

NEW UNDERGRADUATE CERTIFICATE

INTERDISCIPLINARY AND OPEN TO ALL STUDENTS



The **discovery** between disciplines, material and design exploration. Creating **nature-inspired solutions** for research and entrepreneurship.

Learning from the natural world, we encourage all disciplines to take advantage of this new certificate. Engaging real world challenges, the courses develop **flexible thinking, immersive learning, abstract explorations, and problem solving.**

REQUIRED

Biomimicry Foundations | 3 credits
Technology-Based Startups | 3 credits
Biomimicry Design Challenge | 3 credits

ELECTIVES (Choose two, take in any order)

Comparative Biomechanics | 3 credits
Biodesign | 3 credits
Physics of Living Systems | 3 credits

Biomimicry: innovation through emulation of biological forms, processes, patterns and systems.

The **Undergraduate Certificate in Biomimicry** is designed to give students training and experience in the theory, methods, and practice of seeking inspiration from living systems to solve technical challenges. Undergrads seeking a certificate will work with peers and faculty from departments including biology, art, engineering, and business to develop a skillset enabling problem solving in a variety of contexts where innovation and sustainability are desired outcomes.

We encourage students **majoring in art, science, engineering, business, and allied disciplines** to take advantage of this new certificate.

These are **cross-disciplinary classes** that encourage flexible thinking, immersive learning, real world challenges, abstract concepts, problem solving and learning from the natural world.

15 CREDITS

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- **Physics of Living Systems** | 3 credits

3100: 475/575 Comparative Biomechanics

Prerequisites: None

Dr. Henry Astley

Learn about how animals run, jump, swim, fly, burrow and eat by linking physics and engineering with biology.

9871:333 Physics of Living Systems

Prerequisites: None

Dr. Hunter King

Learn how biological systems use structure and material to derive rich optical and mechanical function.

3100: 238 Biomimicry Foundations

Prerequisites: None

Dr. Peter Niewiarowski

Biomimicry is the process of learning about and from nature in order to spark new ideas like Velcro, airplanes, and swarm computing, that offer a powerful paradigm for solving all kinds of problems.

7100: 316 Biodesign

Sophomore status or permission of instructor

Dr. Petra Gruber

Biodesign is an entry level design course in biomimicry using nature as a model for creating innovative design solutions.

4600:481 Technology-Based Startups

Prerequisites: None

Dr. Gopal Nadkarni

Innovate and work in interdisciplinary groups to find technology startup opportunities that can be solved using known biomimetic concepts.

CAPSTONE 3100:318 Biomimicry Design Challenge

Prerequisites: None

Dr. Petra Gruber

Working across disciplines and using nature as a model for creating an innovative solution that targets a specific design problem.