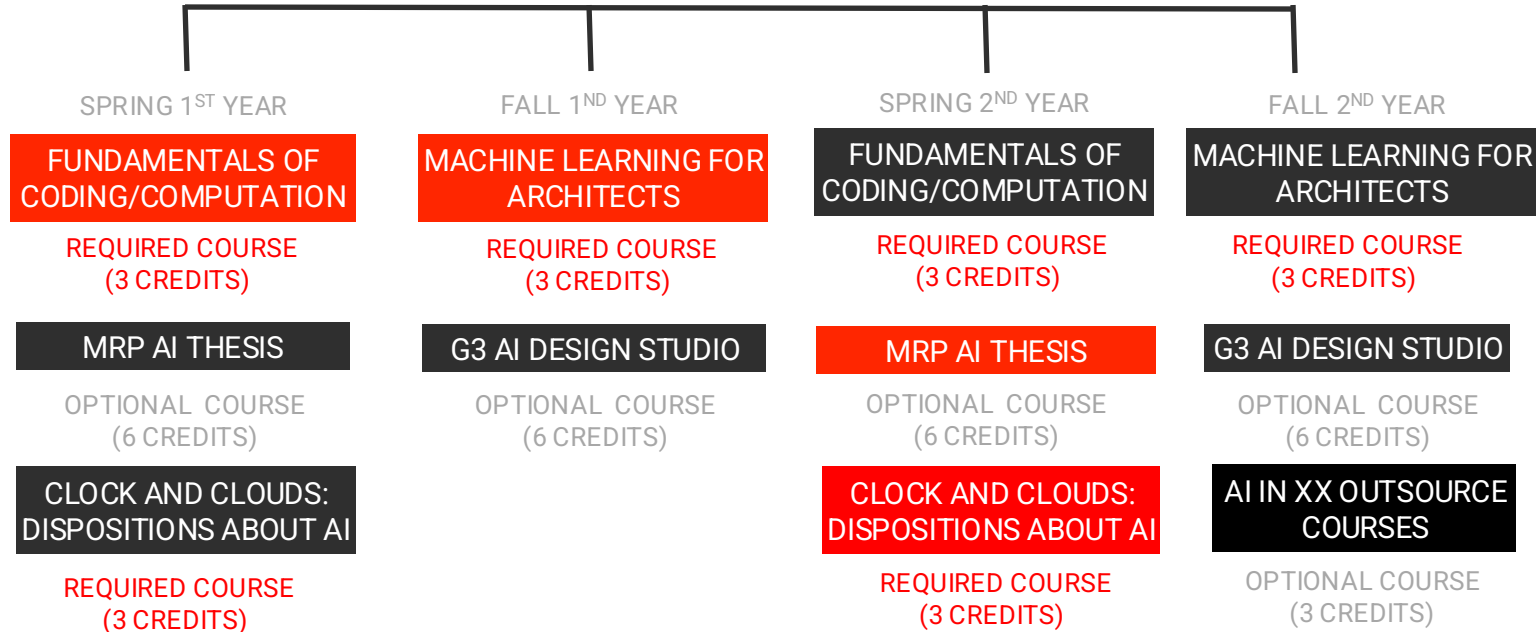


TIMELINE

DR. KARLA SALDANA OCHOA / DR. RICCARDO VILLA / DR. ZIFENG GUO

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

