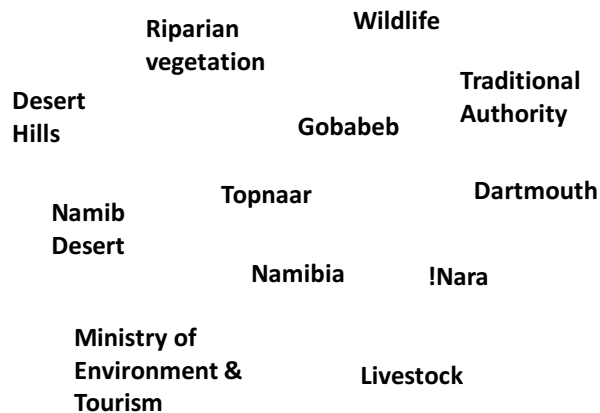


## ENVS 84 Syllabus

During ENVS 84, you will be embedded within the dynamic social-ecological system (SES) surrounding the Gobabeb Namib Research Institute, located in the ephemeral Kuiseb River watershed of Namibia. This unique landscape is shaped by the complex interplay of ecological processes, human activity, and the effects of historical events and institutional governance. Your primary task in this course is to design and complete an original group research project within this SES. Working closely with Gobabeb collaborators and a team of field mentors, you will engage in each stage of the research process: generating research questions and designing your study, collecting field data, conducting analysis, and presenting your findings in both written and oral form. This approach is intended to deepen your understanding of interdisciplinary field research and strengthen your skills in scientific inquiry and communication. The figure below represents some of the major components of the SES you will enter during ENVS 84. Note that “Dartmouth” (representing our FSP and you as participants) is part of the system. We aim to be self-reflexive and aware of our position within this dynamic context, striving to engage thoughtfully, productively, and with scholarly integrity.

### ENVS 84 Social-ecological System



You can begin to reach a deeper understanding of the SES by rigorously examining the relationships among its components. What questions arise when you consider interactions between the !Nara melon and the Namib Desert, between Gobabeb and the Topnaar community, or between Dartmouth and local wildlife? Equally important is the complexity within each component: what internal dynamics shape Gobabeb’s research agenda, or the Topnaar community’s use of natural resources? How do abiotic factors govern the distribution of !Nara or the habitat use of other desert-adapted species?

As with the rest of the FSP, the central challenge of ENVS 84 is to synthesize the theoretical with the empirical. This course will ask you to apply concepts or theories from your academic background to interpret and analyze these social-ecological relationships. This is the key to producing meaningful interdisciplinary knowledge.

It’s important to understand the nature of your project. To be clear, this is a research project. It is not a service project, though it could be of service to some in the

community. This is not a development project, though it could inform those efforts also. This is real research, not a “canned” experience. You will be the primary drivers of the project, responsible for its direction and execution. At the same time, this is a collaborative endeavor. You will work closely with your instructors and field mentors, project stakeholders, and members of the Gobabeb community. Think of this as a coproduction of knowledge, where mutual respect, shared goals, and open communication are key factors for success. As with all research projects, there are constraints. Some of these are logistical and involve limitations in terms of time, people power, money, facilities, or technology. Other constraints are intrinsic to working with partners. We must be sensitive to their priorities and perspectives, and reach consensus on what is feasible, ethical and productive. Your research questions and methods should support ongoing work and reflect a commitment to respectful, reciprocal engagement.

Course Schedule:

*Activity and Due Date details are subject to small adjustments as needed.*

<b>Date</b>	<b>Day</b>	<b>Location</b>	<b>Activity</b>	<b>Due Dates</b>
29-Oct	Wednesday	Gobabeb	Arrival, Intro	
30-Oct	Thursday	Gobabeb	Intro, Project Proposals	(FJ #1)
31-Oct	Friday	Gobabeb	Group Formation, Field Work	
1-Nov	Saturday	Gobabeb	Field Work	(FJ #2)
2-Nov	Sunday	Gobabeb	Field Work	
3-Nov	Monday	Gobabeb	Field Work	(FJ #3)
4-Nov	Tuesday	Gobabeb	Field Work	
5-Nov	Wednesday	Gobabeb	Field Work	
6-Nov	Thursday	Gobabeb	Field Work	(FJ #4)
7-Nov	Friday	Gobabeb	Field Work	
8-Nov	Saturday	Gobabeb	Field Work	
9-Nov	Sunday	Gobabeb	Field Work & Analysis	(FJ #5)
10-Nov	Monday	Gobabeb	Analysis & Clean up	Draft Results Section
11-Nov	Tuesday	Swakopmund	Analysis & Paper Writing	
12-Nov	Wednesday	Swakopmund	Analysis & Paper Writing	Draft Full Paper
13-Nov	Thursday	Swakopmund	Paper Writing	
14-Nov	Friday	Swakopmund	Paper Writing	
15-Nov	Saturday	Swakopmund	Paper Writing	Final Paper Due
16-Nov	Sunday	Gobabeb	Final Presentations	Final Presentation
17-Nov	Monday	Gobabeb	Travel to Windhoek	Field Journal Due
18-Nov	Tuesday	Windhoek	Wrap Up	
19-Nov	Wednesday	Windhoek	Depart Namibia	

