



# COMMUNITY-ENGAGED RESEARCH IN DARTMOUTH COLLEGE'S ENVIRONMENTAL STUDIES PROGRAM

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# Presentation Overview

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- Training Future Environmental Professionals
- Capstones Overview
  - ENVS 50 – On-campus capstone in Vermont or NH, USA
  - ENVS 84 – Off-campus capstone in Namib Sand Sea, Namibia, Africa
- Pedagogical Approaches in ENVS 84
- Lessons Learned & Questions



Namib Sand Sea, Namibia



# TRAINING FUTURE ENVIRONMENTAL PROFESSIONALS

# Training Future Environmental Professionals

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- Critical Skills:
  - Problem-solving (Brundiers, Wiek & Redman, 2010)
  - Inter- and Transdisciplinary Skills (Clark et al., 2011)
  - Systems Thinking (Lozano et al., 2017)
  - Collaboration (Cooke & Vermaire, 2015)
  - Communication (Keen and Baldwin, 2017)



# CAPSTONES OVERVIEW

# Desired Competences: ENVS Capstones

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- Our programs focus on five competences: (Lozano et al. 2017)
  - Critical thinking and analysis
  - Interpersonal relations and collaboration
  - Systems thinking
  - Personal involvement
  - Tolerance for ambiguity and uncertainty



# Pedagogical Approach for Competences Development

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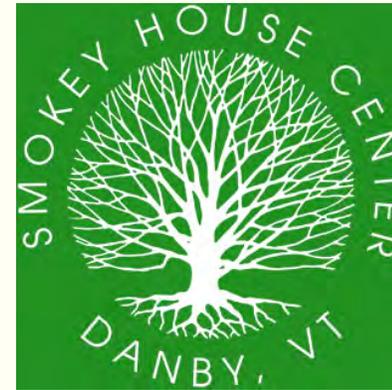
- Community-engaged
- Project-based learning (Lozano et al. 2017)
  - Complex, real-world topics
  - Collaborative teams of interdisciplinary researchers and partners
  - Self-directed student groups



# Our Recent Partners

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- ENVS 50 – Local, 9-10 week term
  - Smokey House Center, Danby, VT (2018)
  - Ascutney Outdoors, Upper Valley Land Trust, Sports Trails of Ascutney Basin (2016 & 2017)
  - Thetford Academy – 7-12 private-public school in Thetford, VT (2014 & 2015)
- ENVS 84 – International, 3 weeks
  - Gobabeb Research and Training Centre
  - Topnaar Communities and Traditional Authority
  - JP Brand School



# Example Projects: ENVS 50

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- Designing an aquaponics systems in a 7-12 school
- Mapping a trail system and unique features to support 7-12 education
- Conducting an in-depth literature review to inform impact assessments of winter and summer recreation on landscape
- Developing a proposal to increase revenue for mountain biking given technological and financial constraints
- Identifying and writing grants to support partner needs



## Example Projects: ENVS 84

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- Initiating and continuing a long term monitoring study of !nara
- Mapping !nara through a community mapping project
- Developing an environmental education program at Gobabeb for the local school
- Exploring herbivory impacts on !Nara
- Understanding Topnaar perceptions of livelihoods and livestock opportunities





# ENVS 84 – Pedagogical Approaches

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- Course Framing
  - Research
  - Social-ecological systems
  - Community-based research
- Preparation
  - Orientation
  - Scaffolding: other program assignments
- Reflection
  - Informal and formal conversations
  - Prompts and Essays



# Teaching and Learning Challenges

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- Research
  - Linking theory to research
  - Navigating time constraints
  - Communicating research results
- Community engagement
  - Initial connections
  - Language
  - Student paralysis
  - Student perceptions of community





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# LESSONS LEARNED & QUESTIONS

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# Lessons Learned: Teaching for Sustainability Transformations

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- Scaffolding is critical for students to develop complex competences
- Shorter-term, immersive experiences can be more transformational than weekly class meetings over the course of the term or semester
- Long-term partnerships have the potential for greater depth of impact in community, with student learning, and in partner relationships, but choose your system wisely
- Community-engaged research and teaching is complex but rewarding, and it requires:
  - Persistence
  - Humility
  - Creativity
  - A willingness to take risks
  - A tolerance for ambiguity

