Online Ethics Center
FOR ENGINEERING AND SCIENCE

Biology 611: Ethics of Biodiversity Conservation Syllabus

Author(s)

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Description

Bio 611: Ethics of Biodiversity Conservation is a syllabus for a one credit graduate course. Taught at Arizona State University, Bio 611 attracts a mix of natural science and humanities graduate students and does not assume students will have substantial experience in ethics. Beyond exploration of the topic of ethics of biodiversity conservation, the course aims to develop the ability of students to analyze ethical issues through the incorporation of case discussion and case writing.

Abstract

This syllabus is part of a larger collection of Life and Environmental Science ethics education resource sets on ethics of emerging biotechnologies, big data in the life sciences, human enhancement, and biodiversity. Doctoral students from Arizona State University's Center for Biology and Society developed the resources under the direction of Karin Ellison and Joseph Herkert between 2014 and 2019.

Body

Biology 611: Ethics of Biodiversity Conservation

Course Overview

In this course, we will contemplate the ethical aspects of subjects normally encountered in a conservation biology or ecology course. Topics will include assisted migration, ecosystem services, ex situ conservation, and more. Discussions will center on case studies through which we will reflect on some important cross-cutting themes in the ethics of biodiversity conservation, including questions of how to value biodiversity, issues about conflicting ways of protecting nature, tensions and tradeoffs between human development and biodiversity conservation, and concerns over governance and regulation of biodiversity conservation projects. The ethical analysis of biodiversity conservation requires an inquiry into past, present, and possible future frameworks for conservation, and their ethical, social, economic, legal, political, and ecological implications. It also requires recognition of the fact that social and cultural values influence the research and adoption of certain conservation tools and methods over others, as much as biodiversity and ecosystem conditions drive social and cultural changes.

Learning Outcomes

In this course, students will learn how to identify and evaluate the competing interests, potential benefits, and possible risks in case studies, as well as analyze crosscutting themes in the ethics of biodiversity conservation. These themes include: 1) questions about the appropriate way to value biodiversity (e.g., ecocentric, economic, etc.), 2) concerns about balancing biodiversity conservation goals with economic development, 3) issues in the governance of biodiversity and conservation programs, and 4) accounting for scientific uncertainty and the complexity of biodiversity and ecosystems. Students will be encouraged to incorporate different levels of analysis, critical perspectives, ethical principles, and competing values into a rigorous ethical analysis of biodiversity conservation.

Upon completion of this course students will be able to:

1. Participate in an ongoing discussion about the relationship between conservation biology, ecology, ethics, and society.
2. Understand the foundations of environmental ethics and apply them to current issues.
3. Recognize the ethical implications of their work as a developing conservation biologist and/or ecologist.

Requirements

The assignments are readings, short response papers, and a case or book review. Natural science and engineering graduate students typically prepare a case, while graduate students in humanities or social science programs typically prepare a book review. In week one or two of class, we will decide which formal writing assignment you will complete.

Readings

The Course Schedule gives the reading assignments. Students must complete readings before each class so that discussion can draw on knowledge of the readings. The reading materials will be posted on Black Board.

Response Papers

Each session students will write brief (1-page) response papers on the assigned readings. These informal essays should state the argument of each piece assigned and raise two issues for discussion. At least one point should be positive – i.e. discuss some fashion in which a reading for the week might serve as a model for scholarship. The response papers are due at each class session on paper.

Cases

Students are required to write a 1-page narrative, which can be a summary of an actual event or a hypothetical scenario, and four pages of ethical analysis. The analysis will follow a format that we will discuss during week one.

A draft is due via Blackboard AND in hard copy in class. Students will present their cases for class discussion. During the discussion, we will workshop the draft case. Final cases and case analyses, incorporating comments from class discussion, are due via Blackboard one week after the last class meeting.

Book Review

Students preparing book reviews will write a 4 to 5-page book or article review of humanistic or social science scholarship on the unit topic. Students will need to explore the literature beyond that assigned for class. The review should be modeled on those in *Science and Engineering Ethics, American Journal of Bioethics, Technology and Culture, ISIS*, or another similar type of academic journal. I must approve the book or articles you wish to review. If you don't know how to locate this kind of scholarship, I can give you tips. You will also need to submit a draft review for comments before the final submission.

