NR 581-A5: Evidence-Based Conservation

Fall Semester 2017, 3 credits
Colorado State University

Date and Time: Wednesdays 2:00-4:30 pm
Location: Walnut 111

Instructor: Kelly W. Jones, PhD
Office Hours: Monday 12-1 or by appointment
Office: Forestry 238
Email: Kelly.Jones@colostate.edu

COURSE DESCRIPTION AND OBJECTIVE

COURSE OVERVIEW

Do conservation social policies and programs work? How, when and where do they work? There is growing emphasis in conservation and natural resources management on evidence-based practice and policy. This evolves from the adoption in the medical sciences and other social science disciplines, such as education, of tools and methods to generate and synthesize information, namely rigorous program evaluation and synthesis studies. This course takes a critical look at the rise and adoption of evidence-based practice and policy in conservation, focusing on its usefulness for understanding social-ecological policies and interventions such as protected areas, financial incentive programs, and community-based conservation programs. In the process, students will be exposed to methods for conducting systematic reviews and other synthesis studies, and methods for rigorous program evaluation. It should be noted, however, that this is not a methods course; students that want to apply these methods will have the foundation to continue their study but this class will not provide an in-depth knowledge of any particular method. Instead, this class is intended to develop understanding on the culture of evidence in conservation decision-making, how this has changed over time, and best practices in generating and synthesizing evidence being adopted within the conservation community.

All majors are welcome. A previous graduate course in statistics is highly recommended but not required.

COURSE OBJECTIVES

By the end of the semester the student will be able to:

1. Summarize the role of evidence in conservation over time.
2. Communicate basic concepts, methods and approaches to rigorous conservation program evaluation.
3. Articulate the focal purpose of and steps required to conduct systematic reviews and similar synthesis studies.
4. Design, utilize, and critique evidence-based research.

CANVAS AND COURSE MATERIALS:
All course readings, lecture slides, assignments, and other course materials are available through CANVAS.

COURSE ASSIGNMENTS AND GRADING

Your evaluation in this course will be based upon the following assignments.

Class participation/discussions (10%)
Students are expected to complete all assigned readings and participate in class discussions. Regular attendance is expected.

Rapid evidence review (20%)
A "rapid review" is a review of what is already known about a policy or practice, by using systematic review methods to search and appraise existing research. Because it is rapid, the completeness of searching and quality assessment is limited by time constraints. The presentation of what is known is typically narrative or tabular (Grant and Booth 2009).

To expand your knowledge of evidence-based conservation in practice, 2-3 students will conduct a rapid review of a specific conservation intervention or topic and present the review results to the class. Together, each pair will (1) review/examine existing evidence for one specific conservation intervention or topic; (2) select 2-3 papers for the entire class to read related to that topic and have them posted to CANVAS one week prior to class (via instructor); (3) prepare a slide presentation that summarizes their search process and critically reviews the evidence on their conservation intervention (upload file to CANVAS); and (4) lead a discussion based on assigned readings. The objectives of this assignment are to (1) implement systematic review methods and (2) bring in new information to enrich the class about the evidence on a specific conservation topic.

Grading will be based on PowerPoint presentation content (60%) and leading an engaging and effective discussion of the papers (40%).

During the class period, student discussants should provide a PowerPoint presentation that: (1) overviews their search process (search terms, databases, number of results, etc.), (2) summarizes the quality of evidence found for the selected topic, (3) critically assesses the findings of the research, and (4) identifies knowledge gaps. Your presentation should draw on a wider number of studies than the 2-3 assigned for the entire class to read and you should include a full reference list at the end of your presentation. Thus, the presentation needs to go beyond simply summarizing what the papers assigned cover (though this can be included) and demonstrate constructive and critical appraisal of the evidence base on that topic.

You should develop discussion questions that complement the readings and or the presentation and lead the class in discussion around the topic of evidence based theory and methods as related to your topic. The slide presentation and discussion can be integrated (i.e., you don't have to present first and then carry out discussion).

Reading reflections (30%)
To help stimulate thinking about the readings and facilitate engaging class discussions, you will write five critical reflections of assigned readings. Roughly one third of each reflection paper

should be devoted to summarizing the main points in the readings. The remainder should be an informed critique that explores your own views on the subject under consideration. Questions that can guide your critique include: What do you find compelling and why? What do you disagree with or see as challenges in the authors thinking? How did the reading inform your thinking on the topic? Additionally, each entry must raise at least one question/issue you would like to discuss in class.

Each entry should be about one page long and no more than two pages (12-point font, single spacing, 1-inch margins). Entries will be graded as follows: check plus (A), check (B), check minus (C). Grading will be based on thoughtful and critical assessment of the topic. Entries should be posted to CANVAS before the start of class and you should bring a hard or electronic copy to class to aid in discussion.

Final paper and presentation (40%)

The final project for this course will be a research proposal utilizing evidence-based concepts and methods. Students can focus on one of two areas for their proposal: (1) a proposal to conduct a systematic review or systematic map to synthesize existing evidence on a conservation topic or (2) a proposal to conduct primary research to generate new evidence on a conservation topic. Proposals must be between 10 and 15 pages double-spaced (not including references) and contain a minimum of 15 peer-reviewed references (not including those listed on syllabus). Final paper is due **Monday, December 11th**. You will submit an overview of your proposal topic on **November 8th**. This should be no more than one paragraph describing the main idea of your final paper topic. You are encouraged to talk to me before submitting this topic proposal and it is okay for the topic to change, but this will give me a chance to provide preliminary feedback.

Students will provide a 15-minute presentation of their proposal in class. Detailed instructions on the format and grading for this assignment will be provided in a separate handout.

