TEXAS A&M UNIVERSITY

# SYLLABUS

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| Course title and number | Applied Biodiversity II (ABSII) |
| Term | Spring 2016 |
| Meeting times and location | TBD |

## Course Description and Prerequisites

**Course Description**
The most important forest, land and water conservation issues around the world are the result of complex processes driven by human societies. Successfully addressing these problems will require accurate scientific information, effective policies and innovative governance arrangements. ABSII is a graduate course being offered as part of the Applied Biodiversity Science Program that will explore the ***practice*** of biodiversity science through the examination of real world conservation interventions by different actors and at different scales and their impact on biodiversity conservation and improved livelihoods. Conservation frameworks set forth by international conventions, nation-states policies, NGO programs and community-based initiatives will be examined and students will be encouraged to think about the policy and governance implications of their own research as well as to embed their work in the prism of these different frameworks and theories. The main goal of ABSII is to build cross-disciplinary awareness of biodiversity conservation practices and their theoretical foundations.

**Prerequisite**: Graduate classification

**Course requirements**:

- Attend all seminar meetings.
- Read all required material, and complete all assigned homework.
- Participate actively in discussions.
- Lead one week's discussions.
- Participate in group project.
- Develop final project.

**Email will be the primary means of communication for the course**. Check your email frequently and keep you inbox below quota!

## Learning Outcomes

Our goal in this course is to build cross-disciplinary awareness of the practice of biodiversity conservation. Specific learning objectives include:

1. Develop the skill set to assess the policy drivers and governance responses across a range of ecological threats that affect biodiversity conservation.
2. Understand the role of policy advisors and policy brokers and how to develop and present scientific information to policy makers.
3. Design policy briefs based on students' interests and research.
4. Students will improve their ability to work in an interdisciplinary setting and consider the different perspectives of conservation actors.

## Instructor Information


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| Name | Dr. Patrick Bixler / Dr. Patricia Baião |
| Telephone number | (806) 407-0115/(979) 845-2114 |
| Email address | patrick.bixler@ag.tamu.edu/patricia.baiao@tamu.edu |
| Office hours | TBD |
| Office location | Old Heep 401 |


## Grading Policies

**Participation (20 pts.):** You will be expected to attend all seminar meetings and to contribute thoughtfully to discussion. Seminar participation will be evaluated on the basis of the consistent quality of your interventions and professional contributions to the class. "Quality" contribution in this context includes demonstration of careful preparation for class and insightful engagement with the theoretical material. "Professional" contribution includes helping maintain a fruitful and respectful discussion.

**Facilitation of discussion (20 pts.)**: Each of you will be responsible for facilitating one of the weekly topics. You will work in pairs. Preparation will include reading and synthesizing the main messages from that week's readings, building a discussion plan, and guiding our conversation.

As part of the facilitation, one-page commentaries for each reading assigned are to be prepared for the week. These commentaries should be concise and tightly focused on some aspect or related aspects of the reading that can serve as basis for seminar discussion. The commentaries should be handed **in hardcopy** to the instructors and posted for electronic distribution to the rest of the class by 9 A.M. on the day of the class of each week.

**Final Project (50 pts):** For this assignment you will assume the role of a policy advisor. You will focus on a topic of professional interest (for many of you this will be your thesis or dissertation research topic) and develop policy and governance suggestions of the environmental problem of your focus. The project has two parts: 1) policy proposal and 2) presentation. The policy proposal will present the problem based on scientific evidence and make informed policy and governance suggestions. Your policy suggestions will be presented to a panel of "policy-makers".

**Group Project (10 pts):** A group of 3-4 students will make up a "policy panel" that will assess the policy proposals presented by your peers. Each panel will be responsible for responding to the final policy proposals developed and presented by your peers.