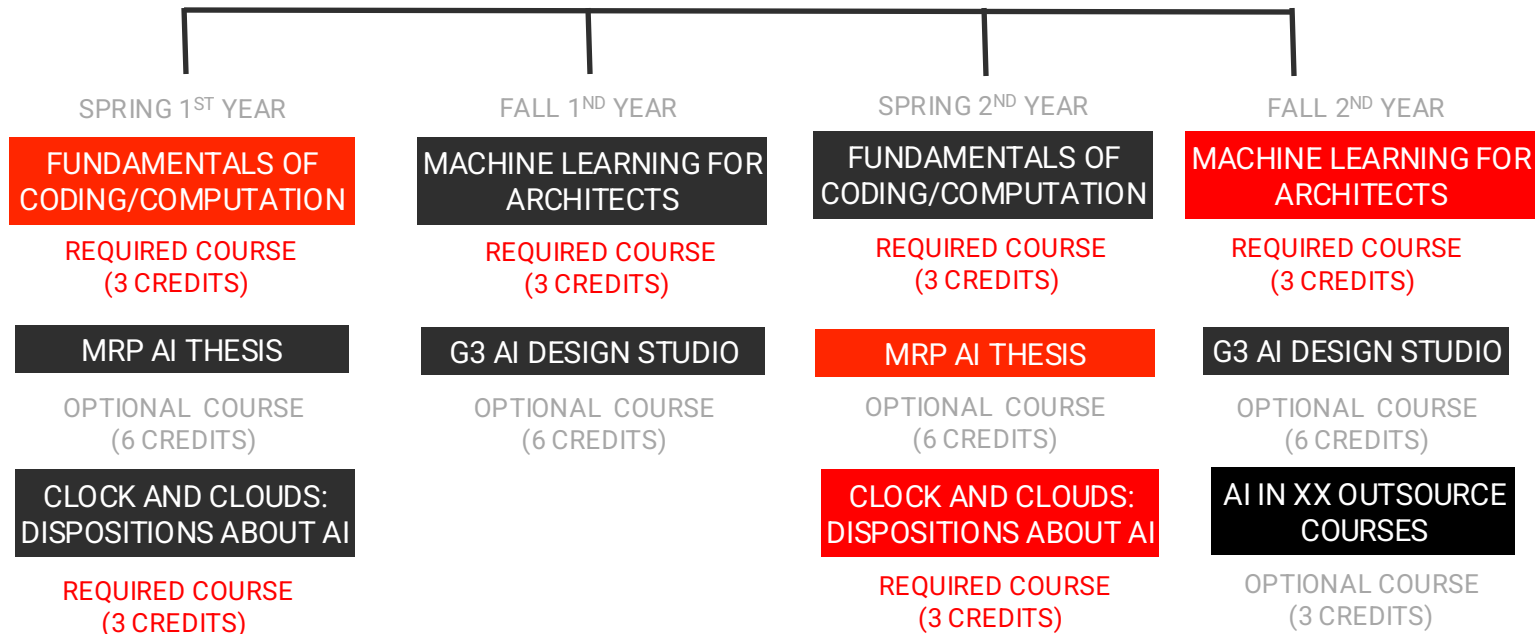
15 CREDITS IN TOTAL



OPTION 1

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

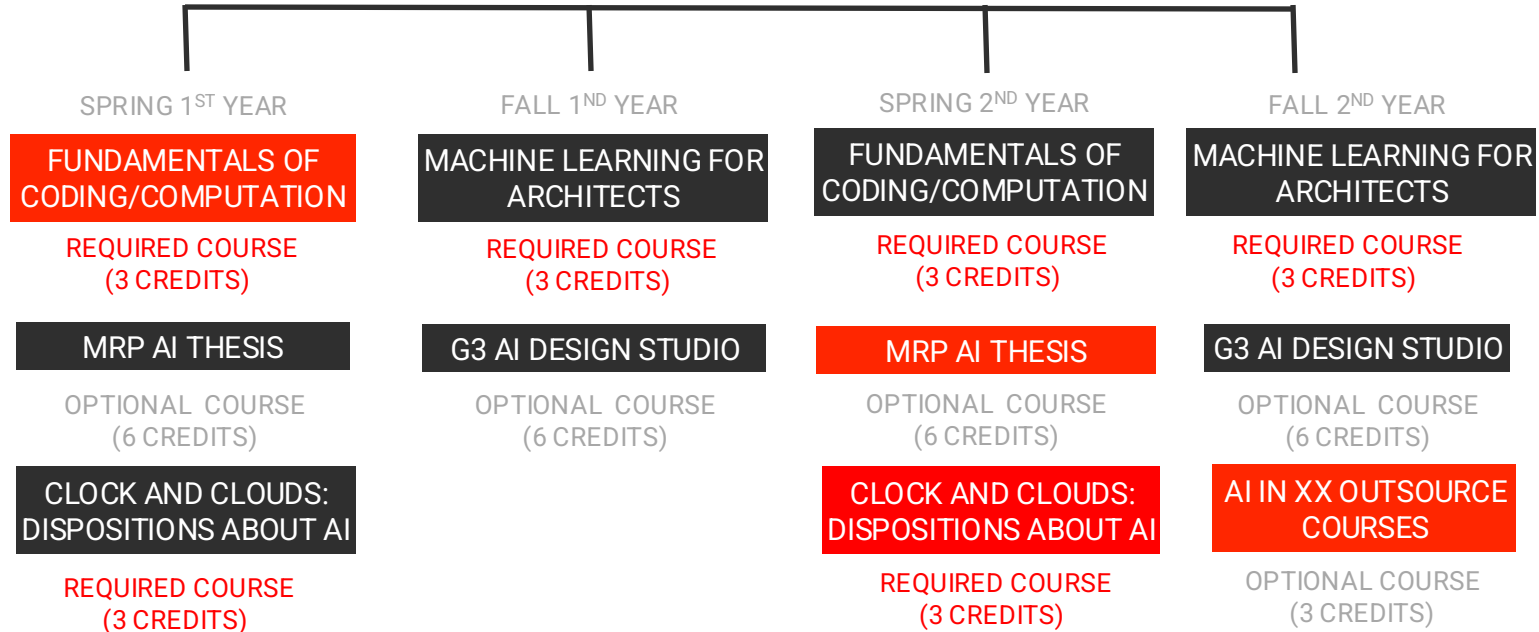
