



The University of Georgia

University Council
Athens, Georgia 30602

March 26, 2010

UNIVERSITY CURRICULUM COMMITTEE – 2009-2010

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Dear Colleagues:

The attached proposal for the following new majors will be an agenda item for the April 2, 2010, Full University Curriculum Committee meeting.


Integrative Conservation and Anthropology (Ph.D.)

Integrative Conservation and Ecology (Ph.D.)

Integrative Conservation and Forestry and Natural Resources (Ph.D.)

Integrative Conservation and Geography (Ph.D.)

Sincerely,


David E. Shipley, Chair
University Curriculum Committee

cc: Professor Jere W. Morehead
Dr. Laura D. Jolly

THE UNIVERSITY SYSTEM OF GEORGIA
NEW PROGRAM PROPOSAL

School/College/Division/Institute	University of Georgia
Departments	Anthropology, Ecology, Forestry and Natural Resources, Geography
Name of Proposed Program	Integrative Conservation
Degree	PhD
Major	Integrative Conservation and Anthropology Integrative Conservation and Ecology Integrative Conservation and Forestry and Natural Resources Integrative Conservation and Geography
CIP Code	
Starting Date	Fall 2010

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Program description and objectives

The purpose of this document is to propose a new PhD program in Integrative Conservation. An *integrative* program incorporates many fields and disciplines, creating synergies across them, yet respecting the integrity of each. At the same time, an integrative approach seeks to bring together academics and practitioners to craft collaborative research agendas that can be applied to pressing problems, share insights, and expose students to real-life conservation experiences. Finally, integrative conservation research is a process, not an endpoint; it is *integrative*, not *integrated*. That is, it does not seek a singular paradigm that claims to provide exclusive insights into complex conservation problems. Instead, the integrative perspective accepts and embraces the value that accrues from considering a diversity of ways of perceiving and analyzing complex conservation issues.

The University of Georgia is well-positioned to create the premier Integrative Conservation program in the United States by bringing together existing faculty and resources and building integrative mechanisms to promote active exchange. Though other universities have graduate programs in natural resource management and conservation science, none offers students the integrative approach we are proposing, which links natural and social sciences and builds collaborative exchanges between academics and practitioners.

This proposed program has been designed with the goal of ensuring that students gain both focused disciplinary expertise and a broad integrative perspective. We envision this program as being linked to a series of existing disciplines (Anthropology, Ecology, Forestry and Natural Resources, Geography, Law/Policy). At this time we are asking for the creation of four new major codes: (1) Integrative Conservation and Anthropology; (2) Integrative Conservation and Ecology; (3) Integrative Conservation and Forestry and Natural Resources; and (4) Integrative Conservation and Geography. The degree will be inscribed, “doctor of philosophy.”

The proposed doctoral program in Integrative Conservation directly addresses elements of the mission and strategic plan of the University of Georgia. The mission calls for the university to play a leading role in the “conservation and enhancement of the state's and nation's intellectual, cultural and environmental heritage” and to prepare students for “participation in the global society of the twenty-first century.” The proposed program will engage with issues of conservation and development that are critical for the next generation of scholars and practitioners to address. At the same time, the program will address UGA’s strategic goals of creating premier graduate programs, fostering creative/innovative work and research, strengthening ties between the university and external constituents, and creating leading outreach programs to extend expertise to the people of the state and beyond.

The proposed program arose from the recognition that conservation professionals trained across multiple disciplines and able to work across a variety of groups and constituencies were much needed. Conservation problems are complex and multifaceted and require expertise from both natural and social sciences. They require professionals who can work in complex situations, with many different types of people and often with limited information. This program is geared toward training both practitioners and academics and emphasizes holistic and critical thinking by using case-based learning as a major pedagogical component.

We also believe that this program will contribute to the University's effort to reach out to underserved populations by drawing both domestic minority populations and international students. We will make a concerted effort to enroll a significant percentage of students from developing countries in each incoming class and will seek foundation and governmental funds to support these students during their tenure at UGA

The facilities and faculty of the University of Georgia provide an excellent base for this program. As described below, the Integrative Conservation program will pull existing resources together, create synergies amongst faculty and students from different disciplines, and draw the highest caliber students. The curriculum is unique because it features core courses that are integrative in nature and because it draws on "real world" case studies for the learning experience.

By drawing on existing resources, this program can be created with just the addition of an academic coordinator, an administrative assistant¹, and five TA, RA, GRA, or GSO lines. At this time, we do not anticipate the need for an increase in state appropriation, merely a reallocation of existing resources. We also expect that some of these costs will be covered by outside grant, which we are actively seeking. We believe this program will draw high caliber students, and we plan to enroll ten new PhD students each year. Students not funded by one of the five requested lines will be funded by their major professors through grant funding or by their home departments.

Justification and need for the program

Significant environmental problems and issues have social and natural science dimensions. Within the state of Georgia, many examples could be cited:

1. *Water management.* Water is a critical, and often limiting, resource for human-dominated and natural ecosystems. The boundaries for water management decisions are, for various purposes, both physical river basins and political/economic districts. In order for research to inform decision-makers, natural scientists must be able to address such questions as, "What are the environmental consequences of inter-basin water transfer?" Social scientists must be able address corollary questions, such as, "How can stakeholders in different communities balance their self-interest in keeping water within their basin with the need to consider giving up water to communities residing outside their basin?" Other water management examples could be cited, such as: Why and where should reservoirs be located; how should aquifer water be allocated and how should the recharge surface recharge areas best be protected; how can social and natural science information help communities to better understand and deal with water pollution and waste water treatment in ways that consider economics, ecological, health and equity issues?
2. *Land use.* State-wide, a major goal that is strongly supported by state and local legislators and by the general public is the creation and protection of "green space". Cross-disciplinary information will be needed to inform a holistic green space agenda given that green space provides social, economic, and environmental benefits – yes its creation and management involve other land use trade-offs. In urban areas, green space takes the form of riparian

¹ This position will be dedicated half-time to this program and half-time to other administrative duties. Half of the salary is included in this program's budget.

forest and wetlands, large parks such as Piedmont Park as well as neighborhood pocket parks. These green spaces intercept storm water and increase infiltration into ground water. The enormous economic destruction caused by the Atlanta flood in the fall of 2009 was exacerbated by a watershed that was dominated by impervious concrete and asphalt that generated more storm water energy, while disproportionately lacking in green space that absorbs storm water. These green spaces also have surprisingly large value to wildlife, especially for birds. For example, most of the birds that migrate through Georgia in the spring have been recorded in the small “pocket park” near the Omni Center in downtown Atlanta. Green spaces also provide important recreational and quality of life amenities but are disproportionately located in the more affluent parts of cities despite the fact that much abandoned land in poorer sections could easily be renovated into green space. Many other land use examples that require integrated information from several disciplines could be cited. Some examples include: the need to plan for future coastal development in the context of sea level rise and salt water intrusion of ground water, the conversion of low income land use in Georgia’s poorer counties into higher income generating and more environmentally sustainable uses, among others.

Doctoral programs train students to become productive high level research investigators; however, to maintain a high level of productivity, graduates must be successful at obtaining external funds for their research. The major sources of research funds for conservation work are federal agencies such as NSF, NASA, NOAA, USDA-NRI, USGS, and USAID. These agencies explicitly recognize and value integrative proposals. A major example is the NSF-funded Long Term Ecological Research site program (LTER) providing large multi-year support for site- and region-based projects. UGA is in a prominent national position in that two LTER programs are led from campus – Coweeta LTER and Georgia Coastal Ecosystem LTER. In the last several years, the LTER program at NSF has steadily increased support at the project level for social science research and its integration with natural science research. This represents the initial steps of the push across all divisions within NSF to foster integrative social and natural science research, as evidenced by a suite of new funding opportunities and calls for proposals. The lead Principal Investigator for the Coweeta LTER is an anthropologist, and the project has a strong social research component drawn from Geography, Forestry and Natural Resources, and Ecology. The integrative approach of the Coweeta LTER has positioned the project to take full advantage of changes in the national funding landscape, and we fully believe that our proposed integrative conservation program will build from such foundations to produce graduates who will have a comparative advantage in competing successfully for external grants.

2. Indicate the student demand for the program in the region served by the institution. What evidence exists of this demand?

Applicants to the graduate programs in Anthropology, Ecology, Forestry and Natural Resources, and Geography generally indicate conservation as a major interest. Indeed, at the Odum School of Ecology it is rare that applicants do not include conservation as a major interest, and many indicate a desire to enter the ecology program because it has a strong conservation component. The same is true for applicants to the natural resource programs in the Warnell School of Forestry and Natural Resources. Anthropology faculty recognized this student demand 20 years ago when they designated “ecological anthropology” as the department’s programmatic focus.

A similar program at Texas A&M University received 15 and 16 applications in its first two years, respectively, and is expecting 30-40 for its third year. We believe that our program has several competitive advantages over the Texas A&M program, which is further described below, and that we can expect at least a similar number of applications.

3. Give any additional reasons that make the program desirable (for example, exceptional qualifications of the faculty, special facilities, etc.)

The University of Georgia's mission includes playing a leading role in the "conservation and enhancement of the state's and nation's intellectual, cultural and environmental heritage." The proposed program in Integrative Conservation would make significant contributions to that portion of the mission both by preparing the next generation of conservation leadership and through direct engagement to conserve and enhance the natural heritage of Georgia and the southeast. The UGA mission furthermore strives to prepare students for "participation in the global society of the twenty-first century." Issues of conservation and development are critical now and will continue to be in the future. Creative approaches are increasingly important with climate change and global population growth likely to put additional pressure on the world's remaining species, habitats, and resources. This integrative program will provide an avenue for the University of Georgia to train students who will be able to understand and confront the complexity of such problems and who will thus be poised to make significant contributions to global society.

The proposed PhD program in Integrative Conservation also directly addresses several of the goals of the University of Georgia's strategic plan. Foremost among them is the University's desire to create *premier graduate programs*. The proposed PhD program would be the first in the country to offer broad and integrative training in conservation science while also ensuring the acquisition of disciplinary expertise in sufficient depth. We believe that this rigorous program will draw the highest caliber students and will raise the profile of the University of Georgia in domestic and international conservation and development communities. We will achieve this by drawing on the university's existing strengths and promoting new synergies among them. The University of Georgia strives to foster *creative/innovative work and research*. The proposed program will meet that goal in several ways. First, it will bring together people from many different academic disciplines to conduct research on the same projects and problems. At the same time, it also bridges different fields of practice, bringing together both academics and practitioners to collaboratively define research priorities. Second, this program will use a case study instructional methodology in at least one of its core courses. Students and faculty from different backgrounds will work together to parse and analyze the same datasets. Doing so will allow them to understand how others approach similar problems and will prepare them for working in interdisciplinary teams after graduation. This program will encourage innovation in research and teaching, not only through work on specific projects and through courses but also by creating an intellectual community around these ideas. It will do so by creating seminars to facilitate peer-review of research projects, hosting a speaker series, and providing a physical space for students and faculty to interact. Third, the University strategic plan includes *strengthening ties between the university and external constituents*. Through the required internship, a practitioner-in-residence program, and research collaborations, this PhD program

will strengthen ties between the university and government agencies and NGOs concerned with conservation and development issues. Through the core course that involves a local practicum, the program will also strengthen ties with communities in Georgia and the southeast. Finally, this program will aid in the goal of creating *leading outreach programs to extend expertise to the people of the state and beyond*. Through the practicum, internships, and research collaborations both students and faculty will bring their expertise to pressing issues of conservation, development, and resource management at home and abroad.

The University of Georgia is a natural home for an Integrative Conservation PhD program given its existing disciplinary strengths. The Odum School of Ecology is regarded as one of the top institutions in the country for ecological research, and many of its faculty and students conduct research on issues of importance to conservation. The School and its centers – the River Basin Center and the Center for Biodiversity and Ecosystem Processes – all provide first class facilities for students and faculty to approach pressing questions in conservation. The Daniel B. Warnell School of Forestry and Natural Resources offers expertise in linking economic analysis with ecological data to improve the management of ecosystems. Geography’s Center for Remote Sensing and Mapping Science provides training and services in many areas relevant to conservation planning and implementation, including remote sensing/digital image processing, digital photogrammetry, image interpretation, geographic information systems (GIS), and Global Positioning System (GPS) surveys. The Center for Integrative Conservation Research (CICR) brings together a variety of disciplines to help identify conservation practices and policies that simultaneously preserve biodiversity and serve human needs. CICR promotes the synthesis of social and biological science research methods and conceptual approaches in conservation through an integrative approach to conservation research. In Anthropology, UGA research on landscape history, human dimensions of environmental change, collaborative social science research methods, and environmental ethics is advancing the ways in which we understand linkages between humans and the environment.

In addition to UGA’s internal strengths, its external collaborations also make the University an ideal place for a PhD in Integrative Conservation. The Center for Integrative Conservation Research has established research relationships with such NGOs at World Wildlife Fund, the Wildlife Conservation Society, and Conservation International. Several individual faculty members also have relationships with these and other NGOs, including the Georgia branch of The Nature Conservancy. These partnerships will provide internship opportunities for students as well as providing them access to field sites in which these conservation organizations work.

Finally, the proposed program also benefits from the University’s partnership in the Advancing Conservation in a Social Context (ACSC) initiative, funded by the John D. and Catherine T. MacArthur Foundation. This interdisciplinary initiative focuses on improving the practice of conservation, recognizing that its social and ecological elements are inextricably intertwined. ACSC has generated case study data and created a framework for analyzing conservation trade-offs, and the linkage with ACSC can be used not only to incorporate these case studies and this framework into the Conservation curriculum, but also to leverage institutional connections and funding outside the University.

4. Include reports of advisory committees and consultants, if available. For doctoral programs, the institution should involve at least three authorities in the field (outside of the institution) as consultants, and should include their reports as a part of the proposal.

Outside advisors have all been extremely favorable toward this proposed program. For example, a Senior Vice President of the Wildlife Conservation Society, Dr. Joshua Ginsberg, says:

“The proposed Ph. D. program at U.Ga. could not be more timely, and important . . . there is clearly a need for practitioners who are trained in a diverse set of academic disciplines, and who are able to work with others to meet the complex demands inherent in conservation today. Clearly, the University of Georgia, with its diverse and deep expertise in ecology, forestry, anthropology, and other fields relevant to conservation, is well placed to be at the center of such a program.”

Similarly, Dr. W.M. Adams, Moran Professor of Conservation and Development at Cambridge University, writes:

“It is my view that, if advances are to be made in conservation and development, graduate students need to be trained in a wholly new way. It is no good training natural scientists and hoping that they can pick up knowledge of human societies later in their careers, or a social scientist and hoping they will learn some ecology as they go along. They need training and experience that equips them for work on both sides of the all too-common gulf between the social and natural sciences. Your new initiative seems extremely well placed to do this. There is also a second chasm to be bridged if academic work in conservation is to be effective, and that is between the academy and policy-makers. I am delighted that this, too, is a focus of your new program’s work.”

Their complete letters, as well as letters from Dr. Thomas McShane (Global Institute of Sustainability, Arizona State University) and Dr. Susan Abbott-Jamieson (NOAA) are included as appendices to this proposal.

5. List all public and private institutions in the state offering similar programs. Also, for doctoral programs, list at least five institutions in other southeastern states that are offering similar programs. If no such programs exist, so indicate.