## Attendance and Make-up Policies

Students are expected to attend all seminar meetings. Absences for previously scheduled activities will only be excused if they are communicated well in advance. If you have not discussed an absence with one of the instructors ahead of time, it will be considered unexcused unless proper documentation is provided. See http://student-rules.tamu.edu/rule07

Prompt completion of work in this class is important. Past due assignments will receive 50% credit if completed and handed in within 24 hours of the due date, after which it will receive grade zero. Late work will only be accepted without penalty if under University Excused Absence rules (http://student-rules.tamu.edu/rule07). We will grant extensions in situations not covered by university rules only in extenuating circumstances, and only if you contact us before the due date for the assignment.

**Course Topics, Calendar of Activities, Major Assignment Dates**

| Week | Topic | Required Reading |
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| 1 (Jan 19) | Introduction: Science to Policy and Governance | Lubchenco, J. 1998. Entering the century of the environment: a new social contract for science. Science 279: 491-497.<br><br>Campbell, C. A., E. C. Lefroy, S. Caddy-Retalic, N. Bax, P. J. Doherty, M. M. Douglas, D. Johnson, H. P. Possingham, A. Specht, D. Tarte, and J. West. 2015. Designing environmental research for impact. Science of the Total Environment 534: 4-13.<br><br>Michaels, S. 2009. Matching knowledge brokering strategies to environmental policy problems and settings. Environmental Science and Policy 12: 994-1011.<br><br>Pullin, A. S., T. M. Knight, and A. R. Watkinson. 2009. Linking reductionist science and holistic policy using systematic reviews: unpacking environmental policy questions to construct an evidence-based framework. Journal of Applied Ecology 46: 970-975.<br><br>Wyborn, C. 2015. Co-productive Governance: A relational Framework for Adaptive Governance. Global Environmental Change, 30: 56-67. *Policy Sciences:* 48(3): 363-382.<br><br>Fischer, M. and P. Leifeld. 2015. Policy forums: why do they exist and what are they used for? Policy Sci. 48: 363-382. |
| 2 (Jan 26) | Climate Change Policy and Governance I | Guide to UN Climate Change process - http://bigpicture.unfccc.int/<br><br>Borie, M. and M. Hume. 2015. Framing global biodiversity: IPBES |

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| | | between mother earth and ecosystem services. Environ. Sci. and Policy 54: 487-496.<br><br>http://www.newyorker.com/magazine/2015/08/24/the-weight-of-the-world<br><br>Olsen, K. H. 2007. The clean development mechanism's contribution to sustainable development: a review of the literature. Climatic Change 84: 59-73<br><br>McRight, A. M., and Dunlap, R. E. 2003. Defeating Kyoto: the conservative movement's impact on US Climate Change policy. Social Problems 50(3): 348-373.<br><br>Michele Betsill, K. Navroz, M. P. Dubash, H. van Asselt, A. Vihma, and H. Winkler. Building Productive Links between the UNFCCC and the Broader Global Climate Governance Landscape. Global Environmental Politics 15(2): 1-10.<br><br>Kim, R.E. 2013. The Emergent Network Structure of the Multilateral Environmental Agreement System. Global Environmental Change, 23 (5): 980-991. |
| 3 (Feb 2) | Climate Change Policy and Governance II | Canadell, J. G., and M. R. Raupach. 2008. Managing forests for climate change mitigation. Science 320: 1456-1457.<br><br>Engel S., S. Pagiola, and S. Wunder. 2008. Designing payments for environmental services in theory and practice: an overview of the issues. Ecological Economics 65: 663-674.<br><br>Newell, R. G., W. A. Pizer, and D. Raimi. 2014. Carbon market lessons and global policy outlook. Science 343: 1316-1317.<br><br>Cullenward, D. and M. Wara. 2014. Carbon markets: effective policy? Science 344(6191): 1460-1460.<br><br>Caron, J., S. Raush, and N. Winchester. 2015. Leakage from sub- |