Evaluation

Grades will generally be calculated as follows:

- Attendance, demonstrated knowledge of assigned readings, and thoughtful contributions to discussion: 20%
- 6 response papers: 30%
- Draft case or book review: 20%
- Final case or book review: 30%

	Percentage
A+	98-100%

A	93-97%
A-	90-92%
B+	87-89%
B	83-87%
B-	80-82%
C+	77-79%
C	70-76%
D	60-69%
E/F	0-59%

I reserve the right to assign any student a final grade that is higher than merited by strict calculation based on academic criteria, such as improvement in grades over the semester or atypical and explainable poor performance on a single assignment.

I accept late assignments only in rare circumstances. These include professional conflicts, traveling with a sports team, major and documented illnesses, personal and family crises, etc. Should any of these arise, you are responsible for discussing the circumstances with me ASAP, before the deadline if possible.

Likewise, incompletes will be given only in extraordinary circumstances. To receive an incomplete, you would work with me to prepare a written agreement specifying how and when all work for the course would be completed. This agreement would have to be signed before I submit grades at the end of term.

Student Conduct and Academic Integrity

Academic honesty is expected of all students in all examinations, papers, laboratory work, academic transactions, and records. The possible penalties include, but are not limited to, appropriate grade penalties, course failure indicated on the transcript as a grade of E, course failure due to academic dishonesty indicated on the transcript as a grade of XE, loss of registration privileges, disqualification, and dismissal. For more information, see http://provost.asu.edu/academicintegrity. Additionally, required behavior standards are listed in the Student Code of Conduct and Student Disciplinary Procedures, Computer, Internet, and Electronic Communications policy, and outlined by the Office of Student Rights and Responsibilities. Anyone in violation of these policies is subject to sanctions.

It would be especially pathetic to fail an ethics course for cheating!

Students are entitled to receive instruction free from interference by other members of the class. An instructor may withdraw a student from the course when the student's behavior disrupts the educational process per Instructor Withdrawal of a Student for Disruptive Classroom Behavior.

The Office of Student Rights and Responsibilities accepts incident reports from students, faculty, staff, or other persons who believe that a student or a student organization may have violated the Student Code of Conduct.

Accessibility Statement

In compliance with the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act as amended (ADAAA) of 2008, professional disability specialists and support staff at the Disability Resource Center (DRC) facilitate a comprehensive range of academic support services and accommodations for qualified students with disabilities.

Qualified students with disabilities may be eligible to receive academic support services and accommodations Eligibility is based on qualifying disability

documentation and assessment of individual need. Students who believe they have a current and essential need for disability accommodations are responsible for requesting accommodations and providing qualifying documentation to the DRC. Every effort is made to provide reasonable accommodations for qualified students with disabilities.

Qualified students who wish to request an accommodation for a disability should contact the DRC by going to https://eoss.asu.edu/drc, calling (480) 965-1234 or emailing DRC@asu.edu.

Course Schedule

Class 1: Introduction to the Ethics of Biodiversity of Conservation

ASSIGNED:

- Kloor, K. 2015. “The Battle for the Soul of Conservation Science.” *Issues in Science and Technology*. Winter. Available at: http://issues.org/31-2/kloor/
- Minteer, Ben A. and James P. Collins. “Ecological Ethics: Building a New Tool Kit for Ecologists and Biodiversity Managers.” *Conservation Biology* 19: 1803-1812.
- Tallis, Heather and Jane Lubchenco. 2014. “Working together: A call for inclusive conservation.” *Nature* 515: 27-28. Available at: https://www.nature.com/news/working-together-a-call-for-inclusive-conservation-1.16260

RECOMMENDED:

- Sarkar, Sahortra and Frank M. David. 2012. “Conservation Biology: Ethical Foundations.” *Nature Education Knowledge* 3(10): 3. Available at: https://www.nature.com/scitable/knowledge/library/conservation-biology-ethical-foundations-46518079
- Leopold, A. 1954. “The Land Ethic.” In *A Sand County Almanac*, 221-226. Oxford: Oxford University Press.

