ARCH 7103: Bio.D [studio}~

Instructor: Kelly Carlson-Reddig, Associate Professor
Meetings: ONLINE SYNCHRONOUS MWF 2:00 – 5:15
Credit Hours: 6 Graduate Cr. Hr.

> *"As the world's population grows, so does the pace of urbanization and development. What is built on the land profoundly impacts ecological systems as well as the health, safety, and welfare of our communities. Too often, however, landscapes, infrastructure, and buildings are designed without regard to their harmful impacts on scarce resources, underlying ecological systems, and quality of life in the community."*[1]

Our planet is under stress, and architecture (with the building industry) are liable culprits at the root of the underlying problems. Buildings radically alter ecosystems as they consume land and materials.[2] Unchecked sprawl carves up interdependent biotic systems into fragmented pockets, disrupting habitats, migration patterns and threatening species survival. Buildings—from construction through subsequent operation--weigh heavily on the human carbon footprint.[3] And gray-scaped cities deplete crucial CO2-absorbing plants in favor of impervious heat islands that pollute water and retard its natural flows. Our typical construction and development practices wreak havoc on living systems, and the timeframe for course correction is drawing short.

The actions, choices and priorities of architects today will profoundly influence the future health of our planet. Regrounding design in environmentally-sound principles can slow or even reverse dangerous environmental trends. Learning from the interdisciplinary insights of ecologists, biologists and landscape architects, architects can use design to repair broken ecologies that balance the needs of humans with those of diverse ecological systems. At stake is nothing less than the living biodiversity of our earth.

Building / Site Project

This studio will focus on building and site design principles that balance the complementary needs of humans, diverse biotic species, and the ecological systems on which they all depend.

- **Site Project:** BioScape Waterfront Park, French Broad River, Asheville, NC

  The studio will reject the destructive convention of "clearing and leveling" the site as a neutralized tabula rasa. Instead, we will employ design to nurture and regenerate the complex biotic conditions of the site. Aiming toward Eco-remediation of the post-industrial damage along the French Broad River, the site design will aim to reestablishe native and endangered plants and wildlife, while also supporting education and environmental awareness through light-touch human uses. The BioScape park will employ hybrid architectural / landscape infrastructures that reconnect discontinous ecologies, and create resilient environments shared by humans, animals, insects, and plantlife.

- **Architecture Project:** Biodiversity / Ecosytems Research and Education Center (BEREC)

  Environmental course correction will demand greater scientific knowledge and intergenerational public education. The design of a Biodiversity / Ecosystems Research and Education Center will be integrated with the BioScape park for research, education, and "light touch" uses by the community. With conceptual consistency, human health and wellbeing are key priorities for the Center. Well Building Standards[4] guide the design healthier architecture, and will be foundational to the (BEREC) design. Among the Well Building Concepts are health-optimizing design principles related to air, water, light, movement, and materials.

Goals and Objectives

- Embrace building and site design principles related to biodiversity, green infrastructure, and ecological resiliance, and health.
- Design for living systems at many scales from the urban site to the building, to their materiallity.

Primary Resources

IPBES-Intergovernmental Science-Policy Platform on Biodiversity & Ecosystem Services.
ASLA Smart Policies for a Changing Climate, ASLA Report on Climate Change and Resilience.
EPA-Environmental Protection Agency: Tools, Strategies, & Lessons...Green Infrastructure
IPCC: Intergovernmental Panel on Climate Change - Climate Change and Land
Sites V-2 Rating System for Sustainable Land Design and Development

1 SITES v2 Rating Systems For Sustainable Land Design and Development, 2014.
2 Only 15% of Earth's land is untouched by humans, and it is diminishing daily.
3 According to Ibrahim Thaw of the UN Environment Program: "buildings represent a third of global emissions, and a third of energy and materials consumed worldwide."
4 WELL Building Standard v2, International WELL Building Institute.