There are currently no programs of this nature in the state of Georgia or even in the southeast. This highlights the pressing need for such a program in our service area.

Procedures used to develop the program

For the past 15 years, the cross-disciplinary graduate program, Conservation Ecology and Sustainable Development (CESD), has engaged faculty from across the campus in the successful training of MS students. The faculty have come from many disciplines, including anthropology, forest resources, ecology, landscape design, law, geography, botany, horticulture, and agriculture and biological engineering, among others. Although the CESD program was intentionally kept small, its graduates now fill important positions in state departments of natural resources, major non-governmental organizations, and many have gone on to doctoral programs or have pursued related careers, such as environmental law. For several years now there has been a growing consensus about the need to raise conservation training to the doctoral level. This consensus

reflects a recognition in broader society that biodiversity and habitat conservation is a complex process that requires not only biological but also social expertise.

In order to initiate the process of proposing this doctoral program a small group of faculty representing Anthropology, Ecology, Geography, Landscape Design, Law, and Forestry and Natural Resources met and formed the Integrative Conservation Steering Committee in 2009. This committee, and a larger group invited for a program workshop, crafted the curriculum, outlined the administration, and gave input for the drafting of this proposal. The proposal was subsequently discussed at multiple faculty meetings and has the approval of faculty in each unit.

At the same time, we undertook a comprehensive survey of similar programs at other institutions (eg. The Applied Biodiversity Science program at Texas A&M, the Environment and Natural Resources Program of the University of Wyoming, and the Global Change, Marine Ecosystems, and Society Program of the University of California - San Diego Scripps Institute of Oceanography) and are confident that our program would be an important and timely contribution. This research, which has included analysis of program documentation as well as interviews with key staff, has helped us to understand which elements are necessary for a successful program. For example, we are now confident that the case study approach – having students and faculty come together across disciplinary lines to discuss particular situations and data sets – is a critical component of an integrative program. We also strongly believe that the creation of a speaker series will help create and nurture this academic community.

We also have begun exploring linkages with existing UGA research stations and initiatives, such as the Rio Tempisque project, the Choco Andes Corridor project, the Organization for Tropical Studies' La Selva Biological Station, and the Costa Rica and Fiji Study Abroad programs to facilitate the elaboration of case studies and to provide research opportunities for students. Funding of a post-doctoral research associate from the Advancing Conservation in a Social Context project, an initiative of the John D. and Catherine T. MacArthur Foundation, allowed the Center for Integrative Conservation Research to spearhead much of the research and writing necessary for the preparation of this proposal.

Curriculum

No single discipline can possibly address the complexity of the domain of conservation, and understanding it requires that we bring the insights of multiple disciplines to bear on contemporary issues. An integrative approach to conservation research and teaching recognizes that valuable insights can emerge not only from conservation biology or other natural sciences, but also from the social sciences and humanities. It takes seriously the promotion of engagements between the academy and the domain of conservation practice, and it uses those engagements to inform academic approaches to conservation.

Students will be required to take two team-taught core courses (further described below):

- Integrative Conservation I – Theoretical foundations of integrative conservation
- Integrative Conservation II – Application of integrative principles and perspectives through case studies

In addition to these core courses, students will be required to register for a one-credit hour seminar series devoted to professional development.

The rest of the program of study will be determined by the student's committee, with the goal of ensuring sufficient breadth to complement the disciplinary rigor achieved in the student's home department.

Because a key goal of this program is to train practitioners who are comfortable in the academic world and academics who can collaborate with practitioners, students will be required to undertake an eight-week internship (for academic credit) with a conservation organization, government agency, or other group identified as appropriate. The Internship Committee will match students with mentors and ensure the availability of appropriate internships for all students. This committee will also be charged with creating alternatives for students who cannot be placed in an internship for one reason or another. The Center for Integrative Conservation Research has already reached preliminary agreements for the Wildlife Conservation Society and Conservation International to provide internships.

In addition to coursework and the internship, there are several mechanisms that make this program integrative, including:

- Annual student-run research symposium
- "Collaboratories"
- Speaker series
- Directed reading groups comprised of students from different home departments
- Peer review of dissertation proposals, manuscripts
- A physical space for students and faculty in the program to interact informally (Center for Integrative Conservation Research, which houses a library and kitchen)
- Practitioner-in-residence program, which will bring practitioners to spend one week to one month at the University to consult our resources, host discussions, and give a guest lecture

Core Courses

We are proposing two new courses to serve as the core courses for the Integrative Conservation Program. We will also be proposing a new course prefix – ICON – for these and any subsequent courses created for this program.

ICON8XX1 (Being proposed) – Integrative Conservation I

Pre-requisites: None

This course will provide the conceptual foundations for integrative research and problem solving in conservation. It will address the challenges of interdisciplinary research and collaboration between academics and practitioners while also addressing principles for more effective collaboration. Finally, it will discuss tools for integrating research and practice across disciplines and the academic/practitioner divide.

ICON8XX2 (Being proposed) – Integrative Conservation II

Pre-requisites: ICON8XX1

A key component of the second required course – Integrative Conservation II – is the case study methodology, based on the Harvard Business School model. This course will use several case studies, some developed through the MacArthur Foundation's Advancing Conservation in a

Social Context initiative and some developed through other research projects in which UGA faculty are engaged, to bring students and faculty together to apply concepts and tools learned in the first ICON course. The case study approach is designed to engage students in addressing issues that arise from real situations, lead them through thoughtful analyses with limited information, and require decisions that must be articulated and defended. Such an approach develops capacity for effective decision-making while using the tools and concepts of multiple disciplines and working in interdisciplinary groups to address difficult questions. This course will be team-taught to help ensure breadth of analysis.

Electives

See Appendix

Degree Requirements

Integrative Conservation and Anthropology

Courses required for Anthropology	Courses Required for Integrative Conservation
ANTH 6400 -- 3 hours	ICON 8XX1 - Integrative Conservation I -- 3 hours
ANTH 6520 -- 3 hours	ICON 8XX2 - Integrative Conservation II -- 3 hours
ANTH 8400 -- 3 hours	ICON 8XXX - Internship -- 6 hours
ANTH 8420 -- 3 hours	ICON 8XXX - Speaker series -- 2 hours
ANTH 9000 -- 3 hours	
ANTH 9300 -- 3 hours	
Electives -- 28 hours from list provided, including up to 6 more hours of ANTH9000	

Hours required for degree 66
Hours that must be in courses only open to graduate students 20

Additional requirements

- *6 hours of appropriate training in theory
- *Research methodology and techniques
- *Foreign language competency
- *Students are required to register for ANTH9005 each of their first two semesters in the program

Integrative Conservation and Ecology

Courses required for Ecology	Courses Required for Integrative Conservation
ECOL 8000 -- 3 hours	ICON 8XX1 - Integrative Conservation I -- 3 hours
ECOL 8310 -- 3 hours	ICON 8XX2 - Integrative Conservation II -- 3 hours
ECOL 8322 -- 3 hours	ICON 8XXX - Internship -- 6 hours

ECOL 9300 -- 3 hours Electives -- 4 hours from list provided	ICON 8XXX - Speaker series -- 2 hours
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Hours required for degree 30
Hours that must be in courses only open to graduate students 20

Integrative Conservation and Forestry and Natural Resources

Courses required for Forestry and Natural Resources	Courses Required for Integrative Conservation
FORS 6750 or 6220 -- 3 hours FORS 9300 -- 3 hours FORS 9990 -- 1 hour Electives -- 9 hours from list provided, including up to 6 hours of FORS 9000	ICON 8XX1 - Integrative Conservation I -- 3 hours ICON 8XX2 - Integrative Conservation II -- 3 hours ICON 8XXX - Internship -- 6 hours ICON 8XXX - Speaker series -- 2 hours

Hours required for degree 30
Hours that must be in courses only open to graduate students 20

Additional requirements *16 hours in 8000-level or 9000-level courses
* For doctoral students who lack previous substantive research, 3 hours in Scientific Research for Resources Management (FORS 8200) is required

Integrative Conservation and Geography

Courses required for Geography	Courses Required for Integrative Conservation
GEOG 8910 -- 3 hours GEOG 8900 -- 1 hour GEOG 8901 -- 1 hour GEOG 9300 -- 3 hours Electives -- 9 hours from list provided, including up to 6 hours of GEOG 9000	ICON 8XX1 - Integrative Conservation I -- 3 hours ICON 8XX2 - Integrative Conservation II -- 3 hours ICON 8XXX - Internship -- 6 hours ICON 8XXX - Speaker series -- 2 hours

Hours required for degree 31

Hours that must be in courses only open to graduate students

20

Additional requirements

*12 hours in 8000-level courses
 * 6 hours of graduate-level skills classes that complement the doctoral research

Sample Program of Study

Year one						Year two					
Fall	hours	Spring	hours	Summer	hours	Fall	hours	Spring	hours	Summer	hours
ICON8XX1	3	ICON8XX2	3	Internship	6	GEOG 4720/6720	3	GEOG 4020/6020	3	Pre-diss. research	
ANTH9005	3	ANTH9005	3			FANR 5680/7680	3	FANR 4800/6800	3		
ANTH6400	3	ANTH8400	3			ANTH 8540	3	ANTH 4560/656	3		
ANTH6520	3	ANTH8420	3			ANTH9005	3	ANTH9005	3		
Year three						Year four					
Fall	hours	Spring	hours	Summer	hours	Fall	hours	Spring	hours	Summer	hours
ENVM 4800/6800	3	Reading hours (prep for comprehensive exams)	12			ANTH9000	6	ANTH9000	3		
ANTH 4070/6070	3										
ECOL 8420	3										
Reading hours	3										
Year five											
Fall	hours	Spring	hours	Summer	hours						
ANTH9300	6	ANTH9300	6								

*This proposed program of study would reflect a student earning a PhD in Anthropology and Integrative Conservation and studying the cultural and conservation effects of hydropower in Latin America.

Expected Student Outcomes

Students who graduate from this program will be prepared for work in organizations addressing conservation and development issues or for academic careers. They will be conversant across a

range of disciplines relevant to conservation and will be able to easily move between the worlds of academia and practice. Because of our unique structure, linking this new PhD program with a series of home departments, our students will also have the disciplinary depth of expertise that is lacking in some interdisciplinary environmental programs.

Inventory of faculty directly involved

- Name:** René Bobe
Rank: Assistant Professor
Academic Discipline: Anthropology
Institutions attended, degrees earned:
University of Washington, Ph.D. Anthropology
Pomona College, B.A. Anthropology
- Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**
I teach two courses per semester.
Fall: Intro to Biological Anthropology and Human Osteology
Spring: Primate Ecology and Paleoanthropology.

For the new program, I would add new courses, or sections of courses, on the environmental/climatic/biogeographic history of Africa and/or South America. I do research on both continents, so these topics are directly related to my research program.

3. Scholarship and publication record for the past five years:

- Geraads, D., Alemseged, Z., Bobe, R., Reed, D. (Accepted). *Enhyriodon dikikae* sp. nov. (Carnivora: Mammalia), a gigantic otter from the Pliocene of Dikika, Lower Awash, Ethiopia. *Journal of Vertebrate Paleontology*.
- Benington, J.B., DiMichele, W., Badgley, C., Bambach, R., Barrett, P., Behrensmeyer, A.K., Bobe, R., Burnham, R., Daeschler, E., Van Dam, J., Eronen, J., Erwin, D., Finnegan, S., Holland, S., Hunt, G., Jablonski, D., Jackson, S., Jacobs, B., Kidwell, S., Koch, P., Kowalewski, M., Labandeira, C., Looy, C., Lyons, K., Novack-Gottshall, P., Potts, R., Roopnarine, P., Strömberg, C., Sues, H.-D., Wagner, P., Wilf, P., Wing, S. (2009). Critical issues of scale in paleoecology. *Palaios* 24(1), 1-4.
- Bobe, R., Leakey, M.G., (2009). Ecology of Plio-Pleistocene mammals in the Omo-Turkana Basin and the emergence of *Homo*. In Grine, F.E., Fleagle, J.G., Leakey, R.E. (Editors), *The first humans: origins of the genus Homo*. Springer, Dordrecht. Pp. 173-184.
- Alemseged, Z., Bobe, R. (2009). Diet in early hominin species: a paleoenvironmental perspective. In Hublin, J.J., Richards, M.P. (Editors), *The evolution of hominid diets: integrating approaches to the study of Paleolithic subsistence*. Springer, Dordrecht. Pp. 181-188.
- Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Editors) (2007). *Hominin Environments in the East African Pliocene: An Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht. 354 pp.
- Behrensmeyer, A.K., Alemseged, Z., Bobe, R. (2007). Foreword. In Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Eds.), *Hominin Environments in the East African Pliocene: An*

- Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht, pp. xiii-xv.
- Behrensmeyer, A.K., Bobe, R., Alemseged, Z. (2007). Approaches to the analysis of faunal change during the East African Pliocene. In Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Eds.), *Hominin Environments in the East African Pliocene: An Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht, pp. 1-24.
- Bobe, R., Behrensmeyer, A.K., Eck, G.G., aris, J.M. (2007) Patterns of abundance and diversity in late Cenozoic bovids from the Turkana and Hadar Basins, Kenya and Ethiopia. In: Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Eds.), *Hominin Environments in the East African Pliocene: An Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht, pp. 129-157.
- Alemseged, Z., Bobe, R., Geraads, D. (2007). Comparability of fossil data in relation to hominin paleoecology: a case study of the French and American collections from the Shungura Formation of Ethiopia. In: Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Eds.), *Hominin Environments in the East African Pliocene: An Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht, 159-181.
- Behrensmeyer, A.K., Alemseged, Z., Bobe, R. (2007). Finale and future: investigating faunal evidence for hominin paleoecology in East Africa. In Bobe, R., Alemseged, Z., Behrensmeyer, A.K. (Eds.), *Hominin Environments in the East African Pliocene: An Assessment of the Faunal Evidence*. Vertebrate Paleobiology and Paleoanthropology Series. Springer, Dordrecht, 333-345.
- Alemseged, Z., Spoor, F., Kimbel, W.H., Bobe, R., Geraads, D., Reed, D., Wynn, J.G. 2006. A juvenile early hominin skeleton from Dikika, Ethiopia. *Nature* 443, 296-301.
- Wynn, J., Alemseged, Z., Bobe, R., Geraads, D., Reed, D., Roman, D. 2006. Geological and palaeontological context of a Pliocene juvenile hominin at Dikika, Ethiopia. *Nature* 443, 332-336.
- Bobe, R. 2006. The evolution of arid ecosystems in eastern Africa. *Journal of Arid Environments* 66(3), 564-584.
- Alemseged, Z., Wynn, J., Kimbel, W., Reed, D., Geraads, D., Bobe, R. 2005. A new hominin from the Basal Member of the Hadar Formation, Dikika, Ethiopia, and its geological context. *Journal of Human Evolution* 49, 499-514.

