



UNIVERSIDAD SAN FRANCISCO DE QUITO
COLEGIO: CIENCIAS BIOLÓGICAS Y AMBIENT.
COURSE: REC 0330 - STRATEGIC PLANNING FOR N.R.M
Semester: 201910 - First Semester 2019/2020 - NRC: 1013
Schedule: MTWThF 09:00 - 11:50 (Aula 4, GAIAS-San Cristobal)

PROFESSOR INFORMATION:**Name:** Susana Alexandra Cardenas Diaz**Email:** sacardenas@usfq.edu.ec**Office:** DW003**Office hours:** M-F 12pm to 1.30 pm**COURSE INFORMATION:****Credits:** 4**Prerequisites:** General Ecology.**COURSE DESCRIPTION:**

The conservation and management of natural resources, and the search for solutions to the many environmental problems that our societies are facing are constantly limited by three main factors: i) the short time-frame in which solutions need to be designed and implemented; ii) the scarcity of information which frequently adds uncertainty to the analysis and management of environmental or conservation problems, and, iii) the lack of proper funding. A common outcome of the interaction between these factors is ineffective conservation action, disappointment among key players, and the lack of a proper analysis framework to monitor and improve management interventions. In this context, during this course we will learn about the use of strategic thinking tools for the management of biodiversity and other natural resources. More specifically, we will discuss the use of conceptual models and monitoring systems as the basis for the adaptive management of conservation/development projects. Additionally, we will review the process of advancing from the construction of a conceptual model, to the writing a project proposal.

This is a hands-on course in which students will gather first hand information about selected environmental problems in the Galápagos Islands and use it to construct conceptual models and design strategies or alternatives that could be turned into projects for the efficient management of those problems.

SPECIFIC COURSE LEARNING OUTCOMES:

Number	Learning Outcome	Level
1	Analyze the complexity and challenges linked to natural resources management from different perspectives	Basic
2	Apply strategic planning tools with the goal of analyzing and seeking solutions for current management and conservation issues	Medium
3	Gather information and data about a real management or conservation problem through interviews to local experts and members of the community	Medium



Number	Learning Outcome	Level
4	Develop a conceptual model, a management plan and a monitoring plan for a real-case management or conservation problem	Final
5	Develop a management or conservation proposal to apply strategic planning concepts and monitoring to solve a real-case problem based on course materials	Final

COURSE CONTENT:

- Conceptual models for the analysis of environmental/conservation problems: An introduction
- Conceptual models applied to real Galápagos environmental and/conservation problems
- Project management frameworks based on conceptual models
- Use of monitoring frameworks for adaptive management
- Strategic planning for sustainable tourism with emphasis on natural protected areas and case studies
- Analysis of common conservation challenges from the perspective of conceptual models and adaptive management
- Principles for the writing of successful project proposals

METHODOLOGY FOR THE INTEGRATION OF THEORETICAL AND PRACTICAL CONTENT

The teaching methodologies used to teach USFQ courses, following the philosophy of Liberal Arts, foster dialogue and facilitate the construction of knowledge through the continuous exchange of ideas and experiences between professors and students. It is expected that in all courses the theoretical concepts will be linked to the professional practice and work contexts where students will perform in the future, with the intent to integrate activities and simulations of a diverse nature that promote the understanding of practical and realistic contexts.

COURSE EVALUATION:

Category	Number	Percentage of the final grade
Participation	14 sessions	10%
Paper discussions	1 (per student)	20%
Conceptual model	1 conceptual model	25%
Project proposal	1 project proposal	25%
Exam	1 exam	20%



Descriptions of the evaluation categories:

Participation: students have to participate, either through questions or open discussion, during lectures, paper discussions, and invited talks. In fact, the class is heavily based on interaction among students, between students and professor, and between students and invited speakers.

Paper discussions: each student will lead a paper discussion, which usually starts with a brief summary of the research presented in the paper, methods used, relevant results and conclusions followed by providing personal views on the subject, and encouraging of other students to engage on argumentation and discussion. The student presenting the paper will bring to class two questions for critical discussion.

Conceptual model: students will work in small groups (2 participants), developing, through the course, a solid conceptual model based on actual information. Grades for this assignment will be based on (i) the quality of the information collected to construct the model, and (ii) the thoroughness of the model and the creativity of the solutions or interventions proposed.

Project proposal: using their conceptual models as a starting point and knowledge acquired on managing and monitoring frameworks, students will write a short project proposal, which will be graded accordingly to its clarity, organization, and novelty. Specific instructions will be provided during the course.

Final exam: a short exam covering the fundamental concepts reviewed in class.

