**Environmental Change: Climate, Human-Environment Interactions, and Ecosystems**

**Department of Human Ecology**

**Spring Semester 2023**

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| **Course Information**  **Number Section: 374-428-01**  **Meeting Time: (class meets once a week, Monday 2.45 hrs), 2 pm.**  **Location: Online**  **Website: Canvas** | **Instructor**  **Victoria C. Ramenzoni**  **Cook Office Building, Office 211.**  [**Victoria.Ramenzoni@r**utgers.edu](mailto:Victoria.Ramenzoni@rutgers.edu)  **Office Hours: by appointment.** |
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**Environmental Change**

**Introduction**

During this course, we will explore major theoretical and methodological approaches to the study of human environmental interactions and environmental variability and change. We will explore classic, contemporary, and cutting-edge research articles from different disciplines such as Anthropology, Sociology, Human Geography, Economics, Fishery Sciences, and Natural Resource Management. Our goal will be to identify the major approaches that have been proposed to understand how societies and environments can reciprocally influence each other, and to understand the different levels of variability. Through this process, we will also examine the status of key issues in the management of natural resources we rely on, challenges to their sustainable use, and potential pathways into the future.

The class will be framed around two principles:

1. Ecosystems are complex socioecological systems that can show emerging behaviors. Through feedback mechanisms and processes of interaction at different scales and among different components, new unpredictable conditions may arise. In short, we are approaching a moving target.
2. There are different kinds of environmental variation. Our responses to climate threats should consider the nature of variation so not to undermine future responses.
3. Managing natural resources is tantamount to managing people. We require multidisciplinary approaches to effectively anticipate and adapt to new conditions.

During this class, I strongly encourage the critical consideration of conceptual definitions such as environment, culture, society, and landscape. Critical in this instance means that we will not take any assumptions or explanations for granted. In class, we will reconstruct the historical and epistemological context in which definitions and argumentations are used and how they have been applied in resource use policies.

**Objectives: *What’s in for me?***

If all goes well, at the end of this course you would have gained a new theoretical and analytical toolbox that will help you understand how different societies and cultures can influence and be influenced by natural environments. We will also understand the different kinds of variation. Hopefully, you may be able to transpose some of these insights and skills into your own work.

* New skills and abilities in identifying the different uses of natural/anthropogenic environments by human societies, and the resulting patterns of environmental modification and/or trajectories of degradation.
* New skills and abilities in identifying the many societal and cultural configurations that result from interacting with/in natural/anthropogenic environments.
* New skills in identifying past, current, and emerging threats to natural/anthropogenic landscapes.

Thematic

* Review and evaluate major theoretical and applied frameworks for explaining human-environmental interactions, ecosystems persistence and change.
* Consider human adaptation, and cultural and behavioral variation across different ecologies and spatial and temporal scales.
* Explore and discuss theoretical tools and methodological techniques for studying landscapes (from qualitative studies, to reconstructions and statistical models).
* Discuss the application of theoretical frameworks into different resource management tools and policies.

Instructional

* To expose students to different approaches in the field of socioecological systems, human ecology, and natural resource management policies, including historical and contemporary works, with a keen eye on social science contributions to management.
* To train students to be more effective readers and engage in discussions, to be able to identify major theses and limitations in other perspectives, to identify benefits and ways to move forward in addressing obstacles.
* To train students to be more effective in written and oral presentation, argumentation and facilitation techniques.
* To train students in the development of a thematic literature review and annotated bibliography.

**Assignments**

1. DISCUSSION LEADER

You will be responsible for leading discussion in one session (see topics below). This requires the selection of an empirical article on the topic to complement the mandatory reading and formulation of a reading guide with questions for the class you are assigned to lead or co-lead. The guide has to be elaborated and submitted **3 days ahead of the appointed session (Thursday before Monday)**.

1. BOOK: Choose a book discussing a resource or ecosystem of your interest and prepare for discussion.

1. EXAMS

You will be responsible for **two short essays** (1800 words) addressing questions posed by the instructor. Essays should include a critical consideration of the readings and issues explored in the class.

1. FINAL

You will be responsible for developing a short and to the point research paper (4000 words, without citations), on a topic of your choosing. The term paper offers students (1) the opportunity to explore a topic of their choosing in greater depth, and (2) an exercise in scientific critical writing. Topics should pertain to the themes discussed in the class. **The paper is something you should be working on throughout the quarter.** The assignment will have several parts and due dates. More specifics of the assignment will be provided in a separate handout.

In the meantime, the paper has to include an extension/intervention component which can take the shape of direct recommendations for action on a particular issue.

**To complete the full assignment: You will be required to submit a short statement describing the research problem you will address, its relevance, and your plan for generating the recommendations (800 words), an annotated bibliography (no less than 10 additional peer-reviewed sources), a first draft for revisions (optional), and a final draft at the end of the course.**

On writing conventions and citation style:

All written materials for this class will be typed and consistently formatted. For issues of style beyond general document formatting refer to the current APA/MLA norms. Use American word spellings. If you need any help on managing citations and software, please do not hesitate to reach out. I advise the use of Zotero or any other reference manager for your project.