4. Professional Activity:

- Reviewer for granting institutions, journals, and publishers:
 - National Science Foundation, Physical Anthropology Senior Panel, 2009
 - National Science Foundation external reviewer
 - The Leakey Foundation
 - National Geographic Society
 - McArthur Fellowships
 - Nature
 - Proceedings of the National Academy of Sciences
 - Journal of Human Evolution
 - Yearbook of Physical Anthropology
 - Paleobiology

- Palaios
- Quaternary International
- Palaeogeography, Palaeoclimatology, Palaeoecology
- Journal of Biogeography
- Ameghiniana
- Naturwissenschaften
- Book chapters
- Oxford University Press
- Norton
- Thomson-Wadsworth
- Springer
- Advisory Board, Journal *Ecological and Environmental Anthropology* 2008-present

5. **Expected responsibilities in this program:**

For the new program, I would add new courses, or sections of courses, on the environmental/climatic/biogeographic history of Africa and/or South America. I do research on both continents, so these topics are directly related to my research program.

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** J. Peter Brosius
Rank: Professor
Academic Discipline: Anthropology
Institutions attended, degrees earned:
 University of Michigan, Ph.D. Anthropology
 University of Hawai'i, M.A. Anthropology
 California Lutheran University, B.A. Interdisciplinary Studies

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**

Usual course load is two courses in the fall and two courses in the spring.

Fall: Consumption and Globalization course

Spring: ANTH 8540/6540, Conservation and Communities; ANTH 4050, Cultural Anthropology

3. **Scholarship and publication record for the past five years:**

2010 (forthcoming in March). "People, Trees and Parks: Is Agroforestry In or Out?" In *Journal of Sustainable Forestry*. Co-authored with Russell, Asare, Rebecca Witter, Meredith Welch-Devine, Spainhower, and Barr.

2010 (forthcoming). "Cultural diversity and conservation." In *International Social Science Journal on Cultural Diversity*. UNESCO.

Brosius, J. Peter. 2008 (July 1). "Seeing (and Doing) Conservation Through Cultural Lenses." In *Environmental Management*. Co-authored with Richard B. Peterson (lead author), Diane Russell, and Paige West.

Brosius, J. Peter. 2006. "People, Trees and Parks: Is Agroforestry In or Out?" (Co-authored with Diane Russell, et al). In *People in Parks: Beyond the Debate*, Special issue of *Journal of Sustainable Forestry*.

Brosius, J. Peter. 2006. "Between Politics and Poetics: Narratives of Dispossession in Sarawak, East Malaysia." In *Reimagining Political Ecology*, edited by Aletta Biersack and James Greenberg. Duke University Press.

Brosius, J. Peter. 2006. "What Counts as Local Knowledge in Global Environmental Assessments and Conventions?" In *Bridging Scales and Epistemologies: Linking Local Knowledge and Global Science in Multi-Scale Assessments*, edited by Walter Reid, Fikret Berkes, Doris Capistrano, and Tom Wilbanks. Island Press.

Brosius, J. Peter. 2006. "Seeing Communities: Technologies of Visualization in Conservation." In *The Seductions of Community: Emancipations, Oppressions, Quandries*, edited by Gerald Creed. School of American Research Press.

Brosius, J. Peter. 2005. *Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management*. Co-edited with Anna Tsing and Charles Zerner, Altamira Press.

4. Professional Activity:

- Director, Center for Integrative Conservation Research
- 2005-Present Member, World Commission on Protected Areas, World Conservation Union (IUCN).
- 2001–Present Conservation and Community Working Group, Anthropology and Environment Section, American Anthropological Association.
- 2001-Present Drafting Committee on proposal for AAA Public Policy Institute, AAA Public Policy Committee.
- 2001-Present Advisory Group, Center for Heritage Resource Studies, University of Maryland.
- 1997-Present Associate Editor, *Human Ecology: An Interdisciplinary Journal*.
- American Anthropological Association
- Anthropology and Environment Section
- Society for Conservation Biology
- Society for Applied Anthropology
- American Ethnological Society
- Society for Cultural Anthropology
- Association for Asian Studies

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives. Develop core courses.

1. **Name:** C. Ronald Carroll
Rank: Professor
Academic Discipline: Ecology
Institutions attended, degrees earned:
University of Chicago, Ph.D. Population Biology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:

Fall ECOL6080 Conservation Ecology and Sustainable Development 4 credits (0.5)
Fall ECOL3530 Conservation Ecology 3 credits (0.5)
Fall ECOL8710 Environmental Practicum 4 credits (0.2)

Spring ECOL4120H Global Change 2 credits (1.0)
Spring ECOL8710 Environmental Practicum 4 credits (0.2)

I also usually have five or so undergraduate students doing research or directed readings each semester

3. Scholarship and publication record for the past five years:

- Gottdenker N. L., J. Calzada, A. Saldana, and C. R. Carroll (submitted). Anthropogenic land use change is associated with increased abundance of the Chagas disease vector *Rhodnius pallescens* in a rural landscape of Panama. *American Journal of Tropical Medicine and Hygiene*.
- Peters, V., R. Modcai, R. Greenberg, C. R. Carroll, R. Cooper. 2010. Bird community response to fruit energy. *J. Animal Ecol.* (accepted).
- Stubble, K.L., L.K. Kirkman, C.R. Carroll. 2010. Are red imported fire ants (*Solenopsis invicta*) facilitators of native seed dispersal. *Biological Invasions* (accepted).
- Stubble, K.L., L.K. Kirkman, C.R. Carroll. 2009. Patterns of abundance of fire ants and native ants in a native ecosystem. *Ecological Entomology* 34:520-526. Carroll, C.R. 2008. Biodiversity. In: *Encyclopedia of Rural America*.
- Hernandez-Divers, S.M., P. Villegas, C. Jimenez, S.J. Hernandez-Divers, M. Garcia, S.M. Riblet, C.R. Carroll, B. O'Connor, J. Webb, M.J. Yabsley, S.M. Williams, S. Sanchez. 2008. Backyard chickens pose health risk to Neotropical birds. *J. Avian Disease* 52:558-566.
- Carroll, R. 2007. Cities and the rivers that run through them. *Basins and Coasts. Integrated Management of Coastal and Freshwater System, Vol. 29. USAID.*
- Tian, G., R. Justicia, D.C. Coleman, C.R. Carroll. 2007. Assessment of Soil and Plant Carbon Levels in Two Ecosystems (Woody Bamboo and Pasture) in Montane Ecuador. *Soil Science* 172: 459-468.
- Barczak, S. and C. R. Carroll. 2007. Climate change implications for Georgia's water resources and energy future. *Georgia Water Conference, March 2007.*
- Dreelin E.A., L. Fowler, C.R. Carroll. 2006. A test of porous pavement effectiveness on clay soils during natural storm events. *Water Res.* 2006 Feb. 40(4):799-805.
- Groom, M., G.K. Meffe and C.R. Carroll. 2006. *Principles of Conservation Ecology* (greatly revised and expanded 3rd edition), Sinauer Publ. Currently Working on the fourth edition to appear in 2010/11.

4. Professional Activity:

- Assoc. Director, Institute of Environmental Studies, Baylor University
- Assoc. Director, Natural Reserve System, University of California, System-wide
- Assoc. Director, Institute of Ecology, University of Georgia
- Director, Institute of Ecology, University of Georgia
- Co-Director, River Basin Center, Odum School of Ecology, University of Georgia
- Graduate Coordinator, Odum School of Ecology, University of Georgia

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.
Develop core courses.

1. **Name:** Alan Covich

Rank: Professor

Academic Discipline: Ecology

Institutions attended, degrees earned:

Yale University, Ph.D. Biology-Ecology

Yale University, M.S. Biology-Ecology

Washington University, A.B. Biology

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**

SPRING: ECOL 3500 (Introduction to Ecology); ECOL 8220 (Stream Ecology), ECOL 8230 (Lake Ecology)

FALL: ECOL 8000 (Topics in Modern Ecology); ECOL 7000 (Directed Readings); ECOL 7300 (Directed Research).

3. **Scholarship and publication record for the past five years:**

Atkinson, C.L., S.P. Opsahl, A.P. Covich, S.W. Golladay and L.M. Conner. In press. Stable isotopic signatures, tissue stoichiometry, and nutrient cycling (C and N) of native and invasive freshwater bivalves. *Journal of the North American Benthological Society* 28: 360-370.

McKay, K., B. Pruitt, Harberg, A. Covich, M. Kenney, and C. Fischenich. In press. Metric development for environmental benefits analysis. ERDC TN-EMRRP-EBA.

Crowl, T. A., A. E. Lugo, N. Brokaw, A.P. Covich, R.B. Waide, D.J. Lodge, C.M. Pringle, and K.H. Beard. 2010. When and where biota matter: Linking disturbance regimes, species characteristics and dynamics of communities and ecosystems. Chapter 6. IN: *Synthesis of LTER Research in Puerto Rico* Zimmerman, J.K., T. A. Crowl, M. R. Willig, F. N. Scatena, (eds.). Springer-Verlag, New York.

McDowell, W.H., F.N. Scatena, R.B. Waide, N. Brokaw, G.R. Camilo, A.P. Covich, T.A. Crowl, G. González, E.A. Greathouse, P. Klawinski, D.J. Lodge, A.E. Lugo, C.M. Pringle, B.A. Richardson, M.J. Richardson, D.A. Schaefer, W.L. Silver, J. Thompson, D.J. Vogt, K.A. Vogt, M.R. Willig, L.L. Woolbright, X. Zou, J.K. Zimmerman. 2010. Geographic and Ecological Setting of the Luquillo Mountains. Chapter 3. IN: *Synthesis of LTER Research in Puerto Rico* Zimmerman, J.K., T. A. Crowl, M. R. Willig, F. N. Scatena, (eds.). Springer-Verlag, New York.

Willig, M.R., C. P. Bloch, A. P. Covich, C. A. S. Hall, D. J. Lodge, A. E. Lugo, W. H. McDowell, W. L. Silver, R. B. Waide, L. R. Walker, and J. K. Zimmerman. 2010. Long-term research in the Luquillo Mountains: Synthesis and foundations for the future. Chapter 8. IN: *Synthesis of LTER Research in Puerto Rico* Zimmerman, J.K., T.A. Crowl, M. R. Willig, F.N. Scatena, (eds.). Springer-Verlag, New York.

- Covich, A.P., T.A. Crowl, C. L. Hein, M.J. Townsend and W. H. McDowell. 2009. Importance of geomorphic barriers to predator–prey interactions in river networks. *Freshwater Biology* 54:450-465.
- Kikkert, D.A., T.A. Crowl and A.P. Covich. 2009. Upstream migration of amphidromous shrimp in the Luquillo Experimental Forest, Puerto Rico: temporal patterns and environmental cues *Journal of the North American Benthological Society* 28:233-246.
- Atkinson, C.L., S.W. Golladay, S. P. Opsahl and A.P. Covich. 2009. Stream discharge and floodplain connections affect seston quality and stable isotopic signatures in a coastal plain stream. *Journal of the North American Benthological Society* 28: 360-370.
- Covich, A.P. 2009. Freshwater ecology. Pp. 343-347, IN: *Encyclopedia of islands*. Gillespie, R.G. and D. A. Clague, (eds.) University of California Press. Berkeley.
- Covich, A.P. 2009. Emerging climate change impacts on freshwater resources. Resources for the Future. Washington, D.C. [[http://www/rff.org/rff-documents-RFF-Rpt-Adaptation-Covich.pdf](http://www.rff.org/rff-documents-RFF-Rpt-Adaptation-Covich.pdf)]
- Covich, A.P. 2009. Biodiversity of aquatic ecosystems, IN: *Encyclopedia of Inland Waters*, vol. 1: 379-386. Likens, G.E. (ed.). Elsevier, Amsterdam.
- Cross, W.F., A.P. Covich, T.A. Crowl, J.P. Benstead, and A. Ramirez. 2008. Secondary production, longevity, and consumption rates of freshwater shrimps in two tropical streams with contrasting geomorphology and foodweb structure. *Freshwater Biology* 53: 2504-2519.
- Hopkinson, C., A. E. Lugo, M. Alber, A. P. Covich, S. J. Van Bloem. 2008. Forecasting effects of sea-level rise and windstorms on coastal and inland ecosystems. *Frontiers in Ecology and Environment* 6: 255-263.
- Malmqvist, B., S.D. Rundle, A.P. Covich, A.G. Hildrew, C.T. Robinson, and C.R. Townsend. 2008. Prospects for streams and rivers: An ecological perspective. Chapter 2, pp. 19-29, IN: *Aquatic ecosystems- Trends and global prospects*. N.V.C. Polunin (ed.), Cambridge University Press, Cambridge, UK.
- Boulton, A.J., L. Boyero, A.P. Covich, M. Dobson, S. Lake, and R. Pearson. 2008. Are tropical streams ecologically different from temperate streams? Chapter 9, pp. 257-284, IN: D. Dudgeon (ed.) *Tropical Stream Ecology*. Academic Press, San Diego.
- Peters, D.P.C., O.E. Sala, C.D. Allen, A.P. Covich, M. Brunson. 2007. Cascading events in linked ecological and social-economic systems: Predicting change in an uncertain world. *Frontiers in Ecology and Environment* 5:221-224.
- Zimmerman, J. K.H. and A.P. Covich. 2007. Damage and recovery of riparian sierra palms (*Prestoea acuminata* var. *montana*) after Hurricane Georges: Influence of topography, land use, and biotic characteristics. *Biotropica* 39: 43-49.
- Covich, A.P. 2006. Protecting benthic biodiversity to insure detrital processing and ecosystem services: Importance of invertebrate shredders in stream networks. *Ecotropicos* 19: 109-127.
- Covich, A.P. 2006. Dispersal-limited biodiversity of tropical insular streams. *Polish Journal of Ecology* 54: 523-547.
- Covich, A.P., T.A. Crowl, and T. Heartsill-Scalley. 2006. Effects of drought and hurricane disturbances on headwater distributions of palaemonid river shrimp (*Macrobrachium* spp.) in the Luquillo Mountains, Puerto Rico. *Journal of the North American Benthological Society* 25: 99-107.

- Crowl, T.A., V. Welsh, T. Heartsill-Scalley, A.P. Covich. 2006. Effects of different types of conditioning on leaf-litter shredding by *Xiphocaris elongata*, a Neotropical freshwater shrimp. *Journal of the North American Benthological Society* 25: 196-206.
- Grimm, N.B., A. P. Covich, and J. M. Melillo. 2006. A vision for ecology's future: where are we today? *Frontiers in Ecology and the Environment* 4: 115.
- Melillo, J.M., N.B. Grimm, and A.P. Covich. 2005. NEON: lighting the way forward. *Frontiers in Ecology and the Environment* 3: 351.
- Covich, A.P. 2005. Ecosystem processes. Pp. 1535-156, IN: M.G. Anderson and J.J. McDonnell (eds.). *Encyclopedia of Hydrological Sciences*, John Wiley and Sons, New York.
- Heal, G.M., E.B. Barbier, K.J. Boyle, A.P. Covich, S.P. Gloss, C.H. Hershler, J.P. Hoehn, C.M. Pringle, S. Polasky, K. Segerson, and K. Shrader-Frechette. 2005. *Valuing Ecosystem Services: Toward Better Environmental Decision-Making*. National Research Council, Washington, D.C.
- Wall, D.H., E. Ayres, V. Behan-Pelletier, A.P. Covich and P. V. R. Snelgrove. 2005. Soil, freshwater, and marine ecosystems: The need for integrative landscape science. *Marine Ecology Progress Series* 304: 271-307.
- Wright, M.S. and A. P. Covich. 2005. The effect of macroinvertebrate exclusion on leaf breakdown rates in a tropical headwater stream. *Biotropica* 37: 403-408.
- Wright, M.S. and A.P. Covich. 2005. Relative importance of bacteria and fungi in a tropical headwater stream: Leaf decomposition and invertebrate feeding preference. *Microbial Ecology* 20: 1-11.
- Beard, K.H., K.A. Vogt, D.J. Vogt, F.N. Scatena, A. P. Covich, R. Sigurdardottir, T.C. Siccama, and T.A. Crowl. 2005. The response of structural and functional characteristics of a tropical forested ecosystem to multiple, natural disturbances in legacy environments. *Ecological Monographs* 75:345-361.
- Cooney, S.J., A.P. Covich, P.M. Lukacs and K. Fausch. 2005. Modeling global warming scenarios in greenback cutthroat trout (*Oncorhynchus clarki stomias*) streams: Implications for species recovery. *Western North American Naturalist* 65: 371-381.