MAIN BIBLIOGRAPHY:

No textbook is required for this class. Key chapters of books below and scientific articles for the class include the following and will be available electronically.

Main books:

Conroy, M. J., & Peterson, J. T. (2013). Decision making in natural resource management: a structured, adaptive approach. John Wiley & Sons.

Edgell Sr, D. L and Swanson, J. R. (2018). Tourism policy and planning: Yesterday, today, and tomorrow. Routledge. 3rd. edition.

Leung, Yu-Fai, Spenceley, Anna, Hvenegaard, Glen, and Buckley, Ralf (eds.) (2018). Tourism and visitor management in protected areas: Guidelines for sustainability. Best Practice Protected Area Guidelines Series No. 27, Gland, Switzerland: IUCN. xii + 120 pp.

Mason, P. (2015). Tourism impacts, planning and management. Routledge.



Main peer-reviewed articles:

- Armsworth, Paul R., Jackson, Heather B., Cho, Seong-Hoon, Clark, Melissa, Fargione, Joseph E., Iacona, Gwenllian D., Sutton, Nathan A. 2017. Factoring economic costs into conservation planning may not improve agreement over priorities for protection. *Nature Communications*, 8(1), 2253.
- Bastille-Rousseau, G., Gibbs, J. P., Campbell, K., Yackulic, C. B., & Blake, S. (2017). Ecosystem implications of conserving endemic versus eradicating introduced large herbivores in the Galapagos Archipelago. *Biological conservation*, 209, 1-10.
- Butzmann, E. & Job, H. (2017) Developing a typology of sustainable protected area tourism products, *Journal of Sustainable Tourism*, 25:12, 1736-1755, DOI: 10.1080/09669582.2016.1206110
- Buglass, S., Reyes, H., Ramirez-González, J., Eddy, T. D., Salinas-de-León, P., & Jarrin, J. M. (2018). Evaluating the effectiveness of coastal no-take zones of the Galapagos Marine Reserve for the red spiny lobster, *Panulirus penicillatus*. *Marine Policy*, 88, 204-212.
- Castrejón, M. and Charles, A. 2013. Improving fisheries co-management through ecosystem-based spatial management: the Galapagos Marine Reserve. *Marine Policy*, 38, pp.235-245.
- Conroy, M. J., M. C. Runge, J. D. Nichols, K. W. Stodola, and R. J. Cooper. 2011. Conservation in the face of climate change: The roles of alternative models, monitoring, and adaptation in confronting and reducing uncertainty. *Biological Conservation* 144:1204-1213.
- da Luz Fernandes, M., Quintela, A., & Alves, F. L. 2018. Identifying conservation priority areas to inform maritime spatial planning: A new approach. *Science of The Total Environment*, 639, 1088-1098.
- Larson, L. R., & Poudyal, N. C. (2012). Developing sustainable tourism through adaptive resource management: A case study of Machu Picchu, Peru. *Journal of sustainable tourism*, 20(7), 917-938.
- Lawson, L. P., Fessl, B., Vargas, F. H., Farrington, H. L., Cunninghame, H. F., Mueller, J. C., Petren, K. (2017). Slow motion extinction: inbreeding, introgression, and loss in the critically endangered mangrove finch (*Camarhynchus heliobates*). *Conservation genetics*, 18(1), 159-170.
- Magris, R. A., Pressey, R. L., Mills, M., Vila-Nova, D. A., & Floeter, S. 2017. Integrated conservation planning for coral reefs: Designing conservation zones for multiple conservation objectives in spatial prioritisation. *Global Ecology and Conservation*, 11, 53-68.
- Margoluis, R., Stem, C., Salafsky, N., and Brown, M. 2009. Using conceptual models as a planning and evaluation tool in conservation. *Evaluation and Program Planning* 32: 138–147.
- Martin, J., M. C. Runge, et al. (2009). "Structured decision making as a conceptual framework to identify thresholds for conservation and management." *Ecological Applications* 19(5): 1079-1090.



