



Science and Management for Forest Sustainability

ESM 296-3F [section 300]

Fall 2018

Mondays, 3:30-4:45; Bren Hall 1510

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Office Hours: Thursdays, 1-2PM

Course objectives

- Recognize the social and biophysical dimensions of forest sustainability
- Understand how differing types of forests face differing sustainability challenges
- Connect forest sustainability issues with principles you have learned or will learn elsewhere in the MESM curriculum
- Write MESM Group Project proposals related to forests and forest sustainability
- Join a community of students, practitioners and scholars interested in forest sustainability

Course format

Most class sessions will be led by Bruce or a guest instructor. Generally, there will be a reading for you to do beforehand, and some sort of more or less formal presentation by the instructor. This will be followed by or interspersed with discussion around the topics raised by the reading and presentation. Finally, we will have one or two 5-minute case study presentations, each led by two students.

The major product of the course will be a set of forest-related Group Project proposals. Each proposal will be prepared by 2-4 students (depending on how many are developed).

Grading

- Participation in class discussions (60%)
- Presentation of case study (10%)
- Preparation of Group Project proposal (30%)

Class participation

Full credit requires:

- Attending all class sessions (unless excused by instructor)
- Reading assigned readings prior to class (demonstrated by comments during class discussion)
- Regular participation during class (asking and answering questions, contributing insights to discussions, etc.)

Case study presentation

In a group of 2, each student will present a case study during one of the class sessions. This requires: reading background material; creating and delivering a 5-minute presentation in class; preparing discussion questions; leading a 5-minute discussion following the presentation.

The grade will be based on:

- The clarity of the presentation
- Keeping the presentation within time
- Effective use of visual aids (if appropriate)
- Ability to draw out the links to forest sustainability in the presentation and discussion

Group Project proposal

The group project proposal will be graded based on the final written version; there will be opportunities for feedback on preliminary versions throughout the quarter (see below).

A high-scoring proposal will have the following characteristics:

- The Objectives and Significance sections are clearly stated, and make a compelling case for the project's need
- The Background section indicates a clear understanding of the project context
- The Approaches section describes a sound methodology that seems likely to address the project questions
- The proposal follows the Bren School Guidelines for Group Project Proposals (<http://bren.ucsb.edu/research/documents/2019-2020ProposalGuidelines.pdf>) and contains all elements prescribed therein (except 5b (budget) and 5c (client letter of support))

Group Project proposal development

Week 1: During introductions, we will describe forest-related organizations (agencies, NGOs, companies) that we have worked or otherwise interacted with that might be clients. We will also briefly mention any ideas we might have for GPs (stemming from existing GPs, prior work with potential clients, or our own good ideas). 2nd year students and faculty will describe the qualities of an effective GP.

Week 2: Prior to class, students will write forum posts describing (a) potential clients that they have contacts with and (b) Group Project ideas. During class, those with ideas will pitch them with a brief description.

Week 3: Before class, each student will select two or more GP ideas they would be interested in working on. During class, we will select 4-8 ideas and groups to move forward. Each group should have at least one first-year and at least one second-year student.

Weeks 4-9: Groups work on developing their proposals, consulting with clients and faculty as appropriate (we will have opportunities in class to check in to discuss progress and challenges). Prior to week 6, if a group decides that their idea is not working out, the students may disband and join other groups.

Week 10: Well before class (TBD; perhaps the preceding Tuesday), each group will submit a draft written proposal. Also before class, each student will read one or two (TBD) proposals and

write comments and feedback. During class, each group will present their proposal and the class will ask clarifying questions and provide further feedback.

Week 11: At some point during exam week, (TBD depending on core class exam schedule) the final draft of the proposals will be submitted. Also, each group should decide whether it will continue to develop the proposal for submission on January 25, and who will take the lead on that development.

Winter break and January: Continue refining your proposal. Discussions with the client about formal commitments of support should begin before you depart for the holidays.

Schedule

Week 1

Course introduction

- Introduce one another
- Review course goals and structure
- Discussion: What is sustainability? What benefits do forests provide? What are the threats to forest sustainability?

Weeks 2-6, 8-9

Guest instructors. Potential topics include:

- Types of forests:
 - Old growth
 - Working landscape
 - Subsistence landscape
 - Plantation forests
 - Urban forests
- Important trends in forests
 - Deforestation – trends and changing drivers
 - Forest transitions
 - Degradation / fragmentation / defaunation
 - Intensification of management
 - Large scale die-offs
- Services:
 - Timber products
 - Non-timber products
 - Regulating the hydrological cycle
 - Regulating the carbon cycle
 - Climate regulation
 - Air quality regulation
 - Biodiversity
 - Psychological well being
- Biophysical processes:
 - Carbon uptake and storage
 - Ecological interactions

- Ecohydrology
- Forest management tools / methods
 - Forest inventories
 - Continuous monitoring plots
 - Remote sensing
 - Modeling
- Management approaches
 - Conventional timber management
 - Multiple use (e.g. USFS)
 - REDD+
 - Forest certification and other voluntary agreements
 - Monitoring illegal timber and wildlife trade
- Interactions between advances in science and management
 - Historical evolution of management approaches to fire
 - Shift from climax community management to dynamic systems
 - Changing understanding of wilderness

Week 7

No class (Veterans' Day holiday)

Week 10

Present GP proposals; written proposals due at end of week.