4. Professional Activity:

- INTECOL President, 2009-2013, Board of Directors, 2003-2009
- Chair, NSF Committee of Visitors, Division of Environmental Biology, 2009
- Chair, NSF Blue Ribbon NEON Review Committee, 2009
- AAAS Advisory Board, Vision and Change in Science Education, 2009
- US-Israel Bi-National Science Foundation Board, 2008-2009
- United Arab Emirates Freshwater Science Review Committee, 2008-2009
- Program Review, Department of Ecology, Montana State University, Bozeman. 2009
- Advisory Committee, H.J. Andrews Experimental Forest LTER, 2000-2009
- Advisory Board, Conservation Trust of Puerto Rico, 2005-2009

5. Expected Responsibilities in this Program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** Laurie Fowler
Rank: Associate Dean
Academic Discipline: Ecology
Institutions attended, degrees earned:
University of Washington School of Law, L.L.M. Marine Affairs
University of Georgia School of Law, J.D.
University of the South, B.A.

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**

3. **Scholarship and publication record for the past five years:**

Fowler, L. & Franzen, E. Wetlands Protection Options for the State of Georgia: A Survey of Regulatory, Acquisition and Incentive Policies. Georgia Environmental Protection Division.

Carter, T. and Fowler, L. Establishing green roof infrastructure through environmental policy instruments. In press. Environmental Management.

Wenger, S., Carter, T., Vick, A. & Fowler, L. In Press. 2007. "Runoff Limits: An ecologically-based stormwater management program." *Stormwater*.

Etowah HCP Steering Committee. 2007. Etowah Aquatic Habitat Conservation Plan. Athens, GA: University of Georgia.

Tippins, D., Thomson, N., Butler, M., Fowler, L., & Lawrence, M. (Eds.). 2006. Environmental dilemmas in Georgia: Considering alternative solutions. (National Science Foundation). Athens, GA: Partnership for Reform in Mathematics and Science Education.

Brown, M., Bivins, D., Blackwell, C., Fowler, L., Pippin, S. & Tobin, C. 2006. City of Tifton Westside Downtown Revitalization.

Dreelin, E., Fowler, L. & Carroll, R. 2005. "A test of porous pavement effectiveness on clay soils during natural storm events." *Water Research*.

Wenger, S., Freeman, M., Carter, T. & Fowler, L. 2005. "Using runoff limits to protect imperiled fish species." *Proceedings of the 2005 Georgia Water Resource Conference*. Athens, GA: University of Georgia.

Fowler, L. 2005. "Linking Conservation in the Classroom with the Community." A case study for *Principles of Conservation Biology*, 3rd edition, companion website at www.sinaeur.com/groom.

4. **Professional Activity:**

- Director for Policy, River Basin Center, 2003-present
- Clinical Faculty, University of Georgia School of Law, 1991-present
- UGA Focus the Nation Planning Committee, 2006-present
- University Council (Committees: Executive, Benefits, Educational Affairs and Facilities), 2005-present
- Chair, Odum School of Ecology Green Building Committee, Strategic Planning Committee, 2006-present

- Graduate and Facilities Committees, 2004-present
- Manuscript Reviewer for the *Journal of the American Planning Association*, 2006-present
- Appointed by the Georgia Chamber of Commerce to the Planning Committee for its first Annual Environmental Conference and subsequent conference, 2006-present
- Appointed by the Lyndhurst Foundation and the National Open Space Initiative to the Northwest Georgia Land Conservation Fund Advisory Committee, 2006-present
- Appointed by Georgia Department of Natural Resources Commissioner Noel Holcomb to the Steering Committee for the Georgia Comprehensive Wildlife Conservation Strategy, 2003-present
- Appointed by Attorney General Thurbert Baker to the Attorney General's Water Advisory Committee, 2003-present

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** John L. Gittleman
Rank: Dean
Academic Discipline: Ecology
Institutions attended, degrees earned:
 University of Sussex, Ph.D. Biology
 Miami University, B.A. Philosophy
 Oxford, B.A. Psychology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:

I typically teach an honors course per semester and give lectures in Conservation and Introductory Ecology.

3. Scholarship and publication record for the past five years:

- Cardillo, M., Gittleman, J.L., and Purvis, A. (2008). Global patterns in the phylogenetic structure of island mammal assemblages. *Proceedings of the Royal Society* 275:1549-1556.
- Cardillo, M., Mace, G.M., Gittleman, J.L., Jones, K.E., Bielby, J. and Purvis, A. (2008). The predictability of extinction: biological and external correlates of decline in mammals. *Proceedings of the Royal Society* 275:1441-1448.
- Davies, T.J. and 7 other authors, Gittleman, J.L., Mace, G.M. and Purvis, A. (2008). Phylogenetic trees and the future of mammalian biodiversity. *Proceedings of The National Academy of Sciences* 105:11556-11563.
- Jones, K.E., Patel, N.G., Levy, M.A., Storeygard, A., Balk, D., Gittleman, J.L. and Daszak, P. (2008). Global trends in emerging infectious disease. *Nature* 451: 990-994.
- Grenyer, R. and 12 other authors, Gittleman, J.L. and Owens, IPF. (2007). Effective global conservation strategies, a Reply to A.S.L. Rodrigues. *Nature* 450:E19-20.
- Bininda-Emonds, R.R.P. and seven authors, Gittleman, J.L., Purvis, A. (2007). The delayed rise of present-day mammals. *Nature* 446:507-512.

- Bielby, J., Mace, G.M., Bininda-Emonds, O.R.P., Cardillo, M., Gittleman, J.L., Jones, K.E., Orme, C.D.L. and Purvis, A. (2007). The fast-slow continuum in mammalian life history: an empirical reevaluation. *American Naturalist* 69:748-757.
- Lindenfors, P., Nunn, C.L., Jones, K.E., Cunningham, A.A., Sechrest, W. and Gittleman, J.L. (2007). Parasite species richness in carnivores: effects of host body mass, latitude, geographical range and population density. *Global Ecology and Biogeography* 10:1-14.
- Nunn, C.L., Rothschild, B. and Gittleman, J.L. (2007). Why are some species more commonly afflicted by arthritis than others? A comparative study of spondyloarthropathy in primates and carnivores. *Journal of Evolutionary Biology* 20:460-470.
- Price, S.A. and Gittleman, J.L. (2007). Hunting to extinction: biology and regional economy influence extinction risk and the impact of hunting in artiodactyls. *Proceedings of the Royal Society of London* 274:1845-1851.
- Grenyer, R. and 13 authors, Gittleman, J.L., Owens, I.P.F. (2006). Global distribution and conservation of rare and threatened vertebrates. *Nature* 444:93-96.
- Cardillo, M., Mace, G.M., Gittleman, J.L. Purvis, A. (2006). Latent extinction risk and the future battlegrounds of mammal extinction. *Proceedings of the National Academy of Sciences* 103:4157-4161.
- Nunn, C.L., Rothschild, B. and Gittleman, J.L. (2006). Why are some species more commonly afflicted by arthritis than others? A comparative study of spondyloarthropathy in primates and carnivores. *Journal of Evolutionary Biology* 20:460-470.
- Gittleman, J.L. and Gompper, M.E. (2005). Plight of predators – the importance of carnivores for understanding patterns of biodiversity and extinction risk. In: *Ecology of Predator-Prey interactions* (Eds. P. Barbosa & I. Castellanos), pp. 370-388. Oxford: Oxford University Press.
- Jones, K.E., Bininda-Emonds, O.R.P. and Gittleman, J.L. (2005). Bats, clocks, and rocks: diversification patterns in Chiroptera. *Evolution* 59:2243-2255.
- Jones, K.E., Sechrest, W. and Gittleman, J.L. (2005). Age and area revisited: identifying global patterns and implications for conservation. In: *Phylogeny and Conservation* (eds. A. Purvis, J.L. Gittleman & T.M. Brooks), Pp. 141-165. Cambridge: Cambridge University Press.
- Purvis, A., Gittleman, J.L. and Brooks, T.M., Editors (2005). *Phylogeny and Conservation*. Cambridge: Cambridge University Press.
- Isaac, N.J.B., Jones, K.E., Gittleman, J.L. and Purvis, A. (2005). Correlates of species richness in mammals: body size, life history, and ecology. *American Naturalist* 165: 6007-607.
- Price, S.A., Bininda-Emonds, O.R.P. and Gittleman, J.L. (2005). A complete Phylogeny of the whales, dolphins and even-toed hoofed mammals (Cetartiodactyla). *Biological Reviews* 80:445-473.

4. Professional Activity:

- Editorial Board, *Quarterly Review of Biology*
- Editor (North American), *Animal Conservation*, Published by Blackwells and The Zoological Society of London
- Department of Ecology and Evolutionary Biology, Executive Committee
- Department of Ecology and Evolutionary Biology, Co-Chair of Graduate Program and author of 'Graduate Handbook'
- University-wide Undergraduate Grade Appeals Committee (1990-Present)

- Department of Zoology, Space and Facilities Committee
- Assistant Director of Graduate Program in Ethology (1988-Present)
- Core Faculty Member of Graduate Program in Ecology (1986-Present)
- Core Faculty Member of Graduate Program in Ethology (1986-Present)
- American Society of Zoologists, Committee on Graduate Education (1987-1990)
- IUCN Committee for Conservation of canids and procyonids, Morges, Switzerland (1986-Present).
- Editorial Committee for Columbia University Press.
- Advisory Board for Multimedia Encyclopedia of Mammalian Biology (McGraw-Hill Publishers; 1991-Present).
- Editor and Advisor for the 'Evolution' section of Encyclopedia Britannica's Core Revision
- Advisory Board for 'Conservation Biology' Book Series of Cambridge University Press
- The Zoological Society of London: Scientific Fellow, 1978-Present
- American Society of Mammalogists, 1979-Present
- American Society of Naturalists, 1989-Present
- Paleontological Society, 1998-present
- Society for the Study of Evolution, 1981-Present
- Society of Systematic Zoology, 1987-Present

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** Theodore 'Ted' Gragson
Rank: Department Head, Professor
Academic Discipline: Anthropology
Institutions attended, degrees earned:

Pennsylvania State University, Ph.D. Anthropology
 Pennsylvania State University, M.A. Anthropology
 University of Montana, B.A. Anthropology

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**

As head my official course load is two courses per year. I typically teach some type of graduate-level theory or research-oriented class (e.g., Foundations of Ecological Anthropology; Research Design; Long-term Socioecological Methods; Advanced Data Analysis).
 Workload impact will be nominal as it could easily be accommodated by existing courses.

3. **Scholarship and publication record for the past five years:**

Gragson, Ted L, Paul V. Bolstad, and Meredith Welch-Devine. 2008. Agricultural Transformation of Southern Appalachia. In *Agrarian Landscapes in Transition*. Charles Redman and David Foster, eds. Pp. 89-121. New York: Oxford University Press.
 Gragson, Ted L. 2008. Conclusion. In *Agrarian Landscapes in Transition*. Charles Redman and David Foster, eds. Pp. 272-278. New York: Oxford University Press.
 Gragson, Ted L and Paul V. Bolstad. 2007. A Local Analysis of Early 18th Century Cherokee Settlement. *Social Science History* 31(3): 435-468.

Gragson, Ted L, J. Morgan Grove and Dan Childers. 2006. Engaging Social Scientists in LTER Research. *The Network Newsletter* 19(1): 4, Spring.

Gragson, Ted L and Paul Bolstad. 2006. Land Use Legacies and the Future of Southern Appalachia. *Society and Natural Resources* 19: 175-190.

Gragson, Ted L and Morgan Grove. 2006. Social Science in the Context of the Long Term Ecological Research Program. *Society and Natural Resources* 19: 93-100.

Gragson, Ted L and Morgan Grove, eds. 2006. *Society and Natural Resources*, vol. 19, special issue on Social Science across the Long-Term Ecological Research Network.

Gragson, Ted L. 2005. Time in Service to Historical Ecology. *Georgia Journal of Ecological Anthropology* 1(1): 2-9

4. Professional Activity:

- LTER Executive Board 2008 – Present
- Georgia Journal of Ecological Anthropology, Editorial Board 2005 – Present
- Co-Chair, LTER Network Social Science Committee 1998 – Present
- Member, Program Committee for Conservation & Sustainable Development, 1992 - Present
- Member, Conservation & Sustainable Development Graduate Admissions, 1992 - Present
- Associate Director, Sustainable Human Ecosystems Laboratory – Anthropology, 1996 - Present
- Member, William A. Owens Creative Research Award Selection Committee, Office of the Vice President for Research, 2009 – Present
- Member, Ecological Society of America 2001 - Present
- Fellow, Society for Applied Anthropology 1994 - Present
- Member, American Anthropological Association 1989 - Present

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** Jeffrey Hepinstall-Cymerman
Rank: Assistant Professor
Academic Discipline: Landscape Ecology
Institutions attended, degrees earned:
 University of Maine, Ph.D. Forest Resources
 University of Minnesota, St. Paul, M.S. Wildlife Ecology
 Colgate University, B.A. Biology

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**
 Fall 2 courses, 6 credits: FANR 3800 (was FANR 3910): Spatial Analysis for Natural Resources ; WILD/ECOL 8330: Landscape Ecology

 Spring 1 course, 3 credits: FANR 5620/7620: Applications of GIS for Natural Resources (alternate springs with N. Nibbelink teaching the even-years); Remote sensing course under development (3 credits) to be offered even years; 1-credit seminars offered occasionally

Spring break (listed under summer session): 2 credits, FAN 5610/7610: Prescribe Fire in Forest Ecosystems.

