The Value of Natural Capital: Theory, Practice, & Policy – 4 cr

Summer 2016: June 20 - September 2

Co-taught by:

Lola Flores, MES, Research Analyst at Earth Economics
Scott Morgan, MPA, Director of Sustainability at The Evergreen State College

"…nature is the economy's life support system, and by ignoring it we may inadvertently damage it beyond repair…current economic systems do not inherently incorporate any concern about the sustainability of our natural life support system and the economies which depend on it." (Costanza and Daly, 1987)

"Ecosystem services require 'natural capital', such as a forest or marine ecosystem, with physical and/or nonphysical processes to support human activities and sustain life. For example, forest and soils are natural capital assets that provide the ecosystem service of filtering water without need of a costly filtration plant." (Earth Economics, 2011)

This course will focus primarily on using Ecosystem Service Valuation (ESV) in informing decision makers of alternative approaches to the multiple pressing and widespread environmental issues. The class is a facilitated learning experience using Evergreen's Olympia campus as an applied case study to learn the theory, methodologies, and practice of ecosystems services and accounting for natural capital along with their applications in public policy. The students will apply lessons learned in class by building upon the foundations of a complete ecosystem services assessment of Evergreen's 1,008 acre Olympia campus during the course. Practitioners from the field will work closely with the class to develop a deep understanding of this innovative economic perspective that provides a critical connection between standard cost/benefit analyses and the unaccounted impacts upon our environment.

Students will be introduced to:

- A historical perspective of ecosystem services valuation
- Valuation methodologies and metrics
- Application of ESV in policy and public decision-making
- Benefit-cost analysis
- Applied development of ecosystems services valuation for Evergreen's Olympia campus

Class work will include:

- Development and application of GIS-based assessment layers (GIS expertise not required)
- Applied valuations of discrete ecosystem types
- Development of a detailed scope for an ESV of the Evergreen campus
- Small and large group research
- Written and oral reports

Upon successful completion of the class, students will be able to:

- Explicate the theoretical basis of ecosystem services valuations and primary methodologies

- Apply ESV metrics within discretely defined ecosystem (land-cover) types
- Include ecosystem services valuations in policy and public decision-making processes

Class Structure

Schedule – class meets once weekly on Thursdays from 6 to 10 pm. Class sessions will open with a short exercise or reporting period, followed by lectures/discussions, group work, and seminar.

Classroom expectations

Students

- Attend every class; be on time.
- Participate in collaborative class work.
- Comply with The Evergreen State College's Social Contract and Student Conduct Code.
- Full credit and a positive evaluation depend on timely completion and submission of assignments and regular attendance and participation in class. Partial credit is not an option. Credit denial decisions will be made by the faculty.
- Students are required to use their Evergreen e-mail account for communication about classwork and to participate in collaborative online work.
- Computer and Internet access will be required to finish all assigned work and will be highly beneficial both during and outside of class.
- Active use of internet-based resources will be encouraged during class. However, if active use of computer or other electronic devices interferes with student engagement during lectures and classroom presentations, we will review individual student learning goals and discuss their best paths to success.
- Students are expected to complete and submit a self-evaluation to faculty by the Monday of evaluation week. Evaluation conferences will be scheduled during the final class. Student evaluations of faculty may be submitted through the online system.
- Any deviation from these expectations should receive *prior* approval from your instructor.

Faculty

- Faculty is expected to be prepared for class, responsive to student questions, and to provide timely feedback on student work synchronous with the progress of the class.
- Faculty will maintain two hours of open office hours per week to respond to questions, meet with students, and provide other instructional assistance as needed.
- Presentations, sharable resources, and group work will be posted on a shared-access electronic platform for reference.

Classroom interactions

- Make observations (describe what is), not judgments (good or bad valuations).
- Pay attention to context when evaluating class work.
- All information should be verifiable and supported by research.

- Be polite and respectful: classroom feedback is expected to focus on our shared learning experience without judging what has not yet been learned.
- Learning is a process of discovery then integration and synthesis of new information with what we already know. If you find yourself spending substantial time on what you already know, you may be missing out on the discovery process, and subsequently limiting your learning.

