

**URBDP 498A / 598F ENVIRONMENTAL PLANNING**  
**Complexity, Resilience, and Innovation in Urban Ecosystems**

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**DESCRIPTION**

The focus of this course is on the integration of principles of ecosystem dynamics and resilience into urban planning and decision-making. The course builds on complex systems theory and explores its application to coupled human-ecological systems through 4 modules: 1) theories of environmental planning, 2) methods of environmental assessment, 3) integrated modeling, scenarios, and strategic foresight, and 4) collaborative adaptive management and planning. Together these modules are used to frame and address critical transitions and resilience in urban ecosystems in the Puget Sound region. Students learn techniques for developing scenarios, building models, assessing resilience and devising management strategies. The course builds on a broad range of approaches including strategic environmental assessment, place-based analysis, life-cycle analysis, risk assessment, and adaptive collaborative planning.

**OBJECTIVES**

- Explore theories and approaches of coupled human natural systems and resilience
- Learn concepts and principles of complexity theory and apply them to address emerging environmental issues
- Understand the implications of these concepts and principles for environmental planning and management
- Learn how strategic foresight and scenario planning methods help to integrate irreducible uncertainty into decision making
- Learn how to create an adaptive management portfolio that is effective and credible in the short and long term.

**PRACTICUM** The practicum will focus on *Complexity, Resilience, and Innovation in Urban Ecosystems*. We will explore dynamics of coupled human-natural systems in urbanizing regions and examine the drivers, mechanisms, and functions that regulate urban ecosystem dynamic and affect human and ecological wellbeing. Building on case studies linking urban patterns to human and ecological functions, we will develop hypotheses about what system characteristics and qualities make cities more resilient to change. We will select case examples in the Puget Sound region and test these hypotheses by exploring system resilience and innovation under alternative future scenarios. The practicum will reflect on our findings and develop principles to translate resilience science into strategies for environmental design and planning.