3. Scholarship and publication record for the past five years:

- Hepinstall-Cymerman, J. M. Alberti, S. Coe. 2009. Using urban landscape trajectories to develop a multi-temporal land cover database to support ecological modeling. *Remote Sensing* 1:1353-1379.
- Hepinstall, J.A., J.M. Marzluff, M. Alberti. 2009. Modeling the responses of birds to predicted changes in land cover in an urbanizing region. Pages 625-659 In J.J. Millspaugh and F.R. Thompson III, eds. *Models For Planning Wildlife Conservation In Large Landscapes*. Elsevier Science. Amsterdam, The Netherlands.
- Merry, K., P. Bettinger and J. Hepinstall. 2009. Physical and biological responses of forests to tropical cyclones affecting the United States Atlantic Ocean and Gulf of Mexico Coasts. *American Journal of Environmental Sciences* 5(1):784-800.
- Bettinger, P., K.L. Merry, and J. Hepinstall. 2009. Post-hurricane forest management responses in the southern United States. *Journal of Emergency Management*. 7(6): 35-50.
- Bettinger, P., Merry, K., and J. Hepinstall. 2009. Average tropical cyclone intensity along the Georgia, Alabama, Mississippi, and north Florida coasts. *Southeastern Geographer* 49:49-66.
- Hepinstall, J.A., M. Alberti, J.M. Marzluff. 2008. Predicting land cover change and avian community responses in rapidly urbanizing environments. *Landscape Ecology* 28:1257-1276.
- Merry, K. L., P. Bettinger, M. Clutter, J. Hepinstall, and N. P. Nibbelink. 2007. An assessment of Geographic Information Systems (GIS) skills employed by field-level natural resource managers. *Journal of Forestry* 105:364-370.
- Alberti, M., C. Redman, J. Wu, J. Marzluff, M. Handcock, J. Anderies, P. Waddell, D. Fox, H. Kautz, J. Hepinstall. 2006. Urban landscape patterns and global environmental change (REC): Complex dynamics and emergent properties. *International Human Dimension of Global Climate Change*.
- Hepinstall, J.A., J.M. Marzluff, M. Handcock, and Hurvitz, P. 2005. Incorporating utilization distributions into the study of resource selection: dealing with spatial autocorrelation” in Huzurbazar, S., editor, *Resource Selection Methods and Applications*. Omnipress, Madison, WI.

4. Professional Activity:

- Memberships of Professional Societies
 - Society for Conservation Biology
 - Ecological Society of America
 - US-IALE (International Association of Landscape Ecology)
 - The Wildlife Society
- Reviewer for:
 - National Science Foundation, *Landscape Ecology*, *Ecological Applications*, *Journal of Wildlife Management*, *Landscape and Urban Planning*, *Photogrammetric Engineering and Remote Sensing*, *International Journal of Remote Sensing*, and *Remote Sensing of Environment*

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

- 1. Name:** Nik Heynen
Rank: Associate Professor
Academic Discipline: Geography
Institutions attended, degrees earned:
Indiana University; Geography *Ph.D. Minor: African Studies*
Indiana University; Geography, M.A.
Indiana University; Geography, B.A.
Indiana University, Urban Studies Certificate
- 2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program**
I usually teach a 2-2 course load. I do not anticipate it impacting workload significantly.
- 3. Scholarship and publication record for the past five years**
Heynen, N (2013) “Starving for Revolution: The Milwaukee Black Panther Party's Struggle To Feed The Hungry.” *The Quest for Social Justice IV: The Morris Fromkin Memorial Lectures, 2003-2012.* The UWM Libraries, University of Wisconsin— Milwaukee.
Prudham, S. and N. Heynen (accepted) “Uneven Development Redux” *New Political Economy.* [Special issue on *Uneven Development 25 Years Later*]
Heynen, N., P. Hossler and A. Herod (accepted) “Surviving Uneven Development” *New Political Economy.* [Special issue on *Uneven Development 25 Years Later*]
Heynen, N. *Starving For Revolution: Radical Anti-Hunger Politics For Survival in the City.* (In preparation/under contract with UGA Press, *Geographies of Justice and Social Transformation*)
Castree, N., M. Wright, W. Larner, N. Heynen, and P. Chatterton. (in press) *The Point is to Change It: Geographies of Hope and Survival in an Age of Crisis.* Malden, MA: Blackwell Publishers. [Issue published simultaneously as a special issue of *Antipode*, 41.6]
*Contributors: J. Agnew; N. Brenner; P. Cammack; J. Ferguson; K. Gibson; J. Graham; G. Hart; T. Li; J. Peck; G. Pratt; N. Smith; E. Swyngedouw; N. Theodore; M. Watts.
Castree, N., M. Wright, W. Larner, N. Heynen, and P. Chatterton (in press) “The Point is to Change It”. *Antipode: A Journal of Radical Geography.* *Antipode*, 41.6. [Special 40th Anniversary issue]
Chatterton, P. and N. Heynen (accepted) “Resistance(s) and Collective Social Action” in *A Companion to Social Geography* (Eds.) V. J. Del Casino Jr., M. Thomas, P. Cloke, and R. Panelli. Castree, N., M. Wright, W. Larner, N. Heynen, and P. Chatterton (in press) “The Point is to Change It”. In Castree, N., M. Wright, W. Larner, N. Heynen, and P. Chatterton (Eds.) *The Point is to Change It: Geographies of Hope and Survival in an Age of Crisis.* Blackwell Publishers: Malden, MA.
Heynen, N. (in press) “Cooking up Non-Violent Civil Disobedient Direct Action for the Hungry: Food Not Bombs and the Resurgence of Radical Democracy.” *Urban Studies.* [Special issue on *Cities and Conflict*]

- Mitchell, D. and N. Heynen (2009) "The Geography of Survival and the Right to the City: Speculations on Surveillance, Legal Innovation, and the Criminalization of Intervention." *Urban Geography*. 30(6): 611-632. [Special issue on *Homelessness/Rights/Space*]
- Heynen, N. (2009) "Bending the Bars of Empire from Every Ghetto to Feed the Kids: The Black Panther Party's Radical Antihunger Politics of Social Reproduction and Scale" *The Annals of the Association of American Geographers*. 99(2):406-422.
- Heynen, N. (2009) "Back to Revolutionary Theory through Racialized Poverty: The McGee Family's Utopian Struggle for Milwaukee." *The Professional Geographer*. 61(2): 187-199. [Special issue on *Racialized Poverty in Urban America*].
- Heynen, N. (2008) "Bringing the Body Back to Life through the Radical Geography of Hunger: The Haymarket Affair and its Aftermath." *ACME: An International E-Journal for Critical Geographies*. 7(1): 32-44. [Special issue on *Class War and Geography: Revisiting the 1886 Haymarket Square Massacre*]
- Heynen, N., H.A. Perkins and P. Roy (2007) "Failing to Grow 'Their' Own Justice? The Co-Production of Racial/Gendered Labor and Milwaukee's Urban Forest." *Urban Geography*. 28(8): 732-754.
- Heynen, N., J. McCarthy, W.S. Prudham and P. Robbins (2007) *Neoliberal Environments: False Promises and Unnatural Consequences*. London; New York: Routledge.
 *Contributors: K. Bakker; N. Blomley; B. Braun; N. Brenner; G. Bridge; N. Castree; D. Correia; N. Heynen; R. Holifield; G. Hollander; R. Keil; W. Larner; A. Luginbuhl; B. Mansfield; J. McCarthy; H. Perkins; S. Prudham; N. Peluso; M. Robertson; D. Rocheleau; P. Robbins; L. Smith; K. St. Martin; E. Swyngedouw; N. Theodore; M. Watts; W. Wolford; D. Young.
- Heynen, N., M. Kaika and E. Swyngedouw (2006) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London; New York: Routledge. (*Questioning Cities Series*, edited by G. Bridge and S. Watson) Foreword by N. Smith
 *Contributors: J.A. Boudreau; A. Brownlow; E. Darling; M. Gandy; M. Kaika; N. Heynen; R. Keil; A. Loftus; S. Marvin; W. Medd; S. Oliver; D. Pellow; P. Robbins; L. Smith; E. Swyngedouw.
- Conway, D. and N. Heynen (2006) *Globalization's Contradictions: Geographies of Discipline, Destruction & Transformation*. London; New York: Routledge.
 *Contributors: J. Agnew; C. Allen; D. Conway; N. Heynen; M. Kotlen D. Knudsen; B. Milller D. Mitchell; J. Njeru; C. Rosati; N. Shrestha; A. Tickell; S. Walcott; R. Wolfel.
- Heynen, N. (2006) "But it's alright, Ma, it's life, and life only": Radicalism as Survival" *Antipode: A Radical Journal of Geography*. 38(5): 916-929.
- Heynen, N., H.A. Perkins and P. Roy (2006) "The Political Ecology of Uneven Urban Green Space: The Impact of Political Economy on Race and Ethnicity in Producing Environmental Inequality in Milwaukee." *Urban Affairs Review*. 42(1): 3-25.
- Heynen, N. (2006) "Green Urban Political Ecologies: Toward a Better Understanding of Inner City Environmental Change." *Environment and Planning A*. 38(3): 499 – 516.
- Heynen, N. and H.A. Perkins (2005) "Scalar Dialectics in Green: Urban Private Property and the Contradictions of the Neoliberalization of Nature." *Capitalism Nature Socialism*. 16(1):99-113. [Special issue on *Commodification of Nature*]**Edited version reprinted in N. Heynen, J. McCarthy, W.S. Prudham and P. Robbins (eds.) (2007) *Neoliberal Environments: False Promises and Unnatural Consequences*. London; New York: Routledge.
- Heynen, N. and P. Robbins (2005) "The Neoliberalization of Nature: Governance, Privatization, Enclosure and Valuation." *Capitalism Nature Socialism*. 16(1): 5-8. [Special issue on *Commodification of Nature*]

- Heynen, N. (2009) "Revolutionary Cooks in the Hungry Ghetto: The Black Panther Party's Biopolitics of Scale From Below." In R. Keil and R. Mahon (Eds.) *Leviathan Undone? Towards a Political Economy of Scale*. University of British Columbia Press. pp. 265-280.
- Heynen, N., J. McCarthy, W.S. Prudham and P. Robbins (2007) "False Promises." In N. Heynen, J. McCarthy, W.S. Prudham and P. Robbins (eds.) *Neoliberal Environments: False Promises and Unnatural Consequences*. pp. 1-21.
- Heynen, N., J. McCarthy, W.S. Prudham and P. Robbins (2007) "Unnatural Consequences." In N. Heynen, J. McCarthy, W.S. Prudham and P. Robbins (eds.) *Neoliberal Environments: False Promises and Unnatural Consequences*. pp. 287-291.
- Heynen, N. (2006) "Justice of Eating in the City: The Political Ecology of Urban Hunger." In N. Heynen, M. Kaika and E. Swyngedouw (Eds.) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London: Routledge. pp. 127-142.
- Heynen, N., M. Kaika and E. Swyngedouw (2006) "Urban Political Ecology: Politicising the Production of Urban Natures." In N. Heynen, M. Kaika and E. Swyngedouw (Eds.) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism*. London: Routledge. pp. 1-20.
- Heynen, N. and J. Njeru (2006) "Ecological Globalization and the Social Production of Nature." In D. Conway and N. Heynen (Eds.) *Globalization's Contradictions: Geographies of Discipline, Destruction & Transformation*. pp. 181-195.
- Conway, D. and N. Heynen (2006) "Globalization's Dimensions." In D. Conway and N. Heynen (Eds.) *Globalization's Contradictions: Geographies of Discipline, Destruction & Transformation*. pp. 3-16.
- Conway, D. and N. Heynen (2006) "The Ascendancy of Globalization and Neoliberalism." In D. Conway and N. Heynen (Eds.) *Globalization's Contradictions: Geographies of Discipline, Destruction & Transformation*. pp. 17-34.
- Conway, D. and N. Heynen (2006) "Toward 'fair globalization': Opposing Neoliberal Destruction, Relying on the Democratic Institutions and Local Empowerment, and Sustaining Human Development." In D. Conway and N.C. Heynen (Eds.) *Globalization's Contradictions: Geographies of Discipline, Destruction & Transformation*. pp. 226-241.

4. Professional Activity

- 2009- Associate Director, UGA Center for Integrative Conservation Research (CICR)
- 2009- Conservation PhD Steering Committee
- 2008- UGA Center for Integrative Conservation Research (CICR) Advisory Committee
- 2008- UGA Faculty Senate Representative
- 2006- Chair, Antipode's Summer Institute for the Geographies of Justice (SIGJ)
- Association of American Geographers
 - Socialist and Critical Geography Specialty Group
 - Cultural and Political Ecology Specialty Group
 - Urban Geography Specialty Group
- American Studies Association
 - Southern American Studies Association
- Radical Philosophy Association

5. Expected responsibilities in this program

Serve on committees or as major professor; possibly develop new courses to serve as electives.
Develop core courses.

1. **Name:** Marguerite Madden
Rank: Professor and Director Center for Remote Sensing and Mapping Science (CRMS)
Academic Discipline: Geography
Institutions attended, degrees earned:
State University of New York, B.A. Biology
State University of New York, M.A. Biology
University of Georgia, Ph.D. Ecology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program

I teach Geog 4330/6330 Interpretation of Aerial Photograph and Image Analysis in the Fall and Geog 8450 Geospatial Techniques in Landscape Analysis in the Spring.

I have a reduced teaching load because I am Director of CRMS.

3. Scholarship and publication record for the past five years

- Kim, M., M. Madden and B. Xu, 2010. GEOBIA Forest Mapping in Great Smoky Mountains National Park, *Photogrammetric Engineering and Remote Sensing*, in press.
- Schiewe, J. and M. Madden, (Eds.) 2010. Challenges in Geospatial Analysis and Visualization II, Special Issue, *ISPRS Journal of Photogrammetry and Remote Sensing*, in press.
- Madden, M. (Editor-in-Chief). 2009. *Manual of Geographic Information Systems*, American Society for Photogrammetry and Remote Sensing, Bethesda, Maryland, 62 chapters, 1330 p.
- Meng, Q., B.E. Borders, C.J. Cieszewski and M. Madden, 2009. Nearest neighbor computation for removing clouds, *Photogrammetric Engineering and Remote Sensing*, 75(5): 569-576.
- Madden M. and Amy Ross, 2009. Genocide and GIScience: Using geographic information science (GIScience) to study human rights, *Professional Geographer*, 61(4): 1-19.
- Kim, M., M. Madden and T. Warner, 2009. Object-based forest type mapping with grey-level co-occurrence matrix texture and multispectral IKONOS imagery, *Photogrammetric Engineering and Remote Sensing*, 75(7):819-829.
- Fleming, S., T. Jordan, M. Madden, E.L. Usery and R. Welch, 2009. GIS applications for military operations in coastal zones, *International Journal for Photogrammetry and Remote Sensing*, 64(2): 213-222.
- Madden, M., T. Jordan, M. Kim, H. Allen and B. Xu, 2009. Integrating remote sensing and GIS: From overlays to GEOBIA and geo-visualization, In, M. Madden (Ed-in-Chief), *The Manual of Geographic Information Systems*, American Society for Photogrammetry and Remote Sensing, Bethesda, Maryland, 701-720.
- Meng, Q., C.J. Cieszewski, B.E. Borders and M. Madden, 2009. Large area forest inventory using Landsat ETM+: a geostatistical approach, *ISPRS Journal of Photogrammetry and Remote Sensing*, 64: 27-36.