How student groups and projects are chosen:

Student project topics are typically inspired by work done by previous Dartmouth groups, by what is useful each year to Gobabeb and other stakeholders, and by the expertise of project mentors who support us. This year we have a particularly rich supply of ecological expertise (see below). After the first day at Gobabeb, the Dartmouth mentors will take stock of the resources, opportunities, and expertise available. We will then work together with the class to outline 4-5 project areas and realistic group sizes for each. This part of the process requires our experience and prior communication with partners to identify projects that are feasible and appropriate in terms of ethics, logistics and expertise. Once these areas have been identified, we will use a combination of group and individual activities to help each student select a project.

Each group will be supported by a primary project mentor but will receive input and support from the entire mentor team. Gobabeb staff will contribute to projects based on their expertise and availability. In collaboration with your mentors and perhaps other partners, you will then design the details of your project and carry it out.

*This is an opportunity to engage constructively with a real social-ecological system. So, we must all endeavor to remain flexible, fully engaged, good-humored and alert to opportunities for doing useful work.*

**Human Resources**

We will be working with many members of the Gobabeb staff, including **Executive Director Dr. Gillian Maggs-Kolling, and Research Director Dr. Eugene Marais.**

Also joining us:

**Mayra Flores** – TA for the program. Mayra is a PhD candidate in Dartmouth’s EEES graduate program. As an anthropologist, her research explores water politics and socio-environmental conflicts in high-altitude wetlands. She focuses on how atmospheric water—particularly fog—emerges as an object of scientific study, a potential water resource, and a site of conflict amid mining activities and drought in the Ecuadorian Andes.

**Miranda Zammarelli** – Miranda is a PhD Candidate in Dartmouth’s EEES graduate program, with expertise in ornithology, population ecology and bioacoustics. Her research focuses on understanding how songbird territory size and quality influence reproductive success and how often they sing. Miranda was the AFSP TA in 2024.

**Titus Shaanika** – The lead Namibian facilitator for the FSP since 2024. He is an expert in maritime and sustainable environmental education. He is particularly interested in socio-ecological systems.

**Saima Shikesho** – Saima’s research focuses on vegetation resource interactions in the Kuiseb River watershed. We have worked with Saima at Gobabeb since 2016: first as an

intern at Gobabeb, then as an MS student at the University of Cape Town, and now as a PhD Candidate in Dartmouth's EEES graduate program. Saima was the AFSP TA in 2023.

**Dr. Bryn Morgan** – Bryn is a postdoctoral fellow at MIT whose research focuses on the detection and dynamics of plant-water interactions in dryland environments. She has been working in Southern Africa since 2015, when she was a student on the AFSP.

**Dr. Rebecca Finger-Higgins** – Rebecca did her PhD at Dartmouth and now works with the USGS Southwest Biological Science Center in Moab, Utah. She studies the ways in which landscape legacies and climate change impact dryland and Arctic ecosystems. (<https://www.usgs.gov/staff-profiles/rebecca-finger-higgins>)

**Dr. Kristina Young** – Kristina is a dryland ecologist focusing on the structure and function of biological soil crusts (biocrusts) and their role in sustaining desert ecosystems. Her research explores how drylands respond to global change and restoration efforts, with much of her work rooted in the semi-arid landscapes of the Colorado Plateau and the deserts of the American Southwest. She was named a Wyss Scholar for Conservation of the American West for her work on dryland restoration and is an incoming Assistant Professor of Climate Change Ecology at the University of Wisconsin Madison.

**Dr. Elizabeth Wolkovich** – Lizzie did her PhD at Dartmouth and is now a professor at the University of British Columbia. Her research focus is on plant phenology (the timing of plant life history events (e.g., flowering) and how this is affected by climate change. (<http://temporalecology.org/>)

**Dr. Jonathan Davies** – Jonathan is a professor at the University of British Columbia. His research addresses how the evolutionary history of species—their phylogeny— informs our understanding of patterns of global extinction risk, species coexistence, and pathogen transmission and disease emergence. (<https://phyloecology.wordpress.com/>)

### **Learning Objectives and Outcomes**

- Learn about and practice conducting original research related to the themes of conservation and development
- Collaborate effectively in a group project setting that requires problem-solving, creativity and adaptability
- Respond to constructive criticism about research design and analysis
- Recognize opportunities for constructive engagement in complex, messy social-ecological systems
- Collectively act on those opportunities by engaging in the system, with a balance of ambition and humility

At the conclusion of this portion of the trip, students will have developed the following skills:

1. Ability to conduct original research, including research question identification, study design, data collection and analysis, and communication
2. Negotiation skills working with other actors in the system to identify research projects
3. Ability to identify ethical considerations of community-based research and action in novel cultures and contexts
4. Capacity to work collaboratively to accomplish goals, particularly in dynamic and largely unfamiliar environments
5. Ability to analyze and develop solutions to/make progress on complex problems, particularly related to conservation and development

### Assessment and Grading

#### *Group products*

1. A **final presentation** at Gobabeb.
2. A **research paper** that presents the results of your project. You will write an original research paper presenting the results of the project your group completes at Gobabeb. This paper will be in the format of a scientific paper (Introduction, Methods, Results, Discussion, Works Cited). See the papers from the 2013-2019 groups on Mendeley for examples.

#### *Individual products:*

1. **Field Journal Entries (5)**. You will have 5 assigned field journal entries. Feel free to use your journal for additional reflection and freewriting. You will submit this for grading at the end of the program.

### Approximate contributions to final grade:

Contributions to the group field work, paper and final presentation	75%
Field Journal Entries	20%
Participation	5%

### Course Readings

*Due to the nature of the course, most readings will be project-specific and you will seek them out as you design your projects and write your papers. The following course papers should be read by everyone. They will be provided in a shared folder at the start of ENVS 84.*

Bolger, DT, KH Bieluch, FE Krivak-Tetley, G Maggs-Kolling, and J Tjitekulu. 2018. Designing a Real-World Course for Environmental Studies Students: Entering a Social-Ecological System. Sustainability 10, 2546. doi:10.3390/su10072546

Ostrom, E. 2009. A General Framework for Analyzing Sustainability of Social-Ecological Systems. *Science* 325: 419-422.

Snorek, J and DT Bolger. 2022. Can the center hold? Boundary actors and marginality in a community-based natural resource management network. *Ecology and Society* 27(3): 41.

### **College Policies and Associated Resources**

#### **Academic Honor Principle**

*The faculty, administration, and students of Dartmouth College acknowledge the responsibility to maintain and perpetuate the principle of academic honor, and recognize that any instance of academic dishonesty is considered a violation of the [Academic Honor Principle](#).*

We will discuss proper attribution as a part of our paper writing process. Dartmouth provides great web resources on this topic that you may wish to use:

<https://writing.dartmouth.edu/support/sources-and-citations>.

#### **Use of Generative AI**

The use of ChatGPT and other AI tools is quickly becoming common. Teaching productive use of these tools is outside the scope of this course. Instead, ENVS 84 emphasizes the production of new knowledge and deep engagement with all stages of the research process.

You may use generative AI to find basic information, help formulate ideas, and brainstorm-- in the ways you may have used Google search or Wikipedia in the past. Please realize, however, that the material generated by these programs may be inaccurate, incomplete, biased, or otherwise problematic. Beware that use may also stifle your own independent thinking and creativity.

You may not submit any work generated by an AI program as your own. Your research papers are expected to be original work from your group. If you include material generated by an AI program, in any way, it should be cited like any other reference material (with due consideration for the quality of the reference, which may be poor).

This link shows citation formats: <https://researchguides.dartmouth.edu/citingsources/AI>.

Please consult with your Dartmouth mentors for more guidance.

#### **Religious Observances**

*Dartmouth has a deep commitment to support students' religious observances and diverse faith practices. Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with*

*your participation in the course, please meet with me as soon as possible—before the end of the second week of the term at the latest—to discuss appropriate course adjustments.*

### **Student Accessibility and Accommodations**

Accommodations on FSP will have been arranged in advance on a case-by-case basis. Official College language and resources are provided below for reference.

*Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#); [student.accessibility.services@dartmouth.edu](mailto:student.accessibility.services@dartmouth.edu); 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.*

### **Mental Health and Wellness**

The academic environment is challenging, and the unpredictable setting of an FSP can intensify these challenges. Please reach out to me early and often if you need support.

*There are a number of resources available to you on campus to support your wellness, including: the [Off-Campus Programming Support](#) page provides details about mental health support while on FSP. The student-led [Dartmouth Student Mental Health Union](#) and their peer support program may be helpful if you would like to speak to a trained fellow student support listener. If you need immediate assistance, please contact the counselor on-call at (603) 646-9442 at any time.*

### **Title IX**

*At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all community members have equal access to Dartmouth's educational and employment opportunities. We strive to promote an environment of sexual respect, safety, and well-being. Through the Sexual and Gender-Based Misconduct Policy (SMP), Dartmouth demonstrates that sex and gender-based discrimination, sex and gender-based harassment, sexual assault, dating violence, domestic violence, stalking, etc., are not tolerated in our community.*

*For more information regarding Title IX and to access helpful resources, visit Title IX's website ([sexual-respect.dartmouth.edu](http://sexual-respect.dartmouth.edu)). As a faculty member, I am required to share disclosures of sexual or gender-based misconduct with the Title IX office.*

*If you have any questions or want to explore support and assistance, please contact the Title IX office at 603-646-0922 or [TitleIX@dartmouth.edu](mailto:TitleIX@dartmouth.edu). Speaking to Title IX does not automatically initiate a college resolution. Instead, much of their work is around providing supportive measures to ensure you can continue to engage in Dartmouth's programs and activities.*