COURSE NAME; 2020 NUMBER; SEMESTER; MEETING DAYS, TIMES, AND PLACE.
Sustainability in Action; Modeling the Value of Ecosystems Services
11:374:307:01
Fall 2020 Thursday 6:40–9:40pm
Location: on-line

CONTACT INFORMATION:
Instructor(s): Hildegaard Link P.E. PhD
Office Location:
Cook Office Building, 55 Dudley Road
Phone: 646 896 4053
Email: Hildegaard.Link@rutgers.edu
Office Hours: On-line after class or by appointment

COURSE WEBSITE, RESOURCES AND MATERIALS:
Because this is a new course and a relatively new field, we will be considering a number of texts as the semester progresses. Texts will be listed in the “Reading List” section of our class canvas site.

COURSE DESCRIPTION:
How can we defend the landscapes and non-human systems that sustain us against the juggernaut of development? How can we advocate for conservation in a world of increasing human need? Combining the tool of environmental science and economics, we can make a convincing case for preserving and growing the world’s “non-human” systems.
This course introduces students to the evolving field of Ecosystems Services Value Modeling. Ecosystem Services Valuation can support decisions at scales as small as back yard plantings, as large as regional land use and environmental planning. Ecosystems Services Valuation Modeling provides mathematically supported methods of evaluating land use choices applicable in engineering, planning, advocacy and public finance assessments among others.
Students will trace the evolution of ecosystems services valuation modeling, discover current ecosystems services valuation modeling techniques, and learn to apply ecosystems valuation modeling to urgent sustainability issues. In this class, models we will be working with are the InVest suit of Models from Stanford University and the Itree models built by the National Forestry Service

LEARNING GOALS:
Tracing the origins of the ecosystem’s services valuation framework
UN Millennium Ecosystems Assessment & Agenda 21
Why model?
Decision support
Envisioning outcomes
Bringing values into focus

What can be achieved with modeling? (and what cannot)
Using existing Modeling applications
Model selection
Modeling process
Data gathering
Model building
Model Calibration & sensitivity analysis
Scenario building scenario modeling
Understanding & operationalizing valuation techniques
Using ESV modeling to assess the economic impact of land use changes in Suburban and Urban
CLASS FORMAT, ASSIGNMENTS/RESPONSIBILITIES & ASSESSMENTS:

Our On-Line class will take the form of live instructor (me!) on-line lectures and in class activities. In every class there will be a minimum of 3 in-class activities that will require written submissions posted to the canvas site. Students are required to arrive/log in to class on time and be present for the entire class period. Students who disappear after the initial log in will not be given credit for attendance unless a suitable explanation is proffered at or before the time of departure. Class will be recorded and posted to the canvas site.

Grading will be based on in class activities, a midterm exam and a series of small projects leading to completion of a final project estimating the value of land use choices in the greater New York New Jersey region. Class participation will be measured by completed posts, recorded chats, comments, and impromptu presentations.

Students will develop basic familiarity with GIS for interdisciplinary applications and an understanding of the intersection of human need, ecosystems productivity and economic value.

Grades will be calculated as:
- 45% based on written assignments
- 15% based on a midterm
- 40% in class participation, student presentations, forum participation
(Please note participation is contingent on class attendance)

**Sustainability in Action; Modeling the Value of Ecosystems Services.**

Outline - Link-Fall 2020

Module 1
- Ecosystems Services review
  - History
  - Recent US Policy

Module 2
- Valuation framework
  - Significant Scholars
  - Successes and failures

Module 3
- Modeling - Why do it?
  - GIS; what is it and and why do it

Module 4
- Data
  - Working with GIS

Module 5
- Reviewing the Models
  - Relevant Applications
  - Working with GIS

Module 6
- Model data inputs
  - Sensitivity analysis
  - Final project identification

Module 7
- Midterm exam

Module 8
- Applying the models to our neighborhoods
  - Select a project and a project group
Module 9
- Working with models
- Data management
- Interpreting results
- Progress reports
- Presentations & in-class work

Module 10
- Final Presentations

Note: course outline is subject to change based on student outcomes

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
Please follow the procedures outlined at https://ods.rutgers.edu/students/registration-form. Full policies and procedures are at https://ods.rutgers.edu.

ABSENCE POLICY
Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website https://sims.rutgers.edu/ssra/ to indicate the date and reason for your absence. An email is automatically sent to me.

ACADEMIC INTEGRITY
The university's policy on Academic Integrity is available at http://academicintegrity.rutgers.edu/academic-integrity-policy. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated, and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld. Cheating on tests or plagiarizing materials in your papers deprives you of the educational benefits of preparing these materials appropriately. It is personally dishonest to cheat on a test or to hand in a paper based on unacknowledged words or ideas that someone else originated. It is also unfair, since it gives you an undeserved advantage over your fellow students who are graded on the basis of their own work. In this class we will take cheating very seriously. All suspected cases of cheating and plagiarism will be automatically referred to the Office of Judicial Affairs, and we will recommend penalties appropriate to the gravity of the infraction.
**STUDENT WELLNESS SERVICES**

Just In Case Web App [http://codu.co/cee05e](http://codu.co/cee05e)

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)
(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students’ efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)
(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services
(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / [https://ods.rutgers.edu/](https://ods.rutgers.edu/)

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: [https://ods.rutgers.edu/students/documentation-guidelines](https://ods.rutgers.edu/students/documentation-guidelines). If the documentation supports your request for reasonable accommodations, your campus’s disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: [https://ods.rutgers.edu/students/registration-form](https://ods.rutgers.edu/students/registration-form).

Scarlet Listeners
(732) 247-5555 / [http://www.scarletlisteners.com](http://www.scarletlisteners.com/)

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.