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| | | national climate policy: the case of California's cap-and-trade program. The Energy Journal 36(2): 167-190.<br><br>Sunderlin W.D., A. D. Ekaputri, E. O. Sills, A. E. Duchelle, D. Kweka, R. Diprose, N. Doggart, S. Ball, R. Lima, A. Enright, J. Torres, H. Hartanto and A. Toniolo. 2014. The challenge of establishing REDD+ on the ground: Insights from 23 subnational initiatives in six countries. Occasional Paper 104. Bogor, Indonesia: CIFOR.<br><br>Thompson, M.C., M. Baruah, E.R. Carr. 2011. Seeing REDD+ as a project of Environmental Governance. Environmental Science and Policy, 14: 100-110. |
| 4 (Feb 9) | Biodiversity Policy and Governance I | Global Biodiversity Outlook 4 - https://www.cbd.int/gbo/gbo4/publication/gbo4-en-hr.pdf<br><br>Tittensor, D., M. Walpole, S. L. L. Hill, D. G. Boyce et al. 2014. A mid-term analysis of progress toward international biodiversity targets. Science 346(6206): 241-244.<br><br>Carolan, and S. Michael. 2008. The Politics in Environmental Science: The Endangered Species Act and The Preble's Mouse Controversy. Environmental Politics 17(3): 449-465.<br><br>Rodrigues, A. S. L., J. D. Pilgrim, J. F. Lamoreux, M. Hoffmann, and T. M. Brooks. 2006. The value of the IUCN Red List for conservation. TRENDS in Ecology and Evolution 21(2): 71-76.<br><br>Shaffer, Mark. 2016. Policy Challenges for Wildlife Management in a Changing Climate. In *Forest Conservation in the Anthropocene: Adaptation of Science, Policy, and Management.* Edited by Alaric Sample, Patrick Bixler, and Char Miller. University Press of Colorado. |

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| 5 (Feb 16) | Biodiversity Policy and Governance II | Bruner, A. G., R. E. Gullison, R. E. Rice, G. A. B. Fonseca. 2001. Effectiveness of parks in protecting tropical biodiversity. Science 291: 125-128.<br><br>ARPA Project - http://programaarpa.gov.br/en/uncategorized/what-is-arpa-3/<br><br>Brockington, D., and D. Wikie. 2015. Protected Areas and Poverty. Phil. Trans. R. Soc. B 370: 20140271.<br><br>Agrawal, A. 1999. Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. World Development 27(4): 629-49.<br><br>Alexander, S. M. and D. Armitage. 2015. A Social Relational Network Perspective for MPA Science. Conservation Letters 8: 1-13.<br><br>Caro, T. et al. 2016. Terrestrial Protected Areas: Threats and Solutions. *In Forest Conservation in the Anthropocene: Adaptation of Science, Policy, and Management.* Edited by Alaric Sample, Patrick Bixler, and Char Miller. University Press of Colorado |
| 6 (Feb 23) | Invasive species Policy and Governance | Evans, A. 2016. Invasive plants, insects, and diseases in the Forests of the Anthropocene. In *Forest Conservation in the Anthropocene: Adaptation of Science, Policy, and Management.* Edited by Alaric Sample, Patrick Bixler, and Char Miller. University Press of Colorado.<br><br>Bradley, B.A., D. M. Blumenthal, R. Early et al. 2011. Global change, global trade, and the next wave of plant invasions. Frontiers in Ecology and the Environment 10(1): 20-28.<br><br>Lodge, D.M., S. Williams, H. J. MacIsaac et al. 2006. Biological invasions: recommendations for U.S. policy and management. Ecological Applications 16(6): 2035-2054. |

