



THE SCHOOL
FOR FIELD STUDIES

Tropical Island Ecosystems: The Human Impact

SFS 3000

Syllabus

4 credits

The School for Field Studies (SFS)
Center for Tropical Island Biodiversity Studies
Isla Colon Bocas del Toro, Panama

This syllabus may develop or change over time based on local conditions, learning opportunities, and faculty expertise. Course content may vary from semester to semester.

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COURSE CONTENT SUBJECT TO CHANGE

Please note that this is a copy of a recent syllabus. A final syllabus will be provided to students on the first day of academic programming.

SFS programs are different from other travel or study abroad programs. Each iteration of a program is unique and often cannot be implemented exactly as planned for a variety of reasons. There are factors which, although monitored closely, are beyond our control. For example:

- Changes in access to or expiration or change in terms of permits to the highly regulated and sensitive environments in which we work;
- Changes in social/political conditions or tenuous weather situations/natural disasters may require changes to sites or plans, often with little notice;
- Some aspects of programs depend on the current faculty team as well as the goodwill and generosity of individuals, communities, and institutions which lend support.

Please be advised that these or other variables may require changes before or during the program. Part of the SFS experience is adapting to changing conditions and overcoming the obstacles that they may present. In other words, this is a field program, and the field can change.

Course Overview

This course introduces the concepts and principles of sustainable tourism alongside the evaluation of ecosystem health and diversity. This unique field-based program allows students to determine how natural habitats and human livelihoods coexist in the dynamic socio-economic context of Bocas del Toro, Panama – which is one of the fastest growing tourism destinations in Latin America.

With tourism growth comes many conservation and development challenges. In this course, we will explore natural resource governance closely to contextualize the driving forces behind ecological change and the potential responses change available to different stakeholders involved in the socio-ecological system (including government agencies, nongovernmental organizations, the private sector, and local citizens). This course will explore the challenges and potential of these governance efforts, which will include visiting and evaluating critical tourism sites, such as the Isla Bastimentos National Marine Park, Indigenous tourism cooperatives, wildlife tourism sites, agro-ecological tourism sites and others.

Panama hosted the 2022 Our Ocean's conference and it declared that it placed more than 50% of its exclusive economic zone under protected area status, beating 30X30 targets set globally. The course will adopt a problem-based, place-based learning format, which promotes critical thinking, analytic skills, and problem-solving skills along with teamwork to explore the efficacy of protected areas in the Bocas del Toro Province, at a time when its expansion is being considered. We will debate whether the expansion can be done in a way that enhances ecosystems and supports local livelihoods.

Thematic Components and Research Direction

The overarching question we address in the TIBS curriculum is:

How can the natural resources of the BDT archipelago best be managed to promote conservation and sustainable use considering the complex socioeconomic environment?

To address this rather broad question we will examine two specific components in this course:

1. Environmental identification and assessment

Our studies will focus on the shallow marine, terrestrial and coastal environments of Bocas del Toro with an emphasis on coral reef, mangrove, and rainforest habitats. We will study the ecology of key species, including those that form habitats and those that are important resources to the people of Bocas del Toro for tourism. Finally, we will consider the impact of anthropogenic disturbance to the island ecosystem and organisms living there, as well as discuss possible management solutions.

2. Local livelihood & natural resource nexus

We will explore the complexity associated with the many complicated ways economic livelihoods are tied to ecosystems. The goal will be to understand pathways for preserving ecosystems through collaborative governance in economically viable and socially appropriate ways.

Learning Objectives

The core skills students will learn in this course are field techniques, analytical methods, communication skills and critical thinking, as well as teamwork and time management. The specific objectives of the course are the following:

1. Understand principles of sustainable development within the context of Bocas del Toro
2. Identify challenges, weaknesses and strengths to sustainable tourism delivery within the context of Bocas del Toro.
3. Identify the socio-economic and environmental impacts on tourism at the individual and community level.
4. Explore and understand the major ecosystems present in the archipelago of Bocas del Toro; their status and health.
5. Recognize different types of niche tourism activities (surf tourism, dive tourism, residential tourism, adventure- / eco-tourism, etc.) and the capacity to foster sustainable community development.
6. Articulate and defend a position related to the impacts of proposed marine protected area expansion on natural resource governance and sustainability outcomes.