- Marris, Emma. 2011. Rambunctious Garden: Saving Nature in a Post-Wild World. New York, NY: Bloomsbury USA.

Class 2: Gene Drives

ASSIGNED:

- Specter, M. 2017. “Rewriting the Code of Life.” *The New Yorker*. January 2. Available at: http://www.newyorker.com/magazine/2017/01/02/rewriting-the-code-of-life
- Goldman, Jason G. 2016. “Harnessing the Power of Gene Drives to Save Wildlife.” *Scientific American*. September 14. Available at: https://www.scientificamerican.com/article/harnessing-the-power-of-gene-drives-to-save-wildlife/
- Oye, K., et al. 2014. “Regulating Gene Drives.” *Science* 345: 626-628.

RECOMMENDED:

- National Academies of Sciences, Engineering, and Medicine. 2016. *Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values*. Washington, DC: The National Academies Press. https://doi.org/10.17226/23405.
- Collins, James P. 2016. “How to Develop this cutting edge genetic research responsibly.” *Slate*, July 21. Available at: http://www.slate.com/articles/technology/future_tense/2016/07/gene_drive_technology_i

Class 3: Assisted Migration

ASSIGNED:

- Case Study: Assisted Migration
- Minteer, B. and J. P. Collins. 2010. “Move it or Lose it? The Ecological Ethics of Relocating Species Under Climate Change.” *Ecological Applications* 20(7): 1801-1804.
- Hunter, M. L., Jr. 2007. “Climate Change and Moving Species: Furthering the Debate on Assisted Colonization.” *Conservation Biology* 21: 1356-1358.

- Davidson, I., and C. Simkanin. 2008. “Skeptical of assisted colonization.” *Science* 322: 1048-1049.

RECOMMENDED:

- Schwartz, M. W., et al. 2012. “Managed Relocation: Integrating the Scientific, Regulatory, and Ethical Challenges” *BioScience* 62: 732–743. Available at: https://doi.org/10.1525/bio.2012.62.8.6
- Richardson, D. M., et al. 2009. “Multidimensional evaluation of managed relocation.” *PNAS* 106: 9721-9724.

Class 4: Zoos: Ark or Prison?

ASSIGNED:

- Siebert, Charles. 2014. “The Dark Side of Zootopia.” *New York Times*, November 18. Available at: https://www.nytimes.com/2014/11/23/magazine/the-dark-side-of-zootopia.html
- Block, Melissa. 2005. “The Ethics of the Zoo.” *NPR*, May 19. Available at: http://www.npr.org/templates/story/story.php?storyId=4658985
- Minteer, Ben A., and James P. Collins. 2013. “Ecological Ethics in Captivity: Balancing Values and Responsibilities in zoo and Aquarium Research under Rapid Global Change.” *ILAR Journal* 54: 41-51.
- Please look over the conservation webpage for the Association of Zoos and Aquariums: https://www.aza.org/conservation

RECOMMENDED:

- Conway, W. 1995. “Zoo Conservation and Ethical Paradoxes.” In *Ethics on the Ark*, edited by B. G. Norton, M. Hutchins, E. F. Stevens, and T. L. Maple, 1-9. Washington D. C.: Smithsonian Institution Press.
- Beckoff, Marc. 2016. “Why was Harambe the Gorilla in a Zoo in the First Place?” *Scientific American*, May 31. Available at: https://blogs.scientificamerican.com/guest-blog/why-was-harambe-the-gorilla-in-a-zoo-in-the-first-place/

Class 5: Ecosystem Services: Ecotourism

ASSIGNED:

- Case Study: Ecotourism
- Kiss, A. 2004. Is community-based ecotourism a good use of biodiversity conservation funds?" *TRENDS in Ecology and Evolution* 19(5): 232-237.
- Donohoe, Holly M. and Roger D. Needham. 2006. “Ecotourism: The Evolving Contemporary Definition.” *Journal of Ecotourism* 5: 192-210
- Kaplan, K. 2015. "How ecotourists actually make things worse for wildlife." *LA Times*, October 9. Available at: http://www.latimes.com/science/sciencenow/la-sci-sn-ecotourist-makes-things-worse-for-wildlife-20151009-story.html