Grades

To get an A, you are required to have at least 94 points. To get a B, you should score somewhere between 85 and 83, and a C anywhere between 73 and 75. A D is any score between 63 and 65. You will fail if you score below 60.

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| A+, A | 94–100%, 94–100%, 90–93% |
| B+, B | 86–89%, 83–85%, 80–82% |
| C+, C | 76–79%, 73–75%, 70–72% |
| D+, D | 66–69%, 63–65%, 60–62% |

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| **Item** | **Points** | **Due Date** |
| Participation by leading/assisting discussion. | 10 points | By choice |
| Research problem statement | 5 points | 2/6 |
| Take Home Exams | 20 points each | 3/20 and 4/24 |
| Annotated Bibliography | 10 points | 4/3 |
| Book Discussion | 10 points | 3/6 |
| Final Paper | 25 points | 5/5 |
|  | **100 points** |  |

**Extra points will be awarded for participation and during extra-credit assignments (10 points). So, you can still make an A even when you don’t get perfect scores on the class assignments.**

**Expectations and Requirements:**

* Punctual attendance.
* Active participation in class.
* On-time submissions (you will lose points for not submitting on time…)
* DO THE READINGs and Do your own work!
* Compliance with Rutgers policies for ethical conduct. Each student is responsible to inform themselves about those standards before performing any academic work.

Participation:

The instructor recognizes that talking in public may be easier for some while difficult for others. All of this said, you are strongly encouraged to take part in discussions, state your informed opinion (based on arguments from the class materials and evidence-based articles or case studies), and challenge any assumptions that you may find compelling or wrong.

Late Assignments/Make-ups: Can I take an exam late or submit an assignment late? Not unless you have a really good reason—trouble with the law, unforeseen illness or death, savage attack by wild geese, etc. Whether a make-up assignment will be permitted, and its format, are at the discretion of the instructor. If at all possible, please contact the instructor before the due date, or alternatively, within the following 24 hours.

Attendance: Class attendance is very important, both for individual benefits and for the collective social benefits that come from class discussion. As an added incentive to participate, you will lose (0.5 %) class points for each class you miss. Doctors’ notes, obituaries, and attendance to academic conferences are the only justifiable excuses for missing class. If weather, vehicle maintenance issues, heartache, sickness, etc. cause you to miss class, the instructor will be sympathetic, but you will not earn attendance points.

Learning disabilities: Students with disabilities who require reasonable accommodations in order to participate in course activities or meet course requirements should contact the instructor or designate during regular office hours or by appointment. Rutgers has many resources that we can rely upon, but this requires some planning. So meeting with the instructor is the best way we can make the most out of available resources.

**“Netiquette” Policies**

* Identify yourself**in all email or Canvas message correspondence. Begin messages with a greeting and close with your name.**
* Avoid sarcasm.**It can be misinterpreted and cause hurt feelings.**
* Keep the dialog collegial and professional.**Some discussion topics may be controversial.**
* Do not flame**- These are outbursts of extreme emotion or opinion. Think twice before you submit a response. You cannot edit or delete your posts once they have been submitted.**
* Do not use offensive language or profanity.
* Use clear subject lines for your posts.
* Do not use all caps.**It is the online equivalent of YELLING!**
* Avoid using abbreviations or acronyms**- like UNESCO - unless the entire class knows them.**
* Use [emoticons](https://en.wikipedia.org/wiki/List_of_emoticons)**to clarify your emotions. They add context to your words that cannot be seen otherwise. :)**
* Be forgiving.**Anyone can make a mistake.**

**Resources for remediation**

Students can find academic support at the [Rutgers Learning Centers](https://rlc.rutgers.edu/).

<https://rlc.rutgers.edu>

**Accommodations for special needs**

Learning disabilities: Students with disabilities who require reasonable accommodations in order to participate in course activities or meet course requirements should contact the instructor or designate during regular office hours or by appointment. Rutgers has many resources that we can rely upon, but this requires some planning. So meeting with the instructor is the best way we can make the most out of available resources.

Students with disabilities requesting accommodations must follow the procedures outlined at the [Office of Disability Services](https://ods.rutgers.edu/students/applying-for-services).

<https://ods.rutgers.edu>

**About inclusion and diversity:**

**This class is a safe space. Please talk to the instructor if anything happens that threatens that. This includes: microaggressions, open aggressions, things that bothered you… etc. And remember to SPEAK UP!**

[**https://diversity.rutgers.edu/speakup**](https://diversity.rutgers.edu/speakup)

[**https://studentaffairs.rutgers.edu/resources/bias-prevention-reporting#tab=panel-2**](https://studentaffairs.rutgers.edu/resources/bias-prevention-reporting#tab=panel-2)

[**https://diversity.rutgers.edu**](https://diversity.rutgers.edu)

**We acknowledge that the land on which we stand is the ancestral territory of the Lenape People**. We pay respect to Indigenous people throughout the Lenape diaspora–past, present, and future–and honor those that have been historically and systemically disenfranchised.