In this course we will go on many field trips. Come prepared for many days of intensive activities that demand strength and stamina! You will wake up early and sometimes get back to the center just before dinner. You will learn experimental design, field techniques in sustainable development and tourism assessment, coral reef assessments, basic descriptive statistics, position paper writing and communication skills.

Assessment

Assessment Item	Value (%)
Participation	10
Quizzes	20
Group Ecosystem Field Presentation	20
Tourism and Sustainable Development Goals	20
MPA Extension Debate	30
TOTAL	100

Participation (10%)

Everybody should be prepared for each academic session. This implies reading the materials for each session with enough detail to be able to ask relevant questions; and to participate in analytical discussions about the key issues. Active participation during classes, discussions, assignments and hikes is expected. A student's ability to be a good colleague is important. Participation in class and a general high contribution to group learning is expected at SFS. One's ability to be a strong member of a learning community will enhance the grade assigned at the end of the program.

Quizzes (20%)

Short answers and multiple-choice questions will be asked to assess comprehension of topics covered during the first part of the course. This will include species identification of key marine and terrestrial

organisms as well as demonstrating an understanding of social science frameworks related to governance and sustainable development.

Group Ecosystem Field Presentation (20%)

We explore marine, coastal, and terrestrial environments throughout the duration of the course. You will be asked to take notes on the condition of these environments. Based on your observations, lectures, field excursions and comparisons with the literature, you will prepare a group presentation using video, photos or other media to support your thoughts on the current status of Bocas ecosystems. Importantly, you will include in your presentation ideas for future research and how that research can provide information to local stakeholders involved in MPA planning and development. Your proposed future research must be supported by your observations and the literature. Please refer to the Guidelines for Field Presentations located in the summer 2023 shared drive.

Tourism and Sustainable Development Goals (20%)

Students will select a site visit and submit a reflection of the experience following the template provided in the summer 2023 shared drive.

MPA Extension Debate (30%)

Details provided week 2. Students will evaluate the proposal to expand the Isla Bastimentos National Marine Park and advocate for and against this on different socio-economic and ecological grounds.

Grading Scheme

Grade corrections in any of the above items should be requested in writing at least 24 hours after assignments are returned. No corrections will be considered afterwards.

A	95.00 - 100.00%	B+	86.00 - 89.99%	C+	76.00 - 79.99%	D	60.00 - 69.99%
A-	90.00 - 94.99%	B	83.00 - 85.99%	C	73.00 - 75.99%	F	0.00 - 59.99%
		B-	80.00 - 82.99%	C-	70.00 - 72.99%		

General Reminders

Plagiarism – Using the ideas and material of others without giving due credit is cheating and will not be tolerated. A grade of zero will be assigned if anyone is caught cheating or aiding another person to cheat actively or passively (e.g., allowing someone to look at your exam).

Deadlines – Deadlines for written and oral assignments are instated to promote equity among students and to allow faculty ample time to review and return assignments. As such, deadlines are firm; extensions will only be considered under extreme circumstances. Late assignments will incur a penalty of 10% of your grade for each day you are late. After two days (past the deadline) assignments will not be accepted anymore. Assignments will be handed back to students after a one-week grading period.

Participation – Since we offer a program that is often more intensive than you might be used to at your home institution, missing even one lecture can have a proportionally greater effect on your final grade simply because there is little room to make up for lost time. Participation in all components of the course is mandatory, it is important that you are prompt for all activities, bring the necessary equipment for field exercises and class activities, and simply get involved.

Course Content

Type- L: Lecture, **FL:** Field Lecture, **GL:** Guest Lecture, **FEX:** Field Exercise, **D:** Discussion, **W:** Workshop