- Miller, A. B., Leung, Y. F., & Kays, R. (2017). Coupling visitor and wildlife monitoring in protected areas using camera traps. *Journal of Outdoor Recreation and Tourism*, 17, 44-53.
- Morán-Ordóñez, Alejandra, Whitehead, Amy L, Luck, Gary W, Cook, Garry D, Maggini, Ramona, Fitzsimons, James A, & Wintle, Brendan A. (2017). Analysis of Trade-Offs Between Biodiversity, Carbon Farming and Agricultural Development in Northern Australia Reveals the Benefits of Strategic Planning. *Conservation Letters*, 10(1), 94-104
- Munanura, I. E., Backman, K. F., & Sabuhoro, E. (2013). Managing tourism growth in endangered species' habitats of Africa: Volcanoes National Park in Rwanda. *Current Issues in Tourism*, 16(7-8), 700-718
- Polasky, S., E. Nelson, J. Camm, B. Csuti, P. Fackler, E. Lonsdorf, C. Montgomery, D. White, J. Arthur, B. Garber-Yonts, R. Haight, J. Kagan, A. Starfield, and C. Tobalske. 2008. Where to put things? Spatial land management to sustain biodiversity and economic returns. *Biological Conservation* 141:1505-1524.
- Pressey, R. L., M. Cabeza, M. E. Watts, R. M. Cowling, and K. A. Wilson. 2007. Conservation planning in a changing world. *Trends in Ecology & Evolution* 22:583-592.
- Pizzitutti, Francesco, Walsh, Stephen J., Rindfuss, Ronald R., Gunter, Reck, Quiroga, Diego, Tippett, Rebecca, & Mena, Carlos F. (2017). Scenario planning for tourism management: a participatory and system dynamics model applied to the Galapagos Islands of Ecuador. *Journal of Sustainable Tourism*, 25(8), 1117-1137
- Powell, R. B., Green, T. F., Holladay, P. J., Krafte, K. E., Duda, M., Nguyen, M. T., . . . Das, Priyam. 2018. Examining Community Resilience to Assist in Sustainable Tourism Development Planning in Dong Van Karst Plateau Geopark, Vietnam. *Tourism Planning & Development*, 15(4), 436-457.
- Regan, H. M., Y. Ben-Haim, B. Langford, W. G. Wilson, P. Lundberg, S. J. Andelman, and M. A. Burgman. 2005. Robust decision-making under severe uncertainty for conservation management. *Ecological Applications* 15:1471-1477.
- Runge, M. C., S. J. Converse, et al. (2011). "Which uncertainty? Using expert elicitation and expected value of information to design an adaptive program." *Biological Conservation* 144(4): 1214-1223.
- Salafsky, N., Margoluis, R., Redford, K. H., and Robinson, J. G. 2002. Improving the Practice of Conservation: a Conceptual Framework and Research Agenda for Conservation Science. *Conservation Biology* 16(6):1469-1479.
- Sullivan, B. L., Phillips, T., Dayer, A. A., Wood, C. L., Farnsworth, A., Iliff, M. J., ... & Rodewald, A. D. (2017). Using open access observational data for conservation action: A case study for birds. *Biological Conservation*, 208, 5-14.
- Vargas, F. H., Lacy, R. C., Johnson, P. J., Steinfurth, A., Crawford, R. J., Boersma, P. D., & Macdonald, D. W. 2007. Modelling the effect of El Niño on the persistence of small populations: The Galápagos penguin as a case study. *Biological Conservation*, 137(1), 138-148.



WCS. 2004. Living Landscapes: Technical Manual 4. Creating Conceptual Models-a Tool for Thinking Strategically. Wildlife Conservation Society.

WCS. 2006. Living Landscapes: Technical Manual 3. Measuring our Effectiveness-A Framework for Monitoring. Wildlife Conservation Society.

Recommended books:

The following is recommended bibliography. books below and scientific articles for the class include the following and will be available electronically.

Gregory et al. 2012. Structured Decision Making: A practical guide to environmental management choices

Bunnefeld, N., Nicholson, E., & Milner-Gulland, E. J. (Eds.). (2017). Decision-Making in Conservation and Natural Resource Management: Models for Interdisciplinary Approaches (Vol. 22). Cambridge University Press.

Guntenspergen, G. R., & Gross, J. (2014). Threshold concepts: implications for the management of natural resources. In Application of threshold concepts in natural resource decision making (pp. 1-7). Springer, New York, NY.

Deal, K. H. (2016). 4th Edition. Wildlife and Natural Resource Management. Cengage Learning.

Recommended articles:

Cowling, R. M., A. P. Knight, D. P. Faith, S. Ferrier, A. T. Lombard, A. Driver, M. Rouget, K. Maze, and P. G. Desmet. 2004. Nature conservation requires more than a passion for species. *Conservation Biology* **18**:1674-1676.

Eagles, Paul F.J., McCool, Stephen F. and Haynes, Christopher D.A. (2002). Sustainable Tourism in Protected Areas: Guidelines for Planning and Management. IUCN Gland, Switzerland and Cambridge, UK. xv + 183pp

Groves, C.R., Game, E.T. 2015. Conservation Planning: Informed Decisions for a Healthier Planet. Roberts and Company Publishers Inc., Colorado, USA. 608 pp.

