**ECL 290 – Quantitative Methods for Ecosystem-Based Management**

CRN: TBD

Time: TBD

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Summary: Ecosystem-based management (EBM) is a paradigm in conservation and natural resource management that seeks to improve outcomes by applying a more holistic approach and leveraging more detailed ecological, social, and economic information. These efforts can be aided by quantitative tools designed to better describe key ecological, social, and economic processes acting on an ecosystem. In the context of ecological processes, these tools can describe species interactions, the effects of disturbance and abiotic conditions on species abundance and community composition, and the joint distribution of species and their habitats. In this course, we will discuss the key technical challenges to implementing EBM and novel mathematical, statistical and computational techniques that can be used to overcome these hurdles. Each week a participant will lead a discussion on a paper that either develops or employs a quantitative technique to solve an outstanding ecological question in ecosystem-based management. Other participants will be expected to come to each class prepared to discuss the underlying problem the method is designed to address and the technical details that make it work.

Objectives:

1. To understand the difficulties of EBM and how quantitative techniques can be used to address these difficulties
2. Explore how the quantitative methods used for Ecosystem-Based Management evolved
3. Discuss future directions in Ecosystem-Based Management