**Readings by Week**

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| 1/23 | Week 1   1. Syllabus and reading selections. Introduction to Climate and Environmental Change.   The biophysical basis. Summary for Policy Makers IPCC AR6 WGI.  <https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf>  Policy: Liu, J., T. Dietz, S. R. Carpenter, M. Alberti, C. Folke, E. Moran, A. N. Pell, et al. 2007. “Complexity of Coupled Human and Natural Systems.” Science 317 (5844):1513–16. <https://doi.org/10.1126/science.1144004>  Ostrom, E. 2009. A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419-422.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-II.pdf>  <https://youtu.be/e7xW1MfXjLA> |
| 1/30 | Week 2  Scoping the field. Introduction to major issues and basic definitions.  IPCC. Technical Summary AR6 WGII.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_TechnicalSummary.pdf>  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-II.pdf>  Readings: Jentoft, S. and Chuenpagdee, R. (2009) Fisheries and coastal governance as a wicked problem. Marine Policy 33, 553–560.  Policy: Liu, J., T. Dietz, S. R. Carpenter, M. Alberti, C. Folke, E. Moran, A. N. Pell, et al. 2007. “Complexity of Coupled Human and Natural Systems.” Science 317 (5844):1513–16. <https://doi.org/10.1126/science.1144004>  Ostrom, E. 2009. A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419-422.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Annex-II.pdf> |
| 2/6 | Week 3  **DUE PROBLEM STATEMENT.**  A long history of interactions. The role of humans in landscapes: effects and impacts. Stressors and mechanisms.  IPCC. Chapter. 1.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter01.pdf>  Reading: Reenberg, A., Birch-Thomsen, T., Mertz, O., Fog, B., & Christiansen, S. (2008). Adaptation of human coping strategies in a small island society in the SW pacific—50 years of change in the coupled human–environment system on Bellona, Solomon Islands. *Human Ecology*, *36*(6), 807-819. |
| 2/13 | Week 4  Terrestrial and Freshwater Ecosystems.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter02.pdf>  Reading to be determined. |
| 2/20 | Week 5  Ocean and Coastal Ecosystems.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter03.pdf>  Reading to be determined. |
| 2/27 | Week 6  Water.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter04.pdf>  Reading to be determined. |
| 3/6 | Week 7  Book Session: Discussing Case Studies. |
| 3/13 | SPRINGBREAK |
| 3/20 | Week 9  **Take Home Exam 1 DUE.**  Cities and Settlements.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter06.pdf>  Reading to be determined. |
| 3/27 | Week 10  Health and Wellbeing.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter07.pdf>  Reading to be determined. |
| 4/3 | Week 11  **ANNOTATED BIBLIOGRAPHY DUE.**  Poverty and Sustainable Development.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter08.pdf>  Reading to be determined. |
| 4/10 | Week 12  Key Risks across Sectors and Regions.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter16.pdf>  Readings: Fisheries.  McIlgorm, Alistair, Susan Hanna, Gunnar Knapp, Pascal Le Floc’H, Frank Millerd, and Minling Pan. 2010. “How Will Climate Change Alter Fishery Governanceʔ Insights from Seven International Case Studies.” Marine Policy 34 (1):170–77.  Badjeck, Marie-Caroline, Edward H. Allison, Ashley S. Halls, and Nicholas K. Dulvy. 2010. “Impacts of Climate Variability and Change on Fishery-Based Livelihoods.” Marine Policy 34 (3):375–83. |
| 4/17 | Week 13  Reading to be determined. |
| 4/24 | Week 14  **Take Home Exam 2 DUE.**  Decision makers.  [**https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC\_AR6\_WGII\_Chapter17.pdf**](https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter17.pdf)  Readings: Berkes, F., M. Kislalioglu Berkes, and H. Fast. 2007. “Collaborative Integrated Management in Canada’s North: The Role of Local and Traditional Knowledge and Community-Based Monitoring.” Coastal Management 35 (1):143–62.  Ramenzoni, V.C. 2023. |
| 5/1 | Week 15  Reassessing Management for the Future.  <https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_Chapter18.pdf>  Readings: Kooiman, J., Bavinck, M., Chuenpagdee, R., Mahon, R. and Pullin, R. (2008) Interactive governance and governability: an introduction. *The Journal of Transdisciplinary Environmental Studies* **7**, 1–11. |
| 5/5 | **FINAL PAPER DUE.** |

Readings So far:

IPCC addresses:

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>

<https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/>

Kooiman, J., Bavinck, M., Chuenpagdee, R., Mahon, R. and Pullin, R. (2008) Interactive governance and governability: an introduction. *The Journal of Transdisciplinary Environmental Studies* **7**, 1–11.

Liu, J., T. Dietz, S. R. Carpenter, M. Alberti, C. Folke, E. Moran, A. N. Pell, et al. 2007. “Complexity of Coupled Human and Natural Systems.” Science 317 (5844):1513–16. <https://doi.org/10.1126/science.1144004>

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