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Socio-Ecological Dynamics and Conservation in Southern Patagonia and Antarctica

ENVI-3000 (3 credits)

Argentina: People, Environment and Climate Change in Patagonia and Antarctica

This syllabus is representative of a typical semester. Because courses develop and change over time to take advantage of unique learning opportunities, actual course content varies from semester to semester.

Course Description

This course comprises 45 class hours of instruction for three credits and focuses on the relationships of humankind with their environment and natural resources in Southern Patagonian and Antarctica. Based in the southern most city of the world, Ushuaia, Tierra del Fuego, students will learn about the physical, biological and ecological characteristics of this region. The course will challenge students to understand human beings as part of the ecosystem and the subsequent socio-ecological dynamics and problematize different perspectives on resources from indigenous perspectives to those of missionaries and early explorers to the region. Students will be exposed to the ecological and of conservation issues associated with the use of marine resources in both artisanal and industrial contexts in Patagonia and learn of the complex nature of resource use and management in Tierra del Fuego and examine community perspectives on climate change. In this course students will learn about conservation of the marine ecosystem and examine environmental policies and current environmental education efforts in the region in order to gain a better understanding of what is required for effective environmental stewardship in Patagonia, Antarctica and globally.

Through classes with professors, researchers, managers, educators, conservationists and entrepreneurs as well as site visits, excursions, and the expedition to Antarctica students will become familiar with and learn about the local and regional challenges of carrying out economic, social and recreational activities in a harmonic coexistence with the natural environment. This course runs concurrent with the thematic seminar Climate Change and Marine Biology in Southern Patagonia and Antarctica and with the Environmental Research Methods and Ethics seminar.

Learning Outcomes

Upon completion of the course, students will be able to:

- *Describe* the historical, political and social assumptions made over time in relation to Patagonian and Antarctic Sea;

- *Compare and contrast* theories and practices of conservation over the past decades in Southern Patagonia and Antarctica;
- *Articulate* the complexity of decision making in relation to marine resources at different levels (local, national, and international);
- *Analyze* the role of climate change in relation to human activity and natural resource conservation.

Language of Instruction

This course is taught in Spanish, though some subjects may be introduced in English. Students will be exposed to vocabulary related to course content through in-country expert lectures and field visits to a wide range of venues and regional locales.

Instructional Methods

SIT's teaching and learning philosophy is grounded in the experiential learning theory developed by Kolb (1984; 2015) and informed by various scholars, such as Dewey, Piaget, Lewin, among others. Experiential learning theory recognizes that learning is an active process that is not confined to the formal curriculum; "knowledge is created through the transformation of experience" (Kolb, 2015, p. 49). Learning involves both content and process. Learning is holistic and happens through various life experiences upon which students draw to generate new ways of knowing and being. Learning involves a community and is a lifelong endeavor. Learning is transformational. The suggested four step-cycle of a *concrete experience*, *reflective observation*, *abstract conceptualization*, and *active experimentation* embedded in the experiential learning model is not linear and might not always happen in that specific order, as any learning is highly context dependent. These stages of taking part in a shared experience; reflecting on that experience by describing and interpreting it; challenging their own assumptions and beliefs to generate new knowledge; and ultimately applying new knowledge, awareness, skills, and attitudes in a variety of situations and contexts are important for students to engage in to become empowered lifelong learners.

Assignments and Evaluation

Assignment Descriptions and Grading Criteria

Participation: All students are expected to come to class prepared to discuss assigned readings, to listen attentively to any lectures, to seek to understand the perspectives of their peers, to share thoughts and opinions about the topics of the course, and to otherwise engage in healthy exploration of the course themes in order to contribute to the collective learning of the group. (10%)

Multiple Uses of Resources Quizzes: During this seminar students will be quizzed on the multiple uses of the sea and natural resources in the areas/sites visited and on examples of how these uses are applied and the intended short and long-term results of their application. (10%each quiz =20%)

Case Study: Students will choose a fisheries or resource management case study and draft a scientific article. This will include the development of a hypotheses, research design and testing. The case studies must be written according to standards of a scientific articles. (20%)

Regional and International Conservation Treaties Presentation: With their choice of medium, students will make presentations about any one of the regional or international conservation treaties studied. Students will draw from course readings and discussions, guest lectures, site visits, and other activities during the program. In their presentations, students will need to identify key problems and obstacles as well as concrete opportunities in the application of this treaty in Southern Patagonia. (20%)

Final Essay: In the final essay, students will draw from their learning throughout this course to compare and contrast humanity's impact and conservation in Patagonia's Southern Patagonia and Antarctica. Responding to prompts for this essay, students will need to synthesize knowledge acquired through, lectures, site visits, and other activities to present a clear, concise, and thoughtful final essay for this course. It is important that students take good notes during the excursions and begin this essay early in the semester as the excursions are spread out. (30%)

Assessment:

Participation	10%
Multiple Uses of Resources Quizzes (10%/each)	20%
Case Study Article	20%
Conservation Presentation	20%
Final Essay	30%

Attendance and Participation

Due to the nature of SIT Study Abroad programs, and the importance of student and instructor contributions in each and every class session, attendance at all classes and for all program excursions is required. Criteria for evaluation of student performance include attendance and participation in program activities. Students must fully participate in all program components and courses. Students may not voluntarily opt out of required program activities. Valid reasons for absence – such as illness – must be discussed with the academic director or other designated staff person. Absences impact academic performance, may impact grades, and could result in dismissal from the program.