Performance expectations

Many class processes are designed to be collaborative. Students are expected to participate and evaluate each other in the context of a shared learning experience. Assignments will include written reports, collaborative online projects, and oral presentations.

Writing is expected to be clear and concise with accurate grammar and spelling. Always keep in mind that written materials must stand on their own, conveying complex concepts and information outside of the context within which they were conceived and written. Please review and edit your work with that goal in mind.

All papers should use APA formatting (reference HERE) and will be submitted electronically. MS Office document format is preferred. Please confer with the faculty if you expect to be using a different word processing platform to ensure that your documents can be opened with appropriate formatting.

Paper specifications:
- Minimum of 2 pages (maximum of 5), 1.5 line spacing, and submitted electronically
- Use a 12 point, serif font
- Label the paper (not just the email or file) with the:
    - Date
    - Your name
    - Your title of the paper (not 'Assignment 1', etc.)

Effective oral presentations are far more than simply a verbal recitation of information. Students are encouraged to raise the bar on their individual and group presentations by giving consideration to the structure, format, and style of their presentations, along with the content. Faculty will happily recommend presentation references and guides if asked.

Student learning will be judged based on class participation, written assignments, and oral presentations in terms of the student's demonstrated progress in understanding and application of fundamental concepts. Evaluation criteria include:
- REPEATABLE – can the student repeat concepts and information?
- DISCURSIVE – can the student discuss concepts within context?
- DEMONSTRABLE – is the student able to use concepts in new contexts?
- PROGRESS – has the student demonstrated consistent and substantial progress in the above criteria throughout the quarter?

Content Schedule

Week	Content
1 - June 23	Introduction to the class and each other followed by an overview of ecosystem service valuation process & theory
2 - June 30	Introduction to Ecosystem services
3 - July 7	Overview of valuation methods, benefit transfer & limitations, Econometrics
4 - July 14	Valuing Social and Cultural Services
5 - July 21	Walk the campus, define the scope of the class project
6 - July 28	Overview of types of applications of ESV
7 - Aug 4	Continuation of types of implementation; international & local
8 - Aug 11	Benefit/Cost analysis and discounting
9 - Aug 18	Types of funding mechanisms and examples of implementation
10 - Aug 25	Final Presentations
11 Aug 29 – Sep 2	Evaluations (to be scheduled during 10th week class)

Study resources

- Daly, H.E., Farley, J. 2010. Ecological Economics: Principles and Applications, Second Edition. ISBN-13: 9781597266819
- We will also draw upon peer reviewed journal articles, the majority of which will be available through the library's online journals.

Assignments and deliverables

Weekly in-class assignments will include any of the following:

- Assigned reading or research
- Written 2-page synthesis papers or short oral presentations on the research (as assigned)
- Collecting and defining data for campus mapping and/or other shared resources

Out of class work is due by the beginning of the next class session (following week), except for the final projects, which are due by the beginning of class, weeks 9 & 10 (see below).

Individual Term paper – Due August 18, Week 9

10 to 15 pages, APA format – that includes:

- Description of the assigned ecosystem service and context to be valued
- Visual and textual definitions of the service/context
- A literature review of valuation methodologies and metrics for similar service/contexts
- Description of a recommended valuation criteria, methodology, and metrics
- Detailed description of what information and/or data sets are necessary to complete this particular valuation
- Review and recommendations for potential revenue or other funding mechanisms to support the valuation
- Literature review of policy-based utilization or implications of similar ecosystem services valuations

Small Group Project – Due August 25, Week 10

Groups will research and define metrics and methodologies for the valuation of assigned campus sections. After exploring and studying the range of possible services within that section, your goal will be to frame the elements of a full evaluation for that section of the campus. The final deliverables will be a 10 minute oral presentation and accompanying visual presentation, as well as an executive summary document outlining key points and references.

10 minute presentation, with visuals – addressing:

- Description of the assigned campus section with appropriate contexts
- The services to be valued
- Define the data sets and other necessary information for valuation
- Describe the recommended valuation criteria, methodology, and metrics