15 CREDITS IN TOTAL



OPTION 2

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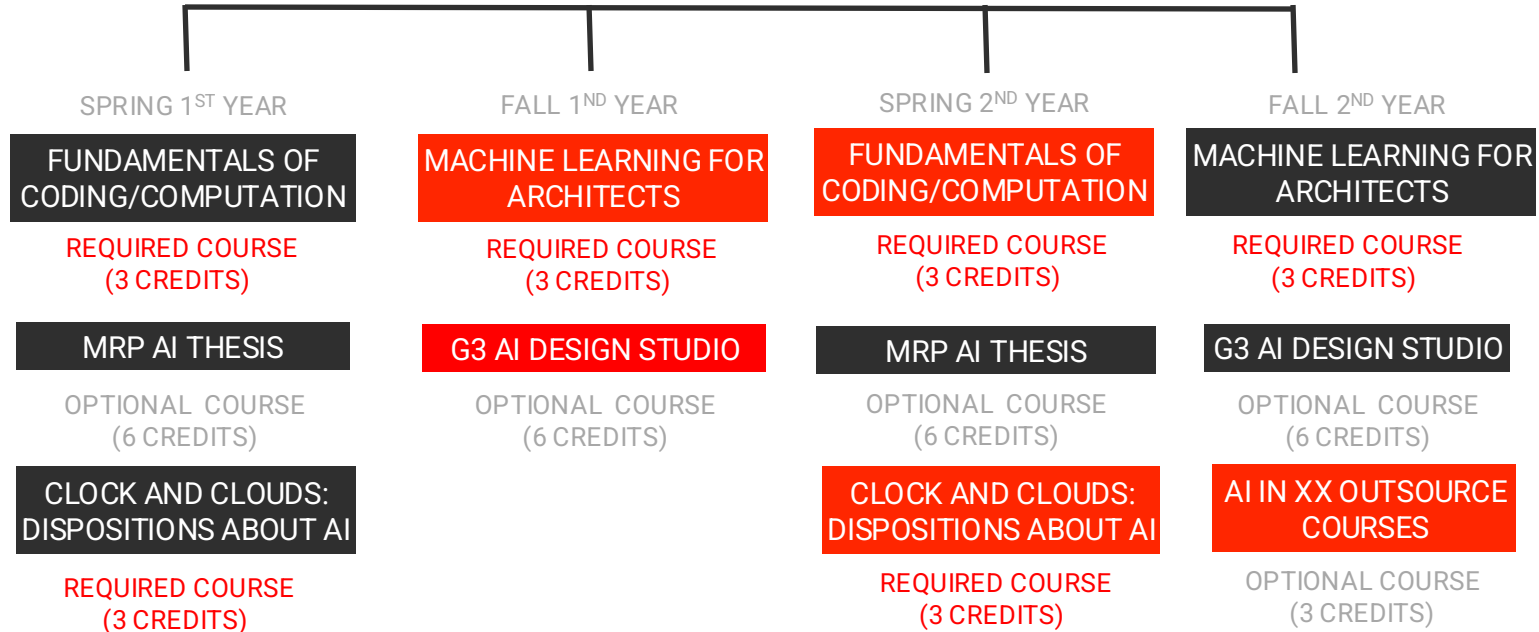
15 CREDITS IN TOTAL