***Note: Your final paper should not overlap too closely with the rapid evidence review. If you have a specific conservation topic in mind for your final paper, then do not choose that for your group-based review project. Some overlap in references or theme will be allowed, but if your final paper proposal is too similar to research conducted during the rapid review, you will have to change your final paper topic.*

COURSE SCHEDULE

Date & Time	Topics (Tentative)	Readings *To be completed by date listed*
August 23	Welcome & Introduction to course	**None**
August 30	What is evidence-based conservation?	**Readings:** • Pullin and Knight (2001) "Effectiveness in conservation practice: pointers from medicine and public health" *Conservation Biology*. • Sutherland et al (2004) "The need for evidence-based conservation" *Trends in Ecology & Evolution* • Cook et al (2009) "Conservation in the dark? The information used to support management decisions" *Front Ecol Environ.* **Podcast:** • Freakonomics, Bad Medicine, Part 1: The Story of 98.6 (44 minutes)
Sept. 6	Synthesis studies: overview & methods	**Readings:** • Grant and Booth (2009) "A typology of reviews: an analysis of 14 review types and associated methodologies" *Health Inform & Libraries Journal.* • Pullin and Stewart (2006) "Guidelines for systematic review in conservation and environmental management" *Conservation Biology*. • Haddaway et al. (2016) The benefits of systematic mapping to evidence-based environmental management. *Ambio.* **DUE: Reading Reflection 1 – Synthesis studies in conservation**
Sept. 13	Synthesis studies: overview & methods 2-3pm Library (Room 171): Literature searching for systematic reviews	**Readings:** • CEBC (2013) "Guidelines for systematic reviews in environmental management"
Sept. 20	Realist Synthesis: an alternative approach?	**Readings:** • Pawson et al (2004) "Realist Synthesis: An introduction" Working paper

		• Nilsson et al (2016) "A realist synthesis of community based conservation programs" *Biological Conservation* **DUE: Reading Reflection 2 – Realist synthesis in conservation**
Sept. 27	Counterfactual evaluation: overview	**Readings:** • Ferraro and Pattanayak (2006) "Money for nothing? A call for empirical evaluation of biodiversity conservation investments" *PLoS Biology*. • Ferraro (2009) "Counterfactual thinking and impact evaluation in environmental policy" • Mascia et al (2014) "Commonalities and complementarities among approaches to conservation monitoring and evaluation" *Biological Conservation*. **DUE: Reading Reflection 3 – Impact evaluation in conservation**
Oct. 4	Counterfactual evaluation: methods	**Readings:** • Gertler et al (2011) "Chapter 4 Randomized selection methods" World Bank • Gertler et al (2011) "Chapter 6 Differences-in-differences" World Bank • Gertler et al (2011) "Chapter 7 Matching" World Bank
Oct. 11	Rapid Evidence Assessment (Student led)	**Readings:** • TBD
Oct. 18	Rapid Evidence Assessment (Student led)	**Readings:** • TBD
Oct. 25	Rapid Evidence Assessment (Student led)	**Readings:** • TBD
Nov. 1	What counts as evidence?	**Readings:** • Adams (2013) "Conservation, evidence and policy" *Oryx* • Tengo et al. (2014) "Connecting diverse knowledge systems for enhanced ecosystem governance: The multiple evidence base approach" *Ambio*

		• Bennett (2016) "Using perceptions as evidence to improve conservation and environmental management" *Conservation Biology* **DUE: Reading Reflection 4 – What should count as evidence in conservation?**
Nov. 8	No class – Research travel	**No class** **Due: Proposal topic for final paper (on CANVAS)**
Nov. 15	Incorporating evidence into policy and decision making	**Readings:** • Walsh et al. (2015) "The effect of scientific evidence on conservation practitioners' management decisions" *Conservation Biology* • Ntshotsho et al. (2015) "What drives the use of evidence in decision making? The case of the South African Working for Water program" *Biological Conservation* • Posner et al. (2016) "Policy impacts of ecosystem services knowledge." *PNAS* **DUE: Reading Reflection 5 – Incorporating evidence into conservation practice & policy**
Nov. 22	No Class – Thanksgiving	**No class**
Nov. 29	Incorporating evidence into policy and decision making	**Readings:** • Cook et al. (2013) "Achieving conservation science that bridges the knowledge-action boundary" *Conservation Biology* • Cruzon (2016) "From ignorance to evidence? The use of programme evaluation in conservation: evidence from a Delphi survey of conservation experts" *Journal of Env Mgmt* • Sutherland & Wordley (2017) "Evidence complacency hampers conservation" *Nature Ecology & Evolution*
Dec. 6	Final Presentations Course Evaluation	**Due: In-class: Final presentations** **Due: Final paper on December 11th**

COURSE POLICIES

Academic Integrity: As required by the CSU Faculty Council – "This course will adhere to the CSU Academic Integrity Policy as found in the General Catalog (http://www.catalog.colostate.edu/FrontPDF/1.6POLICIES1112f.pdf) and the Student Conduct Code (http://www.conflictresolution.colostate.edu/conduct-code). At a minimum, violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services."

Requests for Assignment Extensions: In fairness to your fellow classmates, extensions on due dates for assignments will not be granted except in cases where extenuating circumstances arise. If this is the case, please let me know at the earliest possible opportunity to request an extension. In the absence of being granted an extension, the policy below applies for late submissions.

Policy on Late Assignments: Late assignments (those not turned in at the specified date and time) will be penalized one letter grade per calendar day (including weekends). After five calendar days have passed, the assignment will receive a grade of zero.

Availability of Student Accommodations: If you have university-approved circumstances, please contact me after the first class so that we can make a plan for accommodations to ensure a productive semester together.