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| 7 (Mar 1) | Sustainable Development agenda | Griggs D., M. Stafford-Smith, O. Gaffney, J. Rockström, M. C. Öhman, P. Shyamsundar, W. Steffen, G. Glaser, N. Kanie and I. Noble. 2013. Policy: Sustainable development goals for people and planet. Nature 495: 305–307.<br><br>Colglazier, W. 2015. Sustainable development agenda: 2030. Science magazine 349(6252): 1048-1050.<br><br>Barrutia, J. M., C. Echebarria, M. R. Paredes, P. Hartmann, and V. Apaolaza. 2015. From Rio to Rio+20: twenty years of participatory, long term oriented and monitored local planning? Journal of Cleaner Production 106: 594-607.<br><br>Integrated Landscape Management: The means of implementation for the sustainable development goals – Landscapes for People, Food, and Nature Initiative. http://ecoagriculture.org/wp-content/uploads/2015/09/ILM-for-the-SDGs-Two-Page-Statement-Sept-21-2015-FINAL-FINAL.pdf |
| 8 (Mar 8) | Water Policy and Governance | Pahl-Wostl, C., C. Voeroesmarty, A. Bhaduri et al. 2013. Towards a sustainable water future: shaping the next decade of global water research. Current Opinion in Environmental Sustainability 5(6): 708-714.<br><br>Christian-Smith, J., P. H. Gleick, and H. Cooley. 2011.U.S. water policy reform. In *The World's Water: the biennial report on freshwater resources,* Volume 7.<br><br>Abers, R. N. and M. E. Keck. 2006. Muddy waters: the political construction of deliberative river basin governance in Brazil. International Journal of Urban and Regional Research 30.3: 601-622. |
| 9 (Mar 15) | Spring Break | |

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| 10 (Mar 22) | Land Use Change Policy and Governance I | Foley, J. A., R. DeFries, G. P. Asner, C. Barford, G. Bonan, S. R. Carpenter, F. S. Chapin, M. T. Coe, G. C. Daily, H. K. Gibbs, J. H. Helkowski, T. Holloway, N. Ramankutty, and P. K. Snyder. 2005. Global consequences of land use. Science 309: 570-574.<br><br>Dale, V. H., S. Brown, R. A. Haeuber, N. T. Hobbs, N. Huntly, R. J. Naiman, W. E. Riebsame, M. G. Turner, and T. J. Valone. 2000. Ecological principles and guidelines for managing the use of land. Ecological Applications 10(3): 639-670.<br><br>Baynes, Jack, John Herbohn, Carl Smith, Roberth Fisher, and David Bray. 2015. Key factors which influence the success of community forestry in developing countries. Global Environmental Change 35: 226–238.<br><br>Curtin, 2015. The Science of Open Spaces: Theory and Practice for Conserving Large Complex Systems. (Book) |
| 11 (Mar 29) | Private Land and Working Across Boundaries: Policy and Governance | Rissman, A.R., L. Lozier, T. Comendant, P. Kareiva, J.M. Kiesecker, M. R. Shaw, and A. M. Merenlender. 2007. Conservation easements: biodiversity protection and private use. Conservation Biology 21(3): 709-718.<br><br>Stuart D, and S. Gillon. 2013. Scaling up to address new challenges to conservation on US farmland. Land Use Policy. 31: 223-236.<br><br>Tollefson, J. 2011. Brazil revisits forest code. Nature 476(7360): 259-260.<br><br>Scarlett, L., R.P. Bixler, M. McKinney. 2016. Network Governance and Large Landscape Conservation. Frontiers in Ecology and Environment: A Special Issue. |

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| 12 (Apr 5) | Guest Speaker | |
| 13 (Apr 12) | Policy Advisory | Sutherland, W. J., Spiegelhalter D., and Burgman, M. A. 2013. Twenty tips for interpreting scientific claims. Nature 503: 335-337.<br><br>http://www.theguardian.com/science/2013/dec/02/scientists-policy-governments-science<br><br>Gluckman, P. 2014. The art of science advice to government. Nature 507: 163-165.<br><br>Sutherland, W. J., Armstrong-Brown S., Armsworth P. R. et al. 2006. The identification of 100 ecological questions of high policy relevance in the UK.<br><br>Sarewitz, D. 2004. How science makes environmental controversies worse. Environmental Sci. and Policy 7: 385-403. |
| 14 (Apr 19) | Final Assignment presentations | |
| 15 (Apr 26) | Final Assignment presentations | |
| 16 (May 3) | Course conclusion | |

**Americans with Disabilities Act (ADA)**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 845-1637. For additional information visit http://disability.tamu.edu

**Academic Integrity**

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