OPTION 3

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

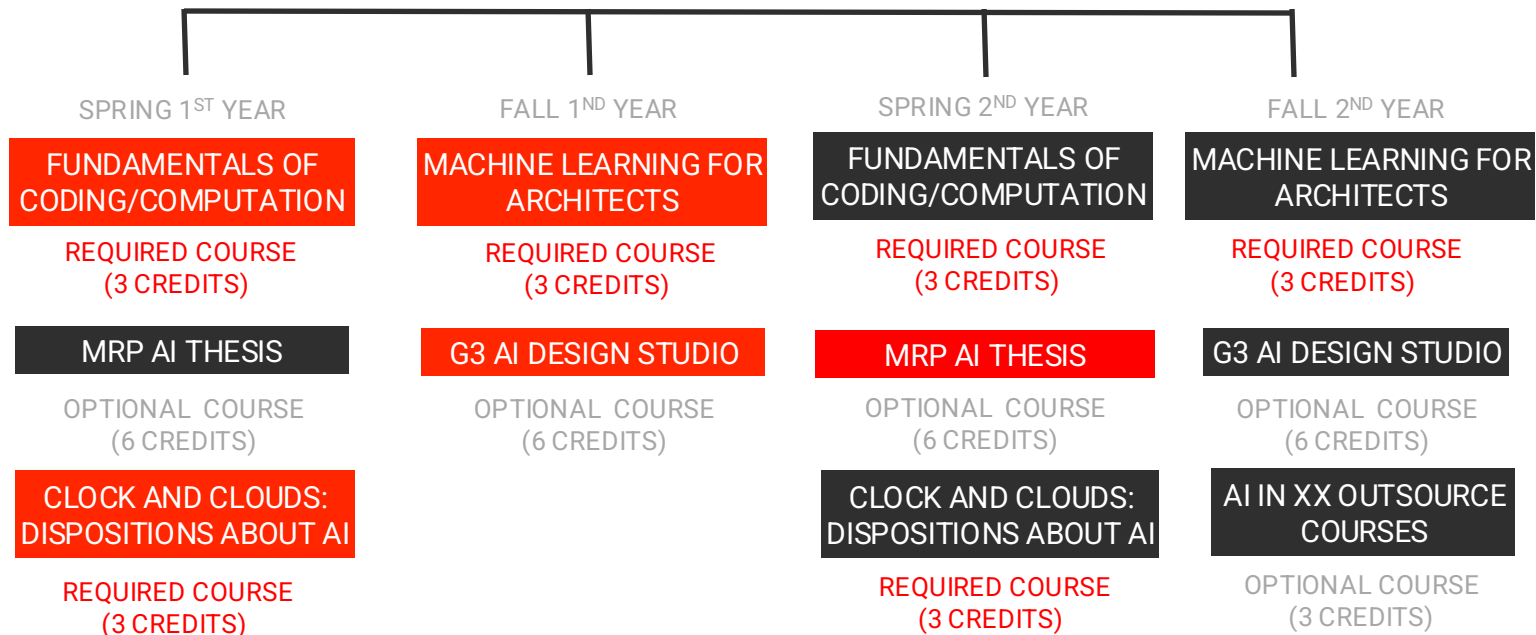
18 CREDITS IN TOTAL



OPTION 4

SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

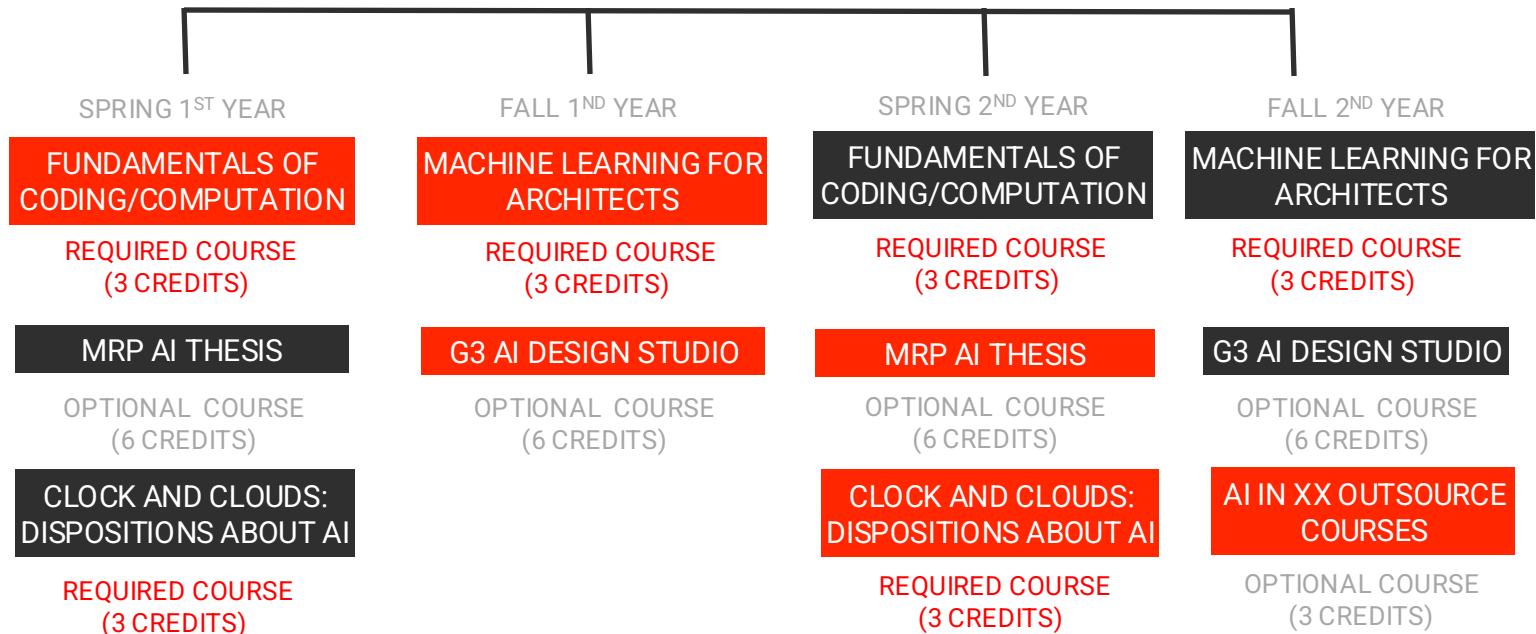
21 CREDITS IN TOTAL



OPTION 5

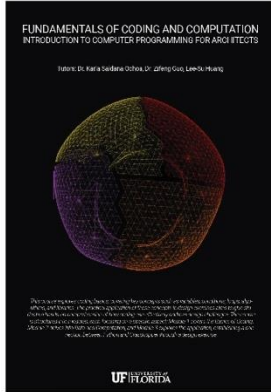
SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE

24 CREDITS IN TOTAL



OPTION 6

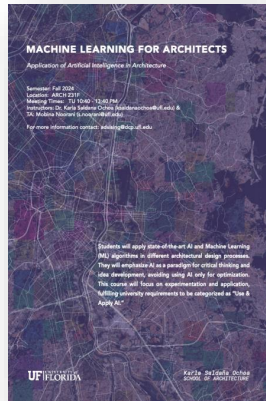
SCHOOL OF ARCHITECTURE GRADUATE AI CERTIFICATE



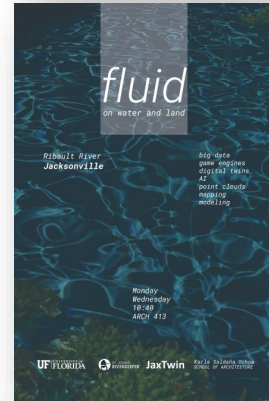
ARC 5XXX - Fundamentals of Coding and Computation: This core course will delve into the fundamentals of coding, introducing students to concepts such as variables, conditions, loops, algorithms, and libraries. These concepts will then be applied in design exercises to give students a hands-on understanding of how coding can solve design problems. This course will fulfill university requirements to be categorized as "AI Enrichment".



ARC 6XXX – Clocks and Clouds: This course fulfills university requirements to be categorized as an “AI Ethics” course. Students will explore and evaluate the use of AI and data-driven algorithms in architectural practices. They will develop course syllabi for the first year of architecture studies, taking AI as a ground infrastructure in the curriculum, addressing fairness, bias, and copyright for work produced with AI



ARC 6XXX Machine Learning for Architects: The course will focus on experimentation and application. Students will learn about the most common AI and Machine Learning (ML) algorithms used in design exercises and how they can apply them in architectural design. This course will fulfill university requirements to be categorized as “Use & Apply AI”.



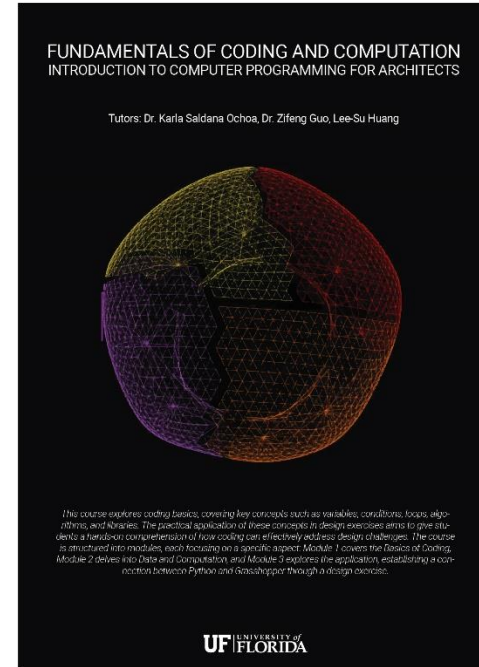
ARC 6356 Fluid—on water and land: This is a foundational course within architectural education. This course will challenge students to apply their knowledge and skills acquired from previous courses to real-world design projects. This course will fulfill university requirements to be categorized as “Use & Apply AI”

KARLA S., ZIFENG G.

FUNDAMENTALS OF CODING AND COMPUTATION

3 credits

- W01. What is coding?
- W02. Variables
- W03. Control-flow
- W04. Conditionals
- W05. Loops
- W06. Data structures
- W07. Algorithms
- W08. Libraries
- W09-11. Final Project





DR. KARLA SALDANA OCHOA / DR. RICCARDO VILLA / DR. ZIFENG GUO

KARLA S., RICCARDO V.

CLOCK AND CLOUDS: DISPOSITION ABOUT AI

3 credits

- W01. Introduction: Artificial Intelligence and Architectonic Disposition.
- W02. Gardening Images. Production, Consumption, Photosynthesis.
- W03. Clouds and Clocks: Ethics in Architecture.
- W04. Model, Map, Territory.
- W05. Information Theory: Entropy, Negentropy, Code.
- W06. Tools and Instruments. Imperative Programming and Declarative Coding.
- W07. Artificial Intelligence: Tool and/or Instrument?
- W08. Articulating Dispositions: "Inventing" the Architectural Intent.
- W09. Testing of the Architectural Intent.
- W10. Testing of the Architectural Intent.
- W11. Final Projects and Round Table.



Architectural Autonomy: Shaping Personal Language and Imagery in Design



An introductory course for students in design, to create their own meanings and visual expressions for terms related to the built environment. It encourages autonomy by fostering the development of personalized definitions and visuals that can be applied in future design studios. The focus is on practical skills and a fundamental understanding of how visual language influences architectural perceptions.

Kaitlyn Tabet

ARC 2424

MW 10am-11:30pm

3 Elective Credits

1.0 Visualizing the implied meaning of architectural terms with double articulation

- 1.1 Introduce double articulation in which the words "language" and "tongue" exist in the same category, but the nuances of their usage make them suitable for different situations.
- 1.2 Discussion: Brainstorm a list of architectural key terms with potential double articulation.
- 1.3 Learning objective is to visualize the meaning of the key term within the context of the built environment. Each student presents their visual representations, explaining the nuances and potential dual meanings of the chosen architectural term.

2.0 Designing Perspectives: Exploring the Interplay of Subjectivity and Objectivity in Architecture

- 2.1 Further impose upon the concept of tongue as subjective, cultural and artistic, while language implies the opposite it is objective. Introduce architectural language as being connected to them but independent from the mixture, it blurs boundaries between the two.
- 2.2 Discussion: Define objective and subjective imagery. Brainstorm on what the boundary between objective imagery and subjective imagery might look like.
- 2.3 Learning objective is to gain practical experience in blended design by utilizing Midjourney to generate a final mixed image, to then highlight over areas where the boundaries between objective and subjective elements are evident in the generated image.

Artificial Intelligence in Design '24, Genp, John S., editor.

3.0 Developing Architectural Language: Ichnography, orthography and scenography

- 3.1 Reinroduce the concept of architectural language to develop language through ichnography, orthography and scenography.
- 3.2 Discussion: Brainstorm on what the boundary between objective imagery and subjective imagery might look like.
- 3.3 Learning objective is to abstract from the generative model a more personalized, descriptive visual of the three fundamental methods for developing architectural language: floor plan, section, and 3D model.

Jorge Luis Borges, On the Exactitude in Science

STUDENT
OUTPUT

4.0 Entropy in Language and Its Implications in Architectural Design

- 4.1 Introduce the analogy of "tongue" as the foundational elements of language and discuss how language evolves over time. Provide an in-depth explanation of entropy in language, emphasizing the measure of uncertainty and unpredictability.
- 4.2 Discussion: How does entropy manifest in the evolution of architectural language? Introduce one such generative model for this is a recurrent neural network (RNN) trained on architectural texts, spanning different architectural styles and periods.
- 4.3 Learning objective is to understand how the language and vocabulary associated with their assigned style have evolved over time, considering the influence of entropy.

ARC 2424



MACHINES FOR THE LIVING

THIS DRAWING WILL EXPLORE THE CONCEPT OF ENTROPY IN ARCHITECTURAL DESIGN. THE DESIGN PROCESS OF IT IS COMPLEX AND INVOLVED SEVERAL TIMES. DATA IS FOR THE VISUAL ANALYSIS.

CONCEPT OF ENTROPY IN ARCHITECTURE

ENTROPY

ENTROPY

ENTROPY



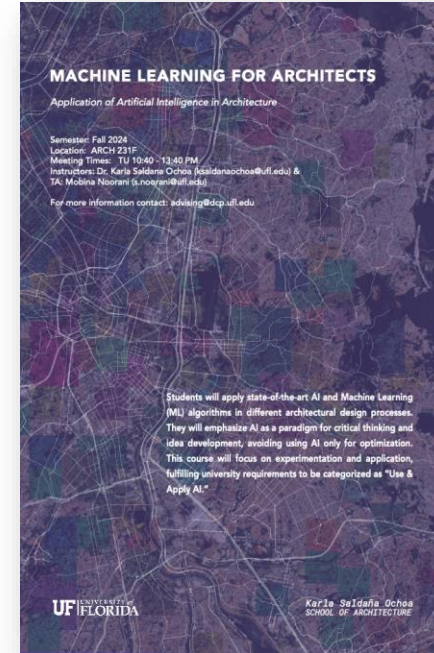
UF UNIVERSITY OF FLORIDA

KARLA S., JIMMY W.
COMING UP IN FALL 2024

MACHINE LEARNING FOR ARCHITECTS

3 credits

W01.	Data and Information
W02.	What is Artificial Intelligence
W03.04	Data collection
W05.06	Data processing
W07.08	Unsupervised learning
W09.10	Supervised learning
W11.	Generative Algorithms
W12.	Special Topic
W13-16.	Application: code about generative algorithms and students' work.

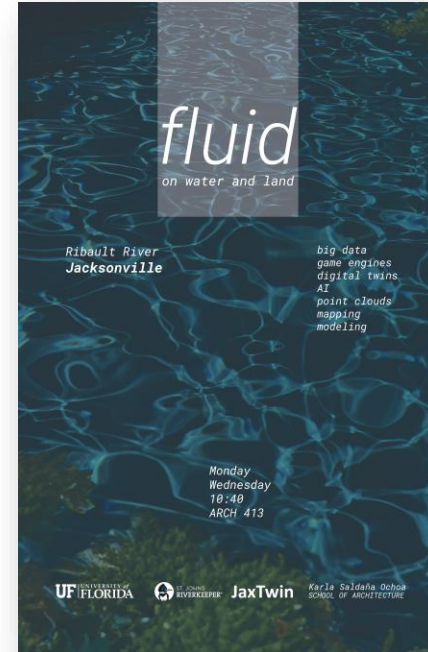


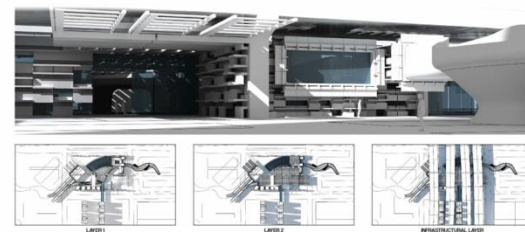
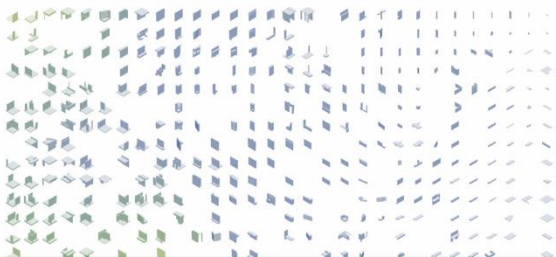
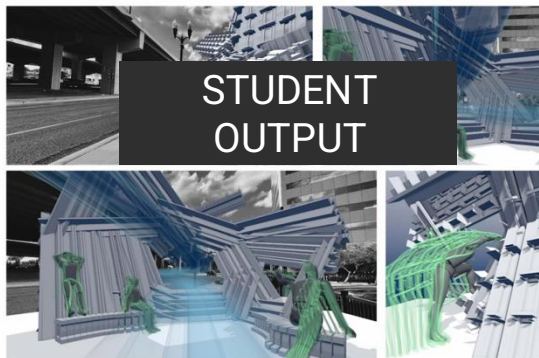
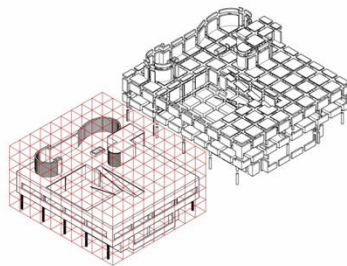
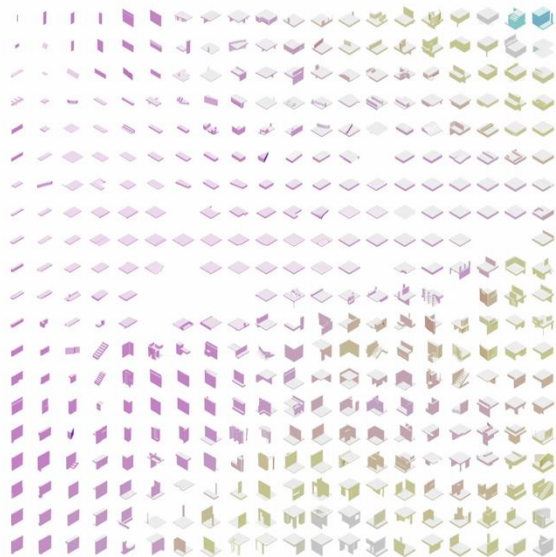
KARLA S., JIMMY W.

G3 DESIGN STUDIO PLAYING MODELS

6 credits

- W01. Site analysis (SOM, satellite images)
- W02-3. Mapping with Gis and drafting - research topic (archGIS)
- W04-5. User needs in Social media analysis (SOM FE)
- W06. Point cloud models (Could compare)
- W07-8. Design Exercise
- W09-10. 3D details navigation (SOM Fourier, and use GANS for image creation)
- W011. Precedent analysis (search engines in architecture)
- W12-13. Generative algorithms (CEM)
- W14.16 Design Exercise / Unreal visualization





HASSAN
COMING UP IN 2026

AI IN BUILDING PERFORMANCE

3 credits

- W01. AI in building performance simulation and prediction
- W02. AI in building energy management and consumption
- W03. AI in HVAC system control and energy consumption
- W04. AI in building noise control
- W05. AI in lighting control

Learn how IoT in buildings and the built environment with the help of AI and machine learning can help you optimize and control several technical elements of buildings including, energy consumption, lighting, and acoustics.



TBD
COMING UP IN 2026

AI IN FABRICATION

3 credits

- W01. AI in Interactive Design
- W02. AI in Robotics (w/ BCN: Aladdin Alwisy)
- W03. AI in Image Recognition / Point Cloud Segmentation
- W04. Augmented Reality-Assisted Robotic Fabrication
- W05. Augmented Reality-Assisted Assembly