RECOMMENDED:

- Bjork, P. 2000. “Ecotourism from a Conceptual Perspective, an Extended Definition of a Unique Tourism Form.” *International Journal of Tourism Research* 2: 189-202.
- Holden, A. 2003. “In need of a new environmental ethics for tourism?” *Annals of Tourism Research* 30: 94-108.
- McCauley, D. J. 2006. “Selling Out on Nature.” *Nature* 443: 27-28.
- Ceballos-Lascuráin, H. 1996. Tourism, Ecotourism, and Protected Areas: The State of Nature-Based Tourism around the World and Guidelines for its Development. Gland, Switzerland: IUCN.
- He, G., X. Chen, W. Liu, S. Bearer, S. Zhou, L. Y. Cheng, H. Zhang, Z. Ouyang, and J. Liu. 2008. “Distribution of Economic Benefits from Ecotourism: A Case Study of Wolong Nature Reserve for Giant Pandas in China.” *Environmental Management* 42: 1017-1025.

Class 6: Biodiversity and Health

ASSIGNED:

- Case Study: Biodiversity and Human Health

- Keesing, F. and R. S. Ostfeld. 2015. “Is Biodiversity Good for Your Health?” *Nature* 349: 235-236.
- Keesing, F., L. K. Belden, P. Daszak, A. Dobson, C. D. Harvell, R. D. Holt, ... and S. S. Myers. 2010. “Impacts of Biodiversity on the Emergence and Transmission of Infectious Diseases.” *Nature* 468: 647-652.
- Wood, C. L., et al., 2014. “Does Biodiversity Protect Humans Against Infectious Disease?” *Ecology* 95: 817-832.

RECOMMENDED:

- World Health Organization. 2016. “Climate Change and Human Health: Biodiversity.” Available at: http://www.who.int/globalchange/ecosystems/biodiversity/en/
- Millennium Ecosystem Assessment. 2005. *Ecosystems and Human Well-Being: Synthesis*. Washington, D.C.: Island Press.
- Sandifer, P. A., A. E. Sutton-Grier, and B. P. Ward. 2015. “Exploring Connections Among Nature, Biodiversity, Ecosystem Services, and Human Health and Well-Being: Opportunities to Enhance Health and Biodiversity Conservation.” *Ecosystem Services* 12: 1-15
- Barclay, E. 2012. “As Biodiversity Declines, Tropical Diseases Thrive.” *NPR Public Health*, December 29. Available at: http://www.npr.org/sections/health-shots/2012/12/29/168210441/as-biodiversity-declines-tropical-diseases-thrive

Class 7: Conservation in the Amazon: Protected Areas, Deforestation, and Governance

ASSIGNED:

- Case Study: Conservation in the Amazon
- Malhi, Y., J. T. Roberts, R. A. Betts, T. J. Killeen, W. Li, and C. A. Nobre. 2008. “Climate Change, Deforestation, and the Fate of the Amazon.” *Science* 319: 169-172.
- The Economist. 2009. “The Amazon: The Future of the Forest.” *The Economist*, June 11.

- Tollefson, J. 2015. “Stopping Deforestation: Battle for the Amazon.” *Nature News*, April 1. Accessed July 25, 2016. http://www.nature.com/news/stopping-deforestation-battle-for-the-amazon-1.17223

RECOMMENDED:

- Nordhaus, T., and M. Shellenberger. 2009. “The Forest for the Trees.” In *Break Through: Why We Can’t Leave Saving the Planet to Environmentalists*, 41-65. Boston, MA: Mariner Books.
- Garcia-Navarro, L. 2015. “Deep in the Amazon, an Unseen Battle Over the Most Valuable Trees.” *NPR*, November 4.

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Resource Type

Instructor Materials

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Biodiversity and Conservation Ethics Collection

Topics

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Sustainability

Discipline(s)

Ecology and Evolutionary Biology
Life and Environmental Sciences