- Kim, M., M. Madden and T. Warner, 2008. Object-based forest stand mapping using multispectral IKONOS Imagery: Estimation of optimal image object size, In, Th. Blaschke, S. Lang and G.J. Hay (Eds), *Object-Based Image Analysis: Spatial Concepts for Knowledge-Driven Remote Sensing Applications*, Springer-Verlag, New York, 291-307.
- Giraldo., M.A., D. Bosch, M. Madden, E.L. Usery and C. Kvien, 2008. Landscape complexity and soil moisture variation in south Georgia, USA, for remote sensing applications, *Journal of Hydrology*, 357(3-4): 405-420
- Ling, Y., M. Ehlers, E.L. Usery and M. Madden, 2008. Effects of spatial resolution ratio in image fusion, *International Journal of Remote Sensing*, 29(7):2157-2167.
- Meng, Q., C.J. Cieszewski and M. Madden, 2007. A linear mixed-effects model of biomass and volume of trees using Landsat ETM+ images, *Forest Ecology and Management*, 244 (1-3): 93-101.
- Meng, Q., C.J. Cieszewski, M. Madden and B.E. Borders, 2007. K nearest neighbor method for forest inventory using remote sensing data, *GIScience & Remote Sensing*, 44(2): 1-17.
- Ling, Y., M. Ehlers, E.L. Usery and M. Madden, 2007. FFT-Enhanced HIS transform method for fusing high-resolution satellite images, *ISPRS Journal of Photogrammetry and Remote Sensing*, 61(6): 381-392.
- Madden, M., T.R. Jordan and J. Dolezal, 2006. Geovisualization of vegetation patterns in National Parks of the Southeast, In, E. Stefanakis, M.P. Peterson, C. Armenakis, V. Delis (Eds.), *Geographic Hypermedia: Concepts and Systems*, Springer-Verlag, New York: 329-344.
- Gibbs, S.E.J., M. C. Wimberly, M. Madden, J. Masour, M.J. Yabsley and D.E. Stalknecht, 2006. Factors affecting the geographic distribution of West Nile virus in Georgia, USA: 2002-2004. *Vector Borne and Zoonotic Diseases*, 6(1): 73-82.
- Madden, M. and Giraldo, M., 2005. Landscape modeling and geovisualization. (Invited Paper), In, S. Nayak, Ed., *Geospatial Today*, 3(7):14-20.

4. Professional Activity

- Technical Commission President, International Society for Photogrammetry and Remote Sensing (ISPRS) Commission IV, Geodatabases and Digital Mapping (2008-2012).
- Appointed, Advisory Committee, Center for Integrative Conservation Research, Department of Anthropology, University of Georgia (2008- present).
- Appointed, National Visiting Committee, National Science Foundation GeoTech Center (2008-2010)
- Appointed, Science Advisory Council for Wormsloe Institute for Environmental History (2008 – present)
- Appointed, The Nature Conservancy (TNC) Remote Sensing Advisory Group (2008-present)
- Appointed, ISPRS Strategic Planning Committee (2008 – 2010).
- Appointed, National Visiting Committee for the National Geospatial Technology Center, under the direction of Philip Davis (PI), Delmar College and funded by the Advanced Technical Education (ATE) program at the National Science Foundation (NSF) (2008-2012).
- Appointed, Member of Advisory Council for Eglin Air Force Base Working Group for Ecosystem Management (EWGEM) (2007-present).
- ASPRS Student Chapter Faculty Advisor (2006-present).
- ASPRS Correspondent for ISPRS Commission IV (2002–present).

- ASPRS lead delegate for the University Consortium for Geographic Information Science (UCGIS) (2002–present).
- The University of Georgia delegate for the University Consortium for Geographic Information Science (UCGIS) (2002–present).
- American Society for Photogrammetry and Remote Sensing (ASPRS) (1984-present)
- Association of American Geographers (2003-present)
- Canadian Institute of Geomatics (2008 – present)
- Cartography and Geographic Information Systems (CaGIS) (2008-present)
- International Association of Landscape Ecology (1986-1990, 2005 - present)
- International Primatological Society (2010 to present)
- International Society for Photogrammetry and Remote Sensing, Commission IV Working Groups (1988-present)

5. Expected responsibilities in this program

Serve on committees or as major professor; possibly develop new courses to serve as electives.

- Name:** Quint Newcomer
Rank: Director, UGA Costa Rica; Adjunct Faculty
Academic Discipline: Ecology
Institutions attended, degrees earned:
 Yale University, Ph.D. Social Ecology
 Yale University, M. Environmental Management
 Thunderbird School of Global Management, M. International
 University of Missouri, B.A. Economics
- Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**
 I'm currently not assigned a teaching load, but guest lecture as I can for multiple classes each semester in various disciplines. I am included as co-PI on a USFWS grant that was recently submitted in November (bird monitoring program in Costa Rica).
- Scholarship and publication record for the past five years:**
 G. Basso and Q. Newcomer. Accepted for publication in 2009. Conservation in Human-dominated Landscapes: The Path of the Tapir Biological Corridor. *Teirra Tropical*, EARTH University, Costa Rica.
 Q. Newcomer. 2007. Innovations in Private Land Conservation: An Integrated Evaluation of Payment for Environmental Services in the Path of the Tapir Biological Corridor in Costa Rica. PhD Dissertation. Yale University School of Forestry & Environmental Studies, New Haven, CT.
 B. Gentry, Q. Newcomer, S. Anisfeld, and M. Fotos (eds). 2007. Emerging Markets for Ecosystem Services: A Case Study of the Panama Canal Watershed. The Haworth Press, Inc., Binghamton, NY.
 M. Fotos, F. Chou, and Q. Newcomer. 2007. Assessment of Existing Demand for Watershed Services in the Panama Canal Watershed. Ch. 8 in B. Gentry, Q. Newcomer, S. Anisfeld,

and M. Fotos (eds). Emerging Markets for Ecosystem Services: A Case Study of the Panama Canal Watershed. The Haworth Press, Inc., Binghamton, NY.

M. Fotos, Q. Newcomer, and R. Kuppalli. 2007. Policy Alternatives to Improve Demand for Water-Related Services in the Panama Canal Watershed. Ch. 9 in B. Gentry, Q. Newcomer, S. Anisfeld, and M. Fotos (eds). Emerging Markets for Ecosystem Services: A Case Study of the Panama Canal Watershed. The Haworth Press, Inc., Binghamton, NY.

4. Professional Activity:

- Consultant, Consultoría para Organizaciones Sostenibles, S.A. (CaOS), San José, Costa Rica. 10/99–Current
- Director and Resident Scientist, University of Georgia Campus and Programs in Costa Rica, Athens, GA and San Luis de Monteverde, Costa Rica. September 2005 – Current.
- Rural Sociological Society
- International Association for Society and Natural Resources
- Mesoamerican Society for Biology and Conservation
- Classic City of Athens Rotary Club Honorary Member

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

- 1. Name:** Nathan Nibbelink
Rank: Assistant Professor
Academic Discipline: Forestry & Natural Resources
Institutions attended, degrees earned:

University of Wyoming, Ph.D. Zoology & Physiology
University of Wisconsin, M.S. Limnology
Lawrence University, B.A. Biology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program

Fall:

FANR 8400 Advanced Spatial Analysis, 3 cr (most years)

FANR 8000 Seminar in Data Management, 1 cr

Spring:

FANR 3800 Spatial Analysis for Natural Resources, 3 cr

FANR 5620/7620 GIS Applications in Natural Resources, 3 cr (even years)

I believe that one or both of my graduate courses in Spatial Analysis will fit very well within the program (everyone needs GIS). I could see making a modest additional teaching contribution to one of the 2 core courses if the courses are multi-instructor and my commitment was in spring of odd years.

3. Scholarship and publication record for the past five years:

- Albeke, SE, NP Nibbelink, L Mu, and DJ Ellsworth. *In review*. Measuring boundary convexity at multiple spatial scales using a linear moving-window: an application to coastal river otter habitat selection. *Landscape Ecology*.
- Nibbelink, N.P., K.T. McAbee, J.C. Wilson, and L. Brons. *In review*. Spatial analysis of fish populations and potential threats in southeastern National Park Units. Natural Resource Report NPS/NRPC/NRR—2010/xxx. National Park Service, Fort Collins, Colorado.
- Fauver, R., A. Fisk, N. Nibbelink, G. Tomy, B. Rosenberg, and J. Peterson. *In review*. Modeling the influence of land-use and season on organochlorine chemical delivery to estuarine systems. *Environmental Science and Technology*.
- Bettinger, P. T. Lowe, J. Siry, K.L. Merry, and N. Nibbelink. *In Press*. Analytical decisionmaking considerations for upgrading or changing GIS software. *Journal of Forestry*.
- Roe, A. M, C. B. Meyer, N. P. Nibbelink, and M. Ben-David (*accepted pending minor revision*). Differential productivity of trees and shrubs in response to fertilization and disturbance by coastal river otters in Alaska. *Ecology*.
- Worsham, L., D. Markewitz, N. Nibbelink. *In Press*. Incorporating spatial dependence into estimates of soil carbon contents under different landcovers. *Soil Science Society of America Journal* 74(2):x-xx. Published Online 8 Dec. 2009.
- Morse, B.W., N.P. Nibbelink, D.A. Osborn, and K.V. Miller. 2009. Home range and habitat selection of an insular fallow deer (*Dama dama l.*) population on Little St. Simons Island, Georgia, U.S.A. *European Journal of Wildlife Research* 55:325-332.
- Kiesecker, J.M, H. Copeland, A. Pocewicz, N. Nibbelink, B. McKenney, J. Dahlke, M. Holloran, and D. Stroud. 2009. A framework for implementing biodiversity offsets: selecting sites and determining scale. *BioScience* 59:77-84.
- Wilson, J., N.P. Nibbelink, and D. Peterson. 2009. Thermal tolerance experiments help establish survival probabilities for tilapia, a group of potentially invasive aquatic species. *Freshwater Biology* 54:1642-1650.
- Manangan, J.S., S.H. Schweitzer, N. Nibbelink, M.J. Yabsley, S. Gibbs, and M.C. Wimberly. 2008. Habitat factors influencing distributions of *Anaplasma phagocytophilum* and *Ehrlichia chaffeensis* in the Mississippi Alluvial Valley. *Journal of Vector-Borne Zoonotic Disease* 8(1):1-11.
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- Merry, K., Bettinger, P., Clutter, M., Hepinstall, J., Nibbelink, N.P. 2007. An assessment of geographic information systems (GIS) skills employed by field-level natural resource managers. *Journal of Forestry* 105(7):364-370.
- Belica, L.T. and N.P. Nibbelink. 2006. Mountain Sucker (*Catostomus platyrhynchus*): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region.
- Bedessem, M.E., Casey, B., Frederick, K., and Nibbelink, N.P. 2005. Aquifer prioritization for ambient groundwater monitoring. *Groundwater Monitoring & Remediation* 25:150-158.

Driese, K., and Nibbelink, N.P. 2005. Database development for analysis of cumulative impacts in southeast Wyoming. Wyoming Game and Fish Department Technical Report.

4. Professional Activity

- Member, Ad-hoc Committee for Computers & Information Systems
- Faculty Advisor, Student sub-unit of the American Fisheries Society
- American Fisheries Society
- American Society for Photogrammetry and Remote Sensing
- Society for Conservation Biology

5. Expected responsibilities in this program

Serve on committees or as major professor; possibly develop new courses to serve as electives. Develop core courses.

1. **Name:** Catherine M. Pringle
Rank: Distinguished Research Professor, Odum School of Ecology
Academic Discipline: Ecology
Institutions attended, degrees earned:
University of Michigan, B.S. Botany (Honors)
University of Michigan, M.S. Resource Ecology
University of Michigan, Ph.D. Aquatic Biology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program

All of my teaching is during fall semester, during which I co-teach ECOL 6080 (MS, Conservation Ecology and Sustainable Development (CESD) core course), ECOL 30XX (undergraduate conservation course), and coordinate the ECOL 8400 (MS CESD core seminar course).

During both fall and spring terms I work closely with eight PhD students (editing their work and helping them develop their dissertations) and have weekly lab meetings (also listed as a 1 credit course). I do not teach during the spring term because this is typically the dry research season in Costa Rica, Puerto Rico, Panama, and Trinidad. Typically I visit each research site during the spring term. I am on three University-wide committees and two departmental committees, and I serve on the advisory board/executive committees for three LTERs (I am co-PI for two of these sites). Most of these LTER activities occur during spring and summer terms.

3. Scholarship and publication record for the past five years

Brokaw, N., J. K. Zimmerman, M. Willig, G. Camilo, A. Covich, T. Crawl, N. Fetcher, B. Haines, J. Lodge, A. Lugo, R. Myster, C. M. Pringle, J. Sharpe, F. Scatena, T. Schowalter, W. Silver, J. Thompson, D. Vogt, K. Vogt, R. Waide, L. Walker, L. Woolbright, J. Wunderle, and X. Zou *In press*. Chapter 5: Response to disturbance. *In*: N. Brokaw, R. Waide, T. Crawl, W. McDowell, Lugo, F. Scatena, and M. Willig (eds) *Disturbance, response and tropical forest dynamics: Long-term perspectives and implications*. Oxford University Press.