# Questions . . . so many questions . . .

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- What models for local capstones may deepen student experiential learning and knowledge development for ENV5 50?
- How can we deepen our engagement with Topnaar communities given geographic and cultural differences?
- What role should and can we play in building Topnaar capacity & what capacity?
- How do we help students get better at applying theory to their research, especially given time constraints?
- Do we have the necessary interdisciplinary team assembled to conduct SES research? Are we training students in interdisciplinary research?
- Are there other strategies we should consider for incorporating reflection into the curriculum?
- Do we need more training for students, faculty and staff in international, cross-cultural exchanges?



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# THANK YOU!

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# Competencies in Sustainability

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- Strategic knowledge cluster
  - Content and methodological knowledge
  - Analyze the present and future states of the system
  - Developing strategies for influencing those states
  - Dealing with diversity of thought
- Collaborative knowledge cluster
  - Engaging with stakeholders
  - Facilitating collaborative research and decision-making
  - Developing empathy and compassion
- Practical knowledge cluster
  - Implementation skills to put knowledge into action
  - Experience managing different decision-making contexts

# Student Reflections

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- “However, the realization that social science is not for its subjects is not necessarily a damning one; for better or worse, outsiders often have the power and wherewithal to intervene in a system, and require information to most efficiently allocate their resources. Rather, the value of social science in terms of enabling more effective natural resource management is contingent on whether it is directed toward an explicit end.”
- “Normally, I only apply this logic of “quality for the sake of quality” to products with aesthetic value, like a flute solo or creative writing, because I think beauty is inherently valuable. It never occurred to me that I could derive a similar sense of inherent value from something like a social science article.”
- “The main problem I have with research as a tool is the amount of time that it takes to bring about real progress. Proper academic research is tedious, and it can take months if not years for a project to be completed. All of this time, people in poverty are still suffering and see no tangible improvements in their quality of life while serving as the subject of a project conducted by a distant American or European institution. And even when the research is completed, that is no guarantee that it will be followed by governments and even the communities themselves to improve natural resource use.”
- “This experience made me more aware of the distinction between research purely for the sake of knowledge, and research for the sake of outcomes.”

# Strengths of Each Course

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## ENVS 50

- Spreading the wealth in terms of thinking, networking and resources
- Time for connecting academic literature to the project
- In-class time for focused skill/knowledge development
- Opportunities for reflection, especially for students to reflect on their personal and academic growth

## ENVS 84

- Long-term commitment to a system and a set of partners
- Allows for consistency, and creativity grows from this consistency, at least so far
- Depth in research over time
- Improves opportunities for endowments

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Schedule of courses during the term:

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9
South Africa					Namibia, including Gobabeb Research & Training Centre			

ENVS 40								
ENVS 42								
						ENVS 84		

# Student Outcomes: Research

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# Student Outcomes: Community-Engaged Conservation & Development

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“Before this trip and throughout parts of ENVS 40, I viewed the involvement of extra local actors assumed to have “expert knowledge” in a very negative lights.

After... two experiences, I’ve come to view this incorporation of an outside perspective and potential contribution of “expert knowledge” more positively, and I’ve realize that often times community development projects fail because they lack this perspective.”



# Environmental Studies Program – Community-Engaged Capstones

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	<b>ENVS 50 -VT/NH</b>	<b>ENVS 84 - Namibia</b>
Location	30 min-1.5 hr radius from campus	Namib Sand Sea, Namibia
Timespan	10 weeks	15 days
Project Foci	Conservation, Agriculture Environmental Education, Outdoor Recreation, Energy	Social-ecological system; Gobabeb Research & Training Centre
Project Methods	Case study, GIS, communication, program design, economics, etc	Social science, ecology, or education-focused
Partner Engagement	Instructors begin planning 6+ mo. in advance. Varied student engagement: weekly, biweekly; 2+ field trips	Instructors begin planning 6+ mo. in advance; Short-term, intense field engagement, mostly with Gobabeb, but increasingly with Topnaar