Late Assignments

SIT Study Abroad programs integrate traditional classroom lectures and discussion with field-based experiences, site visits and debriefs. The curriculum is designed to build on itself and progress to the culmination (projects, ISP, case studies, internship, etc.). It is critical that students complete assignments in a timely manner to continue to benefit from the sequences in assignments, reflections and experiences throughout the program.

Example: Students may request a justified extension for one paper/assignment during the semester. Requests must be made in writing and at least 12 hours before the posted due date and time. If reason for request is accepted, an extension of up to one week may be granted at that time. Any further requests for extensions will not be

granted. Students who fail to submit the assignment within the extension period will receive an 'F' for the assignment.

Grading Scale

94-100%	A
90-93%	A-
87-89%	B+
84-86%	B
80-83%	B-
77-79%	C+
74-76%	C
70-73%	C-
67-69%	D+
64-66%	D
below 64	F

Expectations and Policies

- Show up prepared. Be on time, have your readings completed and points in mind for discussion or clarification. Complying with these elements raises the level of class discussion for everyone.
- Have assignments completed on schedule, printed, and done accordingly to the specified requirements. This will help ensure that your assignments are returned in a timely manner.
- Ask questions in class. Engage the lecturer. These are often very busy professionals who are doing us an honor by coming to speak.
- Comply with academic integrity policies (no plagiarism or cheating).
- Respect differences of opinion (classmates', lecturers, local constituents engaged with on the visits). You are not expected to agree with everything you hear, but you are expected to listen across difference and consider other perspectives with respect.

Please refer to the SIT Study Abroad Handbook and the Policies section of the SIT website for all academic and student affairs policies. Students are accountable for complying with all published policies. Of particular relevance to this course are the policies regarding: academic integrity, Family Educational Rights and Privacy Act (FERPA), research and ethics in field study and internships, late assignments, academic status, academic appeals, diversity and disability, sexual harassment and misconduct, and the student code of conduct.

Please refer to the SIT Study Abroad Handbook and SIT website for information on important resources and services provided through our central administration in Vermont, such as Library resources and research support, Disability Services, Counseling Services, Title IX information, and Equity, Diversity, and Inclusion resources.

Course Schedule

**Please be aware that topics and excursions may vary to take advantage of any emerging events, to accommodate changes in our lecturers' availability, and to respect any changes that would affect student safety. Students will be notified if this occurs.*

The following modules occur during the first six weeks of program time in Ushuaia, Tierra del Fuego and on excursions and site visits.

Module 1: Human Relations to their Environment Historically

The first module of this course studies anthropological perspectives dating back to indigenous populations, missionaries and early explorers to the region. In this module students will study indigenous Southern Patagonia peoples and their perspectives in relation to their food and symbolic representations of the sea and nature. The lectures in this module will examine the historical interests in the South Seas, looking at the first Southern Sea and Antarctic explorers and navigators. Attention will be given to whalers and sealers, and their subsequent industrialization as well as the ancient settlers and "first settlement" of Ushuaia, Tierra del Fuego.

These lectures will be undertaken in conjunction with activities related to the sea and visits to the Almanza and Estancia Harberton. Students will have additional opportunities to visit historical sites and interact with curators at museums. Current community perspectives on climate change will be studied as well as those of regional environmental activists and the recently constituted observatory on climate change.

Session 1: An Anthropological Perspective of the Socio-ecological Dynamics:

- Humans and nature
- Indigenous perspectives
- Humans and paternalism
- Current community perspectives
- Environmental movement perspectives

Session 2: Native Populations

- Hunters and collectors
- Nature and subsistence
- Resource management

Session 3: History of the Early Explorers

- Missions
- Whalers and sea lion hunters
- Gold Fever

Required Readings:

Chatwin, B. (2017). *In patagonia*. S.l.: Vintage Classics.

Kradolfer, S. (2012). Book Review: María Andrea Nicoletti. Indígenas y Misioneros en la Patagonia: Huellas de los Salesianos en la Cultura y Religiosidad de los Pueblos Originarios Nicoletti María Andrea. Indígenas y Misioneros en la Patagonia: Huellas de los Salesianos en la

Cultura y Religiosidad de los Pueblos Originarios. Buenos Aires: Continente, 2008. 218 pages. ISBN: 978-950-754-257-2. *Transformation: An International Journal of Holistic Mission Studies,29*(2), 174-176. doi:10.1177/0265378812440679c

Nacuzzi, L. R. (2007). Los Grupos Nómades De La Patagonia Y El Chaco En El Siglo Xviii: Identidades, Espacios, Movimientos Y Recursos Económicos Ante La Situación De Contacto. Una Reflexión Comparativa. *Chungará (Arica),39*(2). doi:10.4067/s0717-73562007000200005

Module 2: Current Uses of Sea Resources and Conservations Efforts

Ushuaia Tierra del Fuego is one of the access gates to Antarctica and the center of Antarctic Tourism (IAATO). During this course the students will deepen their knowledge and understanding of the economic and geopolitical importance of Southern Ocean and Antarctica. The artisanal fishing of spider crab in the Beagle Channel will be a case study of binational fishery (Chile-Argentina) and provide an example or the other multiple uses and biodiversity of the area. Students will be introduced to livelihoods made by subsistence fishing families to fishing industries of sea bass from the Atlantic Coast of Tierra del Fuego and the extraction of sea urchins from Chile. Students will see industrial fishing Aquaculture – Seafood in Puerto Almanza, and the industrial fishing of krill in Antarctica. Students will analyze the economic and social importance of fisheries in Patagonia. Students will be learn of the efforts and policies of the National and Provincial Fisheries Management bodies.

Additionally, in the module students will analyze the impacts of sport and recreational fishing, Students will be exposed to recreational activities in the Beagle Channel (kayaks, sailboats, diving). Sports and nautical clubs. Coastal and marine tourism (Sailing on the Beagle Channel, historical stays on the canal coast: Remolino – Moat, Nature Tourism: Islands with on hair seahorse colonies and seabird colonies (Cormorants, Penguin sanctuaries).

During this module students will visit the Ushuaia Commercial Port to learn of the Control and Surveillance Activities carried out by the Naval Prefecture Argentina - Armed Forces Argentina as well as visit Research Centers: Austral Center of Scientific Investigations, University of Tierra del Fuego, and National Technological University to learn of the latest in fishing engineering.

Session 1: Fisheries – different types of fishing both theoretic and descriptive

Session 2: Fisheries and Climate Change

- King Crag (Centolla) as a Case Study
- Krill as a Case Study

Session 3: Everything Collides: Problematizing the different perspectives on resources.

- Currently: What is being done? What can be done?
- Social resource management

Required Readings:

Ecological knowledge and environmental problem-solving: Concepts and case studies. (1986). Washington, DC: National Academy Press.

Knecht, G. B. (2006). *Hooked: pirates, poaching and the perfect fish*. S.l.: Rodale.

Scartascini, F. L. (2017). 5.000 Años De Pesca En La Bahía San Antonio, Río Negro, Patagonia Argentina. *Latin American Antiquity, 28*(03), 394-408. doi:10.1017/laq.2017.33

Module 3: Current Uses of Resources and Conservation in Tierra del Fuego

This module introduces students to the basics of conservation in Tierra del Fuego and Antarctica. The students will evaluate the state of conservation of the Southern Patagonian and Antarctic Sea and analyze the threats to conservation efforts. Students will further understand, through experiential learning activities, the environmental impact of conservation in coastal and marine areas as well as the impact of pollution from urban areas, industrial, and biological waste. Students will have the opportunity to visit the areas Waste Management department as well as visit the local office of the Environmental Impact Assessment council.

During this module students will have exposure to environmental education, in both theory and practice. Students will visit local and regional interpretation centers, non-governmental organizations, civil society organization and research centers and universities: National University of Tierra del Fuego, Manekenk Foundation, Austral Center of Scientific Investigations (La Lupa Broadcast Magazine), Acatushun Museum, Beagle Secrets of the Sea, Onashaga Commitment, Bird Observer Club - Ushuaia Foundation (World Cultural Heritage). Additionally students will have the opportunity to decipher and deepen their understanding of the Antarctic Treaty and Conservation of Biodiversity as well as other international bodies such as the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), the International Convention for the Regulation of Whaling. International Whaling Commission (IWC) and the Convention for the Conservation of Antarctic Seals.

Session 1: Recreational Activities/Multiple Uses

Session 2: Human Impact on Natural Resources
- Protected areas and conservation efforts
- Protected Areas Management

Session 3: Marine Protected Areas/Management

Session 4: Tourism – Gateway to Antarctica/Antarctica

Session 5: Environmental Policy
- Ports
- Provincial governance

Session 6: Environmental Education

Required Readings:

Antarctic biodiversity faces increased threats despite ... (n.d.). Retrieved March 5, 2018, from https://www.theguardian.com/world/2015/jun/25/antarctic-biodiversity-faces-increased-threats-despite-isolation-study-finds

International, B. (n.d.). 6. Biodiversity and climate change interactions. Retrieved March 05, 2018, from http://www.birdlife.org/projects/6-biodiversity-and-climate-change-interactions

Rose, D. C., Mukherjee, N., Simmons, B. I., Tew, E. R., Robertson, R. J., Vadrot, A. B., Sutherland, W. J. (2017). Policy windows for the environment: Tips for improving the uptake of scientific knowledge. *Environmental Science & Policy*. doi:10.1016/j.envsci.2017.07.013