- McDowell, W. H., N. V. Brokaw, G. R. Camilo, A. P. Covich, T. A. Crowl, G. Gonzalez, P. Klawinski, D. J. Lodge, C. M. Pringle, B. A. Richardson, M. J. Richardson, F. N. Scatena, D. A. Schaefer, W. L. Silver, J. Thompson, D. Vogt, K. Vogt, R. B. Waide, M. Willig, L. Woolbright, X. Zou. In press. Chapter 3: Geographic and Ecological Setting. *In: N. Brokaw, R. Waide, T. Crowl, W. McDowell, A. Lugo, F. Scatena, & M. Willig (eds) Disturbance, response & tropical forest dynamics: Long-term perspectives and implications.*
- Lugo, A. E., F. N. Scatena, R. B. Waide, E. A. Greathouse, C. M. Pringle, M. Willig, K. A. Vogt, L. Walker, G. Gonzalez, W. H. McDowell and J. Thompson. In press. Chapter 12: Management implications and applications of long-term ecological research. *In: N. Brokaw, R. Waide, T. Crowl, W. McDowell, A. Lugo, F. Scatena, and M. Willig (eds) Disturbance, response and tropical forest dynamics: Long-term perspectives and implications.* Oxford University Press.
- Ardon, M., C. M. Pringle, and S. L. Eggert. In press (2009). Does leaf litter chemistry differentially affect leaf breakdown in tropical versus temperate streams?: Importance of using standardized analytical techniques to measure leaf chemistry. *Journal of the North American Benthological Society* x: xx-xx.
- Benstead, J.P., March, J.G., C.M. Pringle, K.C. Ewel, and J.W. Short. In press (2009). Community structure and leaf litter breakdown in an insect-poor Micronesian stream. *Journal of the North American Benthological Society* x: xx-xx.
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- Boon, P. J. and C. M. Pringle (eds.). 2009. Assessing the conservation value of fresh waters. Cambridge University Press.
- Colon-Gaud, C., M. R. Whiles, S. S. Kilham, K. R. Lips, C. M. Pringle, S. Connelly, and S. D. Petersen. 2009. Assessing ecological responses to catastrophic amphibian declines: Changes in macroinvertebrate production and food web structure in upland Panamanian streams. *Limnology and Oceanography* 54: 331-343.
- Crook, K. E., C. M. Pringle, and M. C. Freeman. In press (2009). A method to assess longitudinal riverine connectivity in tropical streams dominated by migratory biota. *Aquatic Conservation* xx: xx-xx.
- Kominoski, J. S., and C. M. Pringle. In press?. Resource-consumer diversity: testing effects of leaf litter species diversity on stream macroinvertebrate communities. *Freshwater Biology* x: xx-xx.
- Palcovacs, E. P., M. C. Marshall, B. A. Lamphere, B. R. Lynch, D. J. Weese, D. F. Fraser, D. N. Reznick, C. M. Pringle and M. T. Kinnison. In press (2009). Experimental evaluation of evolution and coevolution as agents of ecosystem change in tropical streams. *Philosophical Transactions of the Royal Society of London Series B-Biological Sciences* x: xx-xx.
- Boon, P. J. and C. M. Pringle 2009. Introduction. *In: P. J. Boon, and C. M. Pringle (eds.) Assessing the conservation value of fresh waters.* Cambridge University Press.
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- Ramirez, A., C. M. Pringle and K. M. Wantzen 2008. Tropical River Conservation, pp. 285-304. *In*: D. Dudgeon (ed). Tropical Stream Ecology, Academic Press, 316 p.
- Wantzen, K. M., C. Yule, J. Mathooko, and C. M. Pringle. 2008. Organic matter dynamics and processing in tropical streams, pp.44-65. *In*: D. Dudgeon (ed). Tropical Stream Ecology. Academic Press, 316 p.
- Anderson, E. A., C. M. Pringle, and M. C. Freeman. 2008. Quantifying the cumulative extent of river fragmentation by dams in the Sarapiquí River Basin, Costa Rica: A first step towards evaluating environmental tradeoffs. *Aquatic Conservation* 18:408-417.
- Ardon, M., and C. M. Pringle. 2008. Do secondary compounds inhibit microbial- and insect-mediated leaf breakdown in a tropical stream? *Oecologia* 155:311-323.
- Colon-Gaud, C., S. Peterson, M. Whiles, S. S. Kilham, K. R. Lips, and C. M. Pringle. 2008. Allochthonous liter inputs, organic matter standing stocks and organic seston dynamics in upland Panamanian streams: Potential effects of larval amphibians on organic matter dynamics. *Hydrobiologia*. 603: 301-312.
- Cook, B. D., C. M. Pringle and J. M. Hughes. 2008. Molecular evidence for sequential colonization and taxon cycling in freshwater decapod shrimps on a Caribbean island. *Molecular Ecology* 17: 1066-75.
- Cook, B. D., C. M. Pringle, and J. M. Hughes. 2008. Phylogeography of an island endemic: the Puerto Rican freshwater crab, *Epilobocera sinuatifrons*. *Journal of Heredity*. 99: 157-164.
- Connelly, S., C. M. Pringle, R.J. Bixby, S.S. Kilham, K.R. Lips, and M.R. Whiles. 2008. Algal response to loss of tadpoles in a Neotropical stream: Small-scale enclosure experiments predict whole-stream extirpation of larval amphibians. *Ecosystems* 11: 1262-1276.
- Gardiner, N., A. B. Sutherland, R. J. Bixby, M. C. Scott, J. L. Meyer, G. S. Helfman, E. F. Benfield, C. M. Pringle, , P. V. Bolstad, and D. N. Wear. 2008. Linking stream and landscape trajectories in the southern Appalachians. *Environmental Management* xx: xx-xx.
- Kilham, S., M. Hunte-Brown, P. Verburg, C. M. Pringle, M. R. Whiles, K. R. Lips, and E. Zandona. 2008. Challenges for interpreting stable isotope fractionation of carbon and nitrogen in tropical aquatic ecosystems. *Verhandlungen Internationale Verein. Limnol.* 30 (5): 749-753.
- Kominoski, J., C. M. Pringle, and B. A. Ball. 2008. Invasive woolly adelgid appears to drive seasonal hemlock and carcass inputs to a detritus-based stream. *Verhandlungen Internationale Verein. Limnol.* 30: 109-112.

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- Small, G. E., and C. M. Pringle, F. J. Triska, J. H. Duff, A. P. Jackman, M. Hidalgo, A. Ramirez and M. Ardon. 2008. Phosphorus uptake dynamics during an eight year P-addition in a Neotropical headwater stream. *Verhandlungen Internationale Verein. Limnol.* 30: 1-4.
- Smith, K. L., I. Corujo-Flores, and C. M. Pringle. 2008. A comparison of the current and historical fish assemblages in a Caribbean island estuary: Conservation value of historical data. *Aquatic Conservation* 18: 993-1004.
- Ardon, M., and C. M. Pringle. 2007. Organic matter quality mediates heterotrophic biofilm response to phosphorus enrichment of the water column and substratum. *Freshwater Biology* 52: 1762-1772.
- Carey, R. O., G. Vellidis, R. Lowrance, and C. M. Pringle. 2007. Do nutrients limit algal periphyton in blackwater coastal plain streams? *Journal of the American Water Resources Association.* 43(5): 1183-1195.
- Freeman, M.C., C. M. Pringle, and C. R. Jackson. 2007. Hydrologic connectivity and the contribution of stream headwaters to ecological integrity at regional scales. *Journal of the American Water Resources Association.* 43: 5-14.
- Kominoski, J.S., C. M. Pringle, B. A. Ball, M. A. Bradford, D. C. Coleman, D. B. Hall and M. D. Hunter. 2007. Non-additive effects of leaf litter species diversity on breakdown dynamics in a detritus-based stream. *Ecology* 83: 1167-1176.
- Verburg, P., Kilham. S. S., C. M. Pringle, K. R. Lips, D. Drake, and M. Whiles. 2007. A stable isotope study of a neotropical stream food web prior to the extirpation of its large amphibian community. *Journal of Tropical Biology* 23: 643-51.
- Seares, J., K. Smith, E. Anderson, and C. M. Pringle. 2007. Effects of globalization on freshwater systems and strategies for conservation, Chapter 3, pp. 75-91. *In: W. W. Taylor, M. G. Schechter and L. G. Wolfson (eds.) Globalization: Effects on fisheries resources.* Eds.. Cambridge, UK, Cambridge University Press.
- Anderson-Olivas, E. A., C. M. Pringle, and M. Rojas. 2006. Transforming tropical rivers: An environmental perspective on hydropower development in Costa Rica. *Aquatic Conservation.* 16: 679-693.
- Anderson-Olivas, E. A., M. C. Freeman, and C. M. Pringle. 2006 Ecological consequences of hydropower development in Central America: Impacts of small dams and water diversion on neotropical stream fish assemblages. *River Research and Applications* 22:397-411.
- Ardon, M. A., L. Stallcup, and C. M. Pringle. 2006. Does carbon quality mediate phosphorus stimulation of leaf breakdown dynamics in neotropical streams? *Freshwater Biology* 51:618-633.
- Benstead, J. P., J. March, B. Fry, K. Ewel, and C. M. Pringle. 2006. Testing IsoSource: stable isotope analysis of a tropical fishery with diverse organic matter sources. *Ecology* 87:26-333.
- Bernhardt, E., S. E. Bunn, D. D. Hart, B. Malmqvist, T. Muotka, R. J. Naiman, C. M. Pringle, M. Reuss, and B. van Wilgen. 2006. Perspective: the challenge of ecologically sustainable water management. *Water Policy* 8: 47-479.

- Esselman, P. C., M. C. Freeman, and C. M. Pringle. 2006. Fish assemblage variation between geologically defined regions and across a longitudinal gradient in the Monkey River Basin, Belize. *Journal of the North American Benthological Society*. 25:140-154.
- Greathouse, E. , C. M. Pringle, and W. McDowell. 2006. Do small-scale enclosure/enclosure experiments predict effects of large-scale extirpation of freshwater migratory fauna? *Oecologia*. 149: 709-717.
- Greathouse, E. A., C. M. Pringle, W. H. McDowell, and J. G. Holmquist. 2006. Indirect upstream effects of dams: consequences of migratory consumer extirpation in Puerto Rico. *Ecological Applications* 16: 339-352.
- Greathouse, E. A., C. M. Pringle and J. G. Holmquist. 2006. Conservation and management of migratory fauna and dams in tropical streams of Puerto Rico. *Aquatic Conservation*. 16: 695-712.
- Greathouse, E. A., and C. M. Pringle. 2006. Does the River Continuum Concept apply on a tropical island? Longitudinal variation in a Puerto Rican stream. *Canadian Journal of Fisheries and Aquatic Sciences*. 63: 134-152.
- Greathouse, E. and C. M. Pringle. 2006. A new stream sampler for estimating densities and biomass of macroinvertebrates and standing stocks of organic matter on boulders and bedrock in pools. *Verhandlungen Internationale Verein. Limnol.* 29: 975-978.
- Jackman, , A. P., F. J. Triska, J. H. Duff, and C. M. Pringle. 2006. Is Rhodamine WT conservative in small stream studies? Results from upland and lowland reaches of a tropical stream. *Verhandlungen Internationale Verein. Limnol.* 29:1645-1650.
- Ramirez, A. , C. M. Pringle, and M. Douglas. 2006. Temporal and spatial patterns in stream physicochemistry and insect assemblages in a tropical lowland streams. *Journal of the North American Benthological Society* 25: 108-123.
- Ramirez, A. and C. M. Pringle. 2006. Fast growth and turnover of chironomid assemblages in response to stream phosphorus levels in a tropical lowland landscape. *Limnology and Oceanography* 51:189-196.
- Stallcup, L. A., M. Ardon, and C. M. Pringle. 2006. Does nitrogen become limiting under high-P conditions in detritus-based tropical streams? *Freshwater Biology*. 51:1515-1526.
- Triska, F. J., C. M. Pringle, J. H. Duff, R. J. Avanzino, A. Ramirez, M. Ardon, and A. Jackman. 2006a. Soluble reactive phosphorus (SRP) transport and retention In tropical rainforest streams draining a volcanic landscape in Costa Rica. 1. Long-term concentration patterns, pore water environment and response to ENSO events. *Biogeochemistry*. 81: 131-143.
- Triska, F. J., C. M. Pringle, J. H. Duff, R. J. Avanzino, and G. Zellweger. 2006b. Soluble reactive phosphorus transport and retention in tropical rainforest streams draining a volcanic landscape in Costa Rica: In situ SRP amendment to streams and laboratory studies. *Biogeochemistry* 81:145-157.
- Whiles, M., K. Lips, C. Pringle, S. Kilham, R. Bixby, R. Brenes, S. Connelly, J. C. Colon-Gaud, M. Hunte-Brown, A. D. Huryn, C. Montgomery, and S. Peterson. 2006. The effects of amphibian population declines to the structure and function of Neotropical stream ecosystems. *Frontiers*. 4(1): 27-34.
- Pringle, C. M., E. Anderson, M. Ardon, R. Bixby, A. Ramirez, G. Small, and M. Snyder. In Press. The Riverine Ecosystems. In: M. Kaapelle & L. Diego Gomez (eds.) Ecosystems of Costa Rica. University of Chicago Press.

- Lamberti, G. A., J. W. Feminella, and C. M. Pringle. 2006. Plant-herbivore interactions, Chapter 23, pp. 537-560. *In: F. R. Hauer and G. A. Lamberti (eds.) Methods in stream ecology, Second Edition, Academic Press, 877 p.*
- Pringle, C. M., and F. J. Triska. 2006. Effects of nutrient enrichment on periphyton, Chapter 32, pp. 743-760. *In: F. R. Hauer and G. A. Lamberti (eds.) Methods in stream ecology, Second Edition, Academic Press, 877 p.*
- Pringle, C. M. 2006. Hydrologic connectivity: A neglected dimension of conservation biology. Chapter 10, pp. 233-54. *In: K. Crooks and M. Sanjayan (eds). Connectivity conservation. Cambridge University Press. 712 p.*

4. **Professional Activity**

- Chair, Steering Committee, Conservation and Sustainable Development Masters
- Program, Institute of Ecology, 1995-present.
- Member, Odum School of Ecology Graduate Program Committee, 2000-present.
- Member, UGA University Council Faculty Admissions Committee, 2007-present.
- Member, Inaugural UGA Diversity Advisory Council, 2007-present.
- Member, UGA University Council Cultural Climate Sub-committee, 2008-present.
- UGA Faculty Advisor, Georgia Chapter of the Society for Conservation Biology, 2007-present.
- Invited Member, Strategic Planning Committee to UGA;s Center for Integrative Conservation Research, 2008-present.
- Invited Member, Georgia Coastal Ecosystems Advisory Committee, 2006-present.
- Invited Member, Scientific Advisory Committee, Coweeta LTER Project, 2004-present.
- Management Team, River Basin Science and Policy Center, International Programs, 2000-present.
- Curriculum Committee for New School of the Environment, University of Georgia, Athens, GA, 2000-present.
- Member, Scientific Advisory Committee, Lake Allatoona Preservation Authority, Atlanta, GA, 2000-present.
- Committee to develop Masters Program in Ecological Engineering, 2001-present.
- Member, UGA Conservation Ecology and Sustainable Development Program Steering Committee, Institute of Ecology, 1993-present.
- U.S. Representative International Society of Limnology and Oceanography, 2001-04 2004-07. 2007-10, 2010-2013
- Member, Global Change on Tropical Elevational Transects Working Group, 2009-
- Chair, Awards Committee , Ecological Society of America, 2006-2009.
- Elected U.S. Representative International Society of Limnology and Oceanography, 2001-04, 2004-07. 2007-10.
- Invited Member National Center for Ecological Synthesis, Science Advisory Board, 2004-07.
- Invited Member, INTECOL International Scientific Committee, to organize the 8th International Wetland Conference in Cuiaba-MT, Brazil, August 2008.
- Invited Member, External Scientific Advisory Committee, Georgia Coastal Environmental LTER, 2007-present.
- Invited Member, Executive Committee, Luquillo LTER, Puerto Rico, 2006-present.

- Invited Member, Scientific Advisory Committee, Coweeta LTER Project, 2005-present.
- Member, Board of Delegates, Organization for Tropical Studies, 1992-2009.
- Invited Member, Organization for Tropical Studies Research Advisory Committee, 2002-05.
- Elected President, North American Benthological Society, 2002-03
- Invited Member, National Academy of Sciences Committee "Assessing and valuing the services of aquatic and related terrestrial ecosystems." 2002-04.
- Chair (invited), Steering Committee, Ecological Society of America, Sustainable Biosphere Initiative, 2001-2004.
- Invited Member, National Science Foundation's Special Committee to evaluate the Long-term Ecological Research Program (LTREB), 2003.
- Invited Member, DIVERSITAS International Freshwater Biodiversity Task Force (Committee launched by UNESCO MAB, IUBS, and SCOPE), 2003.
- Invited Member, National Science Foundation Ecosystems Review Panel, 1999-2001.

5. **Expected responsibilities in this program**

Serve on committees or as major professor; possibly develop new courses to serve as electives.
Develop core courses.

1. **Name:** Fausto Sarmiento
Rank: Associate Professor
Academic Discipline: Geography
Institutions attended, degrees earned:
 University of Georgia, Athens, GA, Ph.D. Landscape Ecology
 Ohio State University, M.Sc. Tropical Ecology
 Catholic University of Ecuador, B.Sc. Biology

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program**

My typical semester load for teaching is two courses.

Fall: GEOG 4720/6720 and GEOG 8810.

Spring: GEOG 1125 and GEOG 3290.

It will not change with the incorporation of the proposed Conservation PhD, unless I pick students from the program as major professor.