***Required readings are in bold**

No	Title and outline	Type	Time (hrs)	Readings
1	Course Introduction Expectations and Excitement and Assignments	L	2.0	Syllabus
2	Situating Bocas in a socio-cultural and historical context	L	1.0	Pleasant and Spaulding (2021)
3	The Marine Environment	L	1.0	Seemann et al. (2018) Grorud-Colvert, K. and Ward, M. (2023)
4	The Terrestrial Environment	L	1.0	
5	Marine and Terrestrial ID Workshop Students are introduced to terrestrial and marine species identification	L; W	1.5	Field Guide: Humann and Deloach (2002)
6	Solarte Snorkel/Hike Switch Students perform stationary fish counts, collect data on observations for their final presentations. Students collect terrestrial field data for their final presentations.	FEX	2.0	
7	Viewing of "Historias del Canal"	Film	1.0	
8	Cultural Competency in Conservation. Students are introduced to the importance of cultural competency in conservation with a debrief and discussion of Historias del Canal.	D	1.5	Taranath & Bolisay, (2019) Bennett et al. (2017) Bennett et al. (2021) de Vos and Schwartz (2022) Guerron Montero (2006) Spalding (2018)
9	Socioecological Systems & Tourism	L	1.0	Briassoulis (2002) Laws, et al. (2011)
10	Assessing Marine Habitats	L	1.0	Hill & Wilkinson, (2004) p.16
11	Insect Assessment prep	L	1.0	Crump & Scott (1994)
12	Insect Rapid Assessment	FEX	2.0	Hanson, P.E. and K. Nishida (2016) Forsyth & Miyata, 1984
13	Protected Areas: America's best idea?	L	1.0	Treuer (2021)
14	Field Marine Habitat Assessment Comparing sites inside and outside of MPAs; fish and coral counts	FEX	2.0	

No	Title and outline	Type	Time (hrs)	Readings
15	Protected Areas Governance and Zapatillas Prep Understanding how protected areas, with a focus on Marine Protected Areas and the 30x30 movement impact communities locally and globally	L	2.0	Mach, et al. (2020) Agrawal et al., (2020) Canovas-Molina and Garcia-Frapoli (2020) Guerron Montero (2005)
16	Isla Bastimentos National Marine Park Site Visit 1. Governance observation activity 2. Terrestrial Ecology Activity 3. MPA Snorkel	FEX	3.5	
17	Zapatillas Debrief Discussion	D	1.0	
18	Indigenous Communities, Tourism and Sustainable Development	L	1.5	Scheyvens, et al. (2021)
19	Data Collection for Ecosystem Field Presentations	FEX	2.0	Forsyth & Miyata (1984)
20	Field Trip and Assignment Prep Sustainable Indigenous Tourism	L	1.0	
21	Indigenous tourism and sustainable development	FEX	3.0	
22	Wildlife Tourism	L	1.0	Belicia & Islam (2018)
23	Field Mangrove Lecture & Snorkel	L	2.0	Stewart et al. (2021)
24	Field Presentation Prep Workshop	W	1.0	
25	Semester Field Work Wrap-up	L	1.0	
26	Group Field Presentations	D	2.0	
27	Field Trip to San Pon Sac: Turtles & Manatees	FEX	3.0	
28	Wildlife Tourism Debrief	D	1.0	
29	Debate Assignment Prep	L	1.0	
30	Surf Tourism Challenges and Opportunities	L	2.0	Mach & Ponting (2018)
31	Surf Break Observations	FEX	1.0	
32	Debate Workshop and Work Time	D	2.0	
33	The Great Conservation Debate	D	2.5	
	TOTAL		52.5	