Open Standards for the Practice of Conservation, Version 3.0 (CMP 2007).

Parrish, J. D., D. P. Braun, and R. S. Unnasch. 2003. Are we conserving what we say we are? Measuring ecological integrity within protected areas. *Bioscience* **53**:851-860.

Pressey, R. L., and M. C. Bottrill. 2008. Opportunism, Threats, and the Evolution of Systematic Conservation Planning. *Conservation Biology* **22**:1340-1345.



POLICIES:

All courses are governed by the USFQ Student Manual which can be downloaded at [Manual del Estudiante](#).

ABOUT ELECTRONIC EQUIPMENT: Cell phones, ipods and other devices have to be switched off in class. You're allowed to use IPAD/computers only for taking notes.

ASSISTANCE: Come to class on time. Plus, field trips are mandatory. In the case of illness or any other justified cause, students can be relieved from the field trip and cover the qualification with additional tasks.

SCHEDULE OF ACTIVITIES:

WEEK	DATE	TOPIC	READINGS	ACTIVITIES
1	SEPT 30	Course Organization. Introduction to the Galápagos Islands. Lecture: Introduction to NRM, Why Strategic Planning?, and the conservation project cycle		Visit the Galapagos Interpretation Center
	OCT 1	Lecture: Introduction to conceptual models for conservation and main approaches for NRM and Strategic Planning Lecture: Introduction to Open Standards and Miradi	Salafsky et al. 2002 WCS 2004 FoS Training Manual Conroy and Peterson 2013.	Discussion: conceptual models for conservation Computer program: Introduction to Miradi Video: Galapagos and its environmental problems
	OCT 2	Lecture: The WHAT and WHERE: Identifying where and what to conserve, setting conservation goals	Polasky et al. 2008 Magris et al 2017 Butzmann&Job 2017	Galapagos conservation priorities Invited talk 1: GNP-Management Plan for the GPS and cons priorities Exercise in class: Identifying topics of interests and key questions for surveys
	OCT 3	Lecture: The HOW I: Planning for the protection of biodiversity targets Lecture: Identifying threats and mapping them, emphasis on invasive species and endemic species	Bastille et al. 2017 Lawson et al. 2017 Munanura et al 2013	Paper discussion Galapagos conservation priorities: species focus vs ecosystem focus Short field trip to the highlands and key conservation areas.
	OCT 4	Lecture: Introduction to strategic planning and tourism and history of tourism management in Galapagos	Edgell Sr, D. L and Swanson, J. R. (2018). Pizzitutti et al 2017	Paper discussion Exercise in class: working on first draft of conceptual models, threats and implementing surveys
	OCT 5 SATURDAY	FIELD TRIP TO ESPAÑOLA ISLAND		



2	OCT 7	Lecture: Population growth in Galapagos Lecture: The HOW II: Setting strategies	Magris et al 2017 Sullivan et al 2017	Paper discussion Invited talk 2: CGG- Planning for Galapagos Sustainability Exercise in class: finishing conceptual model
	OCT 8	Lecture: Strategic Planning for water and energy resources Lecture: Setting up a project proposal based on strategic planning	Magris et al 2017 Sullivan et al 2017	Paper discussion Field trip: water treatment plant and solid waste plant Conceptual Model Due 5 pm
	OCT 9	Lecture: Fisheries and Marine Spatial Planning	Castrejon&Charles 2013 Jones 2013 Da Luz et al 2018	Paper discussion Invited talk 3: GNP- MP and Fisheries Management in Galapagos
	OCT 10	Lecture: The HOW III: Monitoring for adaptive management	Conroy and Peterson 2013 Leung et al 2018	Paper discussion Invited talk 4: GNP- Tourism Monitoring of visitor sites Exercise: work on project proposal, causal chains
	OCT 11	Lecture: The HOW V: Evaluating success Lecture: Dealing with uncertainty in conservation planning	Buglass et al 2018 Vargas et al. 2007	Paper discussion Exercise: Developing the monitoring plan
	OCT 12 SATURDAY	Lecture: New approaches and perspectives for strategic planning for conservation	Morán-Ordóñez et al. 2017 Powell et.al. 2018	Paper discussion
3	OCT 14	Oral Presentation of research proposals		
	OCT 15-16	Work on write-up about project proposals		
	OCT 17	Write-up on research proposals due 11 am		
	OCT 18	Exam		

This syllabus was reviewed and approved by the academic coordinator of the major/department, such that all sections should follow this syllabus. If it is necessary to make changes/adjustments to the syllabus, please ask the academic coordinator so that the approved changes/adjustments are reflected in the Curriculum Design system.