

GLOBES Seminar - BIOS 60581 02

Resilience of Coupled Human and Natural Systems

University of Notre Dame

Fall 2015 - Enroll BIO 60581 section 02

Time-Location: To Be Announced

Instructor M.D. Lemmon - Dept. of Electrical Engineering

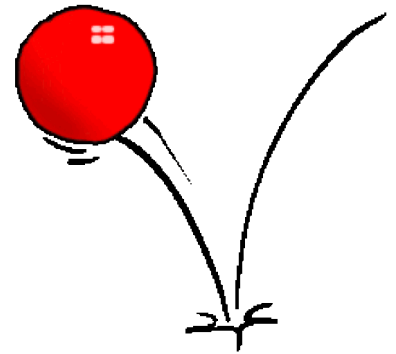
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re·sil·ience

rə'zilyəns/

noun

1. the ability of a substance or object to spring back into shape; elasticity.
"nylon is excellent in wearability and resilience"
2. the capacity to recover quickly from difficulties; toughness.
"the often remarkable resilience of so many British institutions"



Many coupled human-natural systems (CNHS) provide essential goods and services to society. We rely on these systems to always provide a predictable level of service and any service disruptions have the potential to catastrophically impact public health and welfare. Such systems are said to be *resilient* when they have the resources to recover from events that trigger such shifts in system function. This seminar adopts a *dynamical system's approach* to study the resilience of coupled human-natural systems. This study will be organized about Holling's *adaptive renewal cycle* (ARC) using concrete examples drawn from conservation ecology, fishery management, natural disaster response, and disease transmission to illustrate the various ARC phases. Guest lecturers and assigned readings will be used to guide in-class discussions with the goal of teasing out the strengths and weaknesses of this system's approach in measuring and managing the resilience of coupled human-natural systems.

Pre-requisites: Calculus B (MATH 10360 or equivalent)