Reading List

*Required readings are in bold

1. **Agrawal, A., & et al. (2020)**. Retrieved from An open letter to the lead authors of protecting 30% of the planet for nature: Costs, benefits and implication: <https://openlettertowaldronetal.wordpress.com>
2. **Belicia, T., & Islam, M. (2018)**. Towards a decommodified wildlife tourism: Why market environmentalism is not enough. *Societies*, 8(59), 1-15. doi:10.3390/soc8030059
3. **Bennet, Nathan J.**, Laure Katz, Whitney Yadao-Evans, Gabby N. Ahmadi, Scott Atkinson, Natalie C. Ban, Neil M. Dawson, Asha de Vos, Juno Fitzpatrick, David Gill, Mael Imirizaldu, Naia Lewis, Sangeeta Mangubhai, Leah Meth, Ella-Kari Muhl, David Obura, Ana K. Spalding, Angelo Villagomez, Daniel Wagner, Alan White and Aulani Wilhelm (2021). Advancing Social Equity In and Through Marine Conservation. *Frontiers in Marine Science*, 8(994).
4. **Bennett, Nathan J.**, Lydia Teh, Yoshitaka Ota, Patrick Christie, Adam Ayers, Jon C. Day, Phil Franks, David Gill, Rebecca L. Gruby, John N. Kittinger, J. Zachary Koehn, Nai'a. Lewis, John Parks, Marjo Vierros, Tara S. Whitty, Aulani Wilhelm, Kim Wright, Jaime A. Aburto, Elena M. Finkbeiner, Carlos F. Gaymer, Hugh Govan, Noella Gray, Rebecca M. Jarvis, Maery Kaplan-Hallam, Terre Satterfield (2017). An appeal for a code of conduct for marine conservation. *Marine Policy*, 81: 411-418.
5. **Briassoulis, H. (2002)**. Sustainable Tourism and the Question of the Commons. *Annals of Tourism Research*, 29, 1065–1085.
6. **Cánovas Molina, Almudena & Frapolli, Eduardo. (2020)**. Untangling worldwide conflicts in marine protected areas: Five lessons from the five continents. *Marine Policy*. 121.
7. **Crump, M., & Scott, N. J. (1994)**. Standard Techniques for Inventory and Monitoring: Visual Encounter Surveys. In R. Heyer, & M. Donnelly (Eds.), *Measuring and Monitoring Biological Diversity: Standard Methods for Amphibians* (pp. 84-92). Smithsonian Institution Press.
8. **de Vos, A., & Schwartz, M. W. (2022)**. Confronting parachute science in conservation. *Conservation Science and Practice*, 4(5), e12681
9. Forsyth, A., & Miyata, K. (1984). *Tropical Nature*. New York: Scribner.
10. **Gorud-Colvert, K. and Ward, M. (2023)**. The Ocean: An Introduction to the Marine Environment. In A.K. Spalding and D.O. Suman (Eds.). *Oceans and Society: An Introduction to Marine Studies* (pp. 24-37). Abingdon, Oxon: Routledge.
11. **Guerron-Montero, C. (2006)** (a). Racial Democracy and Nationalism in Panama. *Ethnology*, 45 (3): 209-228
12. **Hanson, P. E., & Nishida, K. (2016)**. *Insects and other arthropods of tropical America*. Cornell University Press.
13. **Laws, E., Agrusa, J., Scott, N., & Richens, H. (2011)**. *Tourist Destination Governance: practice, theory and issues*. Wallingford, UK: CAB International.
14. **Mach, L., & Ponting, J. (2018)**. Governmentality and surf tourism destination governance. *Journal of Sustainable Tourism*, 26(11), 1845-1862.
15. **Mach, L., Winner, C., Rojas, C., & Klemond, M. (2020)**. Protected area entry fees and governance quality. *Tourism Management*, 77.
16. **Pleasant, T., & Spalding, A. (2021)**. Development and dependency in the periphery: From bananas to tourism in Bocas del Toro, Panama. *World Development Perspectives*, 24. doi:10.1016/j.wdp.2021.100363
17. **Scheyvens, R., Carr, A., Movono, A., Hughes, E., Higgins-Desbiolles, F., & Mika, J. (2021)**. Indigenous tourism and the sustainable development goals. *Annals of Tourism Research*, 90, 1-12. doi:10.1016/j.annals.2021.103260

18. Spalding, A. (2023). Re-Making Lives Abroad: Lifestyle Migration and Socio-Environmental Change in Bocas del Toro, Panama. In A.K. Spalding and D.O. Suman (Eds.). *Coastal Resources of Boca del Toro, Panama: Tourism and Development Pressures and the Quest for Sustainability*. Coral Gables, Fla.: University of Miami, 2018. P.31-43.
19. **Stewart, Heather & Kline, David & Chapman, Lauren & Altieri, Andrew. (2021).** Caribbean mangrove forests act as coral refugia by reducing light stress and increasing coral richness. *Ecosphere*. 12. 10.1002/ecs2.3413.
20. **Taranath, A., & Bolisay, R. (2019).** Beyond Guilt Trips: Mindful travel in an unequal world.
21. **Treuer, D. (2021, May).** Return the National Parks to the Tribes. *The Atlantic*. Retrieved from <https://www.theatlantic.com/magazine/archive/2021/05/return-the-national-parks-to-the-tribes/618395/>