3. **Scholarship and publication record for the past five years**

Sarmiento, F.O. 2009. Geomorphology of Natural and Human Induced Disasters in Ecuador. Pp 156-163. In: Latrubese, E. (Ed). *Natural Hazards and Human-Exacerbated Disasters in Latin America*. Volume 13 Special Volumes in Geomorphology. Elsevier Science.

Sarmiento, F.O., C. Cotacachi & L. E. Carter. 2008. Sacred Imbakucha: Intangibles in the Conservation of Cultural Landscapes in Ecuador. Pp. 125-144, In: Josep M. Mallarach (Editor). *Cultural and Espiritual Values of Protected Landscapes*. Volume 2 in the series, Protected Landscapes and Seascapes. IUCN & GTZ. Kaspereg Verlag, Heidelberg.

Sarmiento, F.O. 2008. Participer Aux Travaux. Pp.87-113. In: B. Debarbieux (Editor). *Enfants des Montagnes du Monde*. Editorial Glenat. Grenoble: France.

- Sarmiento, F.O. 2008. Páramo: Language Hegemonics and Politics of Translation in Andean Prehensive Environments and Conservation Implications. In: Victor, R (editor). *Mountains of the World: Ecology, Conservation and Sustainable Development*. Sultan Qaboos University. Muscat, Oman.
- Sarmiento, F.O. 2008. Agrobiodiversity in the farmscapes of the Quijos River in the Tropical Andes, Ecuador. Pp 22-30. In: Amend, T, J. Brown, A. Kothari, A. Phillips and S. Stolton. (Editors). *Protected Landscapes and Agrobiodiversity Values*. Volume 1 in the series, Protected Landscapes and Seascapes. IUCN & GTZ. Kaspereg Verlag, Heidelberg.
- Sarmiento, F.O. 2008. Andes Mountains and Human Dimensions of Global Change: An Overview. *Pirineos* 163: 7-13.
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- Debarbieux, B., S. Brunel, H. Gumuchian, PS. Ramakhrishnan, V. Pototskaya & F. Sarmiento. 2008. *Enfants des Montagnes du Monde*. Editorial Glenat: Grenoble. 160pp.
- Sarmiento, F.O. 2007. (With Mallarach, J.M., J. Morrison, A. Kothari, J.A. Atauri and B. Wishitemi) In defense of protected landscapes: A reply to criticisms of category V and suggestions for improvement. *IUCN-Conservation category summit proceedings*. Almeria, Spain.
- Sarmiento, F.O. 2007. Paisajes culturales e identidad latinoamericana. *Memorias del II Encuentro Cultural Latinoamericano* (8pp MS). Instituto de Patrimonio Cultural. Ciudad Bolívar, Venezuela. [Cultural Landscapes and Latin American Identity: Proceedings of the II Latin American Cultural Encounter]
- Sarmiento, F.O. 2006. Andean Treeline dynamics and the human dimension of landscape change in the Andes. Pp 233-234. In: Price, M. (editor). *Global Change in Mountain Regions*. Sapiens Publishing: Wiltshire, UK. 398pp.
- Sarmiento, F.O., G. Rodríguez & A. Argumedo. 2005. Cultural landscapes of the Andes: Indigenous and colono culture, traditional knowledge and ethno-ecological heritage. Pp: 143-156. In: Brown, J., N. Mitchel & M. Beresford (editors). *The Protected Landscape Approach: Linking Nature, Culture and Community*. World Conservation Union IUCN: Gland and Cambridge: 262pp.
- Sarmiento, F. O. 2005. Ethnoecology of the tropical Andes: Avian indicators of landscape change in highland Ecuador. *Pirineos* 160: 87-119.

4. Professional Activity

- AIEA. *Association of International Education Administrators* (Research Committee)
- NAFSA. *Association of International Educators*. (Immigration and Study Abroad)
- LASA. *Latin American Studies Association*. (Andes)
- IMS. *International Mountain Society*. Global Mountain Program task force.
- FAO. *Food and Agriculture Organization of the United Nations*. International Ad-hoc Committee on Chapter 13 Agenda 21.
- ESA. *Ecological Society of America* (Mountain ecology, Sustainable Development)
- WCMC. Advisory Board member, *World Conservation Monitoring Centre*, TMCs initiative.
- TMI. Member of the *Mountain Forum*, The Mountain Institute
- IUCN. *The World Conservation Union*

- WCPA. *World Commission Protected Areas*, Member of the Mountain Protected Area Network. Deputy Vice-Chair for Mountains –Capacity Building. Member of the Protected Landscapes Task Force.
- IGU. *International Geographical Union*. Global Mountains Task Force.
- Regional Editor for Latin America, *Mountain Research and Development*.
- Editor:
 - Editorial Board Member for *Pirineos*, the Journal of Mountain Ecology
 - Editorial Board Member for *Lyonia*, an electronic journal for tropical mountains (Hawai’i)
 - Editorial Board Member for *GeoTrópicos*, an electronic journal of geographers (Colombia)
- Juror
 - *International Prize on Biodiversity Conservation in Spain and Latin America: Actions on Conservation*. BBVA Foundation. Madrid, Spain
 - *International Master Program on Environmental Integration and Rural Development’s graduation committee*. International Center for Advanced Mediterranean Studies. CHIAM-Saragoza, Spain.
 - *Member* of the advisory panel for the Geography section of the Educational Standards Commission in the State of Georgia.
- Manuscript Reviewer:
 - *Arctic and Alpine Research, Journal of Latin American Geography, Biotropica, Journal of Geomorphology, Physical Geography, Southeastern Geographer, Bulletin of Latin American Research, Ambio, Environmental Conservation, Mountain Research and Development, Bulletin of the International Geographical Union, The Geographical Review, The Geographical Journal, Geografía Aplicada y Desarrollo, Pirineos Journal of Mountain Ecology*.
- Proposal Reviewer:
 - National Science Foundation, International Programs of Science and Engineering; Fulbright Scholar Program in Environmental Sciences; National Academy of Science; National Science Foundation, Geography and Regional Science, Division of Behavioral and Cognitive Sciences; The National Geographic Research and Exploration; The Social Science Research Council; Czech Science Foundation; The Pan American Center for Geographical Research and Studies.
- *University:*
 - CURO Advisory Board, UGA Honors Program. Environmental Ethics Certificate Program. Caribbean Initiative. Latin American Studies Certificate Program. Graduate Latin America Research Travel. Sustainable Agriculture Group. Center for Sustainable Development Initiative. Facilitator of the Latin American Ethnobotanical Garden. Hispanic Task Force. University System of Georgia’s Board of Regents. Focal Point for the Latino Faculty Initiative and Coordinator of the "Ronda Latina" and of the "Hispanic Heritage Month" on campus. Selection Committee, Office of International Education, Associate Provost for Institutional Diversity. Task Force member for the establishment of the Office of Institutional Diversity. Task Force on Minority Recruitment and Retention. Member of the Latino Advisory Board.
- *Local*
 - Advisory Board Catholic Social Services. Leadership Athens alumni. Friend of the Museum of Art.

- *International*
 - Science Advisory Board Member of the Mountain Research Initiative (MRI) on behalf of the International Human Dimensions Program (IHDP). Switzerland.
 - Task Force Member of the Mountain Collaborative Program. United Nations University UNU. Japan.
 - Mountain Executive Member. Deputy Vice Chair, Capacity Building. WCPA-IUCN Gland.
 - Task Force Member. Global Mountain Program. International Geographical Union IGU Zurich.
 - Task Force Member. Category V: Protected Landscapes. World Commission of Protected Areas IUCN-WCPA. Gland.
 - Scientific Advisor. Tropical Montane Cloud Forests. World Conservation Monitoring Center – WCMC. Cambridge.
 - Facilitator and Member of the Latin American Ethnobotanical Sister Gardens - ETNOJARDIN
 - Technical Advisor. UNESCO/IUCN regional expert for Cultural Landscapes. Paris.
 - Ad-hoc Committee Member. FAO. International Year of the Mountains. Rome.
 - Conservation International’s regional expert for Andean sustainability. Arlington, VA.
 - Advisor and Correspondent Member. Latin American Center for Social Ecology, CLAES. Uruguay.
 - Advisor. Pan American Center for Geographical Research and Studies, CEPEIGE. Ecuador

5. Expected responsibilities in this program

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** Julie Velásquez Runk
Rank: Assistant Professor
Academic Discipline: Anthropology
Institutions attended, degrees earned:
 Yale University, Ph.D. Anthropology
 Yale University, M.S. Anthropology
 Duke University, M. Environmental Management
 Grinnell College, B.A. Biology

2. **Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:**
 Julie Velasquez Runk is currently teaching in Costa Rica and is currently unreachable. She maintains a two course load in both spring and fall semesters.

3. **Scholarship and publication record for the past five years:**
 Velásquez Runk, Julie and Indra Candanedo. In preparation. “Spatial Econometric Analysis as a Tool for Decision-Making in Darién, Panama: Potentials and Shortcomings.”
 Velásquez Runk, J. Submitted. “Crafting Wounaan Landscapes: Culture, History, Ecology, and Conservation in Eastern Panama.” Book manuscript for *Culture, Place, and Nature* series, University of Washington Press.
 Velásquez Runk, J. Submitted. “Retail, Representation, and Rights in Wounaan Art and Landscapes.” Invited paper for *San Diego Museum Paper* series, collected papers from

the 13th Latin America Symposium, Defending Indigenous Lands, Languages, and Cultures.

- Velásquez Runk, Julia. Submitted. "Tomando en cuenta la tagua." *In* Instituto Smithsonian de Investigaciones Tropicales, ed. *Naturaleza Tropical*.
- Velásquez Runk, J., G. Ortíz, L. Peña, F. Peña, G. Mejía, Y. Cheucarama, W. Quintero, M. Obispo, B. Cheucarama, F. Cheucarama, W. Duran, and C. Quiróz. Accepted. "Landscapes, Legibility, and Conservation: An Example from Eastern Panama." *Conservation Letters*.
- Velásquez Runk, J. 2009. "Social and River Networks for the Trees: Wounaan's Riverine Rhizomic Cosmos and Arboreal Environmental Conservation." *American Anthropologist* 111(4): 456-467.
- Reynertson, Kurt, Julie Velásquez Runk, and Nat Bletter. 2008. "Artificae Plantae: The Taxonomy, Ecology, and Ethnobotany of the Simulacraceae." *Annals of Improbable Research*, 14(1): 6-10.
- Velásquez Runk, J., Gervacio Ortíz Negría, Wilio Quintero García, and Cristobalino Quiróz Ismare. 2007. "Political Economic History, Culture, and Wounaan Livelihood Diversity in Eastern Panama." Invited paper for *Agriculture and Human Values*, 24: 93-106.
- Bletter, Nat, Kurt Reynertson, and Julie Velásquez Runk. 2007. "Plantae Artificiae: The Taxonomy, Ecology, and Ethnobotany of the Simulacraceae." Invited paper for *Ethnobotany Research and Applications*, 5: 159-178.
- Velásquez Runk, Julie. 2006. Review of "Carving Out a Future: Forests, Livelihoods, and the International Woodcarving Trade," Anthony Cunningham, Brian Belcher, and Bruce Campbell, eds. *Human Ecology*, 34: 735-736.
- Velásquez Runk, Julie. Photos exhibited with approval of Wounaan individuals and leadership. *Passage to Panama: Past to Present* in Museum of Man, San Diego, California, 2005 – 2006.

4. Professional Activity:

- Proposal reviewer, Cultural Anthropology Program, National Science Foundation
- Manuscript reviewer, *Society and Natural Resources*, *Annals of the Association of American Geographers*, *Economic Botany*, *Social and Cultural Geography*, *Conservation and Society*, *Biotropica*, *Journal of Sustainable Forestry*
- Advisory Committee, Latin American Ethnobotanical Garden, Latin American and Caribbean Studies Institute, University of Georgia, 2009 to present
- Advisory Committee, Conservation PhD, University of Georgia, 2009 to present
- Undergraduate Committee, Department of Anthropology, University of Georgia, 2009 to present

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

1. **Name:** R. Alfred Vick
Rank: Assistant Professor
Academic Discipline: Environment & Design

Institutions attended, degrees earned:

University of Georgia, Master of Landscape Architecture
University of Illinois – Urbana-Champaign, B.S., LAS
Engineering Psychology

2. Current workload for typical semester, including specific courses usually taught; explain how workload will be impacted with addition of proposed program:

Teaching 2 or 3 courses, participation (guest lectures) in 2 or 3 additional courses, serving on various UGA committees, serving on two national committees, serving on 2 non-profit boards, overseeing 1-3 landscape architecture graduate theses.

I do not anticipate any additional workload from this proposal. I would not be overseeing any of the PhD students directly, since we don't have a PhD offering in our College at this point. Some of the courses I teach may enroll PhD students but it won't require additional work on my part.

3. Scholarship and publication record for the past five years:

Vick, R.A. 2009. *Low-impact Land Development: The Practice of Preserving Natural Processes*. Chinese Landscape Architecture. Volume 25/166. (translated by CAO Juan).
Wenger, S.J., Carter, T.L., Vick, R.A., and Fowler, L.A. 2008. *Runoff Limits: An Ecologically-based Stormwater Management Program*. Stormwater 9: 1-10.
Vick, R.A. 2006. *Low-impact Land Development: The Practice of Preserving Natural Processes*. Journal of Green Building. Volume 1, Number 4.
Vick, R.A. 2006. *Site Design for Stormwater Management*. Landscape Architectural Graphic Standards. Len Hopper, Editor. John Wiley & Sons. New York.

4. Professional Activity:

- Appointed Editorial Position, Journal of Green Building, *Associate Editor, 2007-present*
 - LEED Rating System, *2006-present*
- *I have been involved in reviews/updates/modifications of the LEED Rating System.*
 - Energy Efficiency and Sustainable Construction Standards for State Buildings, *2009*
 - *Member of consultant team writing the design guidelines for this new Georgia law.*

5. Expected responsibilities in this program:

Serve on committees or as major professor; possibly develop new courses to serve as electives.

Outstanding programs of this nature in other institutions

Texas A&M – Applied Biodiversity Science

Dr. Lee Fitzgerald. Wildlife and Fisheries Science. Phone: (979) 862-7480

Dr. Amanda Stronza. Recreation, Park, and Tourism Sciences. (979) 845-8931

The vision of Applied Biodiversity Science (ABS) is to achieve integration between biodiversity research and on-the-ground conservation practices. The program is based on three pillars:

- integrated research in biological and social sciences;

- cross-disciplinary research and collaboration with conservation institutions and actors in the field;
- application of conservation theory to practice

Some of the outstanding elements of this program are its focus on reaching across disciplinary lines and the divide between academia and practice, its commitment to creating an interdisciplinary learning community, and an internship requirement. We plan to include the internship requirement and a similar focus on bridging fields of practice, while maintaining disciplinary and academic integrity. After discussions with the Coordinator of this program, we are also convinced that a seminar series in which students present their research proposals to students from different home departments would both help create our community of scholars and increase the quality of our interdisciplinary scholarship.

University of California - San Diego Scripps Institute of Oceanography – Global Change, Marine Ecosystems, and Society

Dr. Richard D Norris. Scripps Institution of Oceanography. (858) 822-1868

This program is reflective of the fact that research in climate change is both complex and multi-disciplinary and requires a broader perspective than can be gained in traditional disciplinