Premise

Geometry as an intelligent factor has massive implications for the future of architectural form. Form generation can become an evolutionary process that simultaneously incorporates structural stability, performance, spatial quality, and aesthetics through generative processes and systems of self organization similar to those in the natural world. The ability to derive the underlying mathematical language of these formations allows designers to simulate the processes which result in these geometries and apply contextual parameters, incorporating means for geometric adaptability.

Studio Brief

Emergent Geometries is a research-based studio focused on the exploration of geometry beyond the formal and representational properties prevalent in architectural design today. The studio will analyze existing geometry systems and assess their inherent properties and capabilities, and subsequently use this analysis to develop intelligent geometry systems through experimentation, algorithmic logic and fabrication. The unit will build functional prototypes as a means for understanding this relationship between geometry, materiality, spatial qualities and organization. The resulting form generation techniques will then be applied to the design of a Transportation Terminal, and adapted to respond to scale, and programmatic and environmental factors.

The method of investigation is rigorously experimental and progresses in complexity from small scale fabrication, experimentation and research to architectural scale implementation and contextual development. The goal is to side-step the prevalent representational approach to form generation in architecture and instead encourage a comprehensive and multi-faceted development process where the design outcome is greater than the sum of its parts. The challenge is to create an inherently intelligent formal system using simple materials and algorithmic logic without the need to rely on rapid prototyping techniques; and applying these principals to a standard architectural project.

Requirements

This studio encourages students to challenge prevalent norms in architectural design through promoting creativity and radical thinking over practicality and pragmatism. Nonetheless, designs must follow systematic logic and coherent theories.

Familiarity with 3D software and Grasshopper would be helpful.