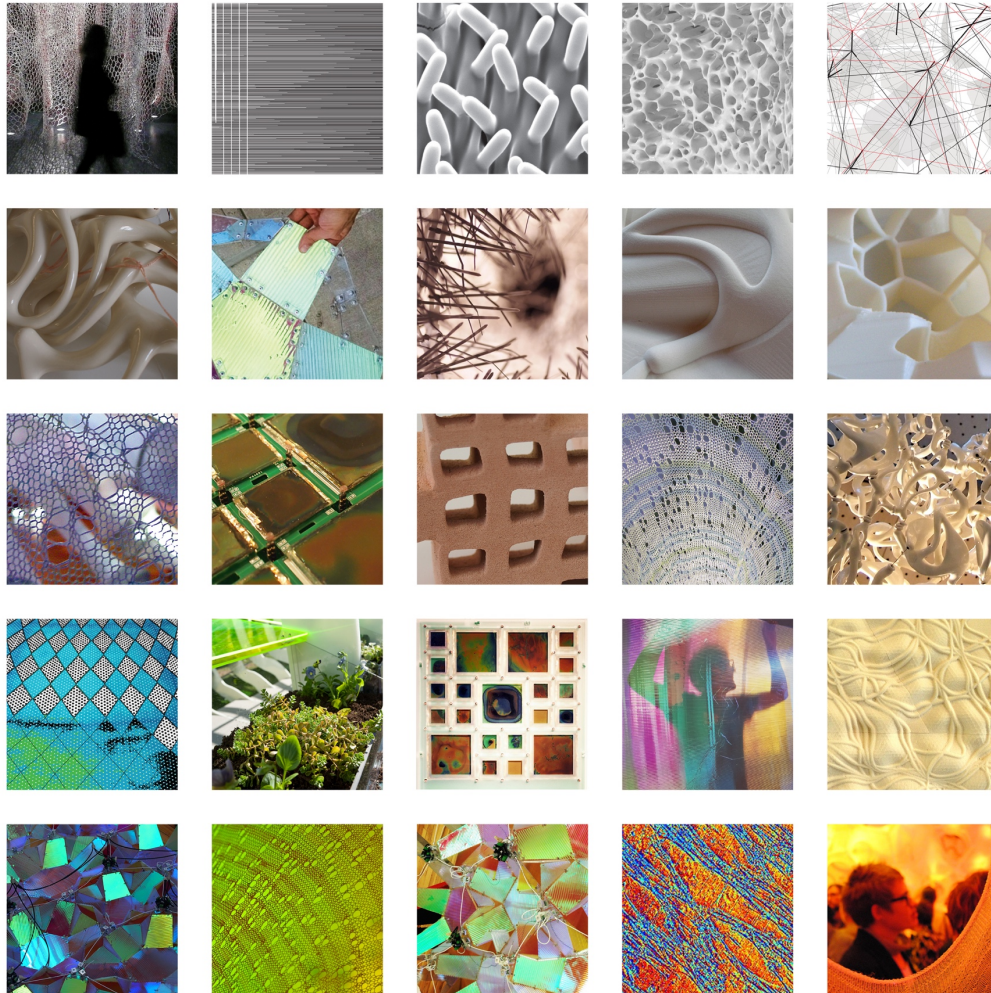


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Although there have been tremendous innovations in design, material sciences, bio- and information technologies, direct interactions and collaborations between scientists and architects are rare. One approach is to couple architectural designers with engineers and biologists within a research-based laboratory-studio in order to develop new ways of thinking, seeing and working in each of our fields. **This course is an introduction to fundamental concepts in Matter Design Computation.** Course work includes exposure to different theories, research, and practices of emerging technologies, digital fabrication, computational design, experiments in building construction techniques, new materials, bio-inspired design, and human-centered adaptive architecture. Project work will be closely aligned to ongoing research in the Sabin Lab at Cornell AAP with new collaborations established at Cornell Tech. Emphasis will be upon material systems, generative design, simulation, intermediate computational design, physical modeling, and digital fabrication within a hybrid lab+studio setting. Project work will follow 2 parallel topics: 3D printed componentry and bio-steered generative design. The course situates itself at the forefront of a new direction for 21st-century architectural research practice—one that investigates the intersections of architecture and science and applies insights and theories from biology and computation to the design of material structures. In particular, this course will unfold long-standing traditions of shared relationships between architecture and biology, with sub-topics that include sustainability, ecological design, biomimicry, digital fabrication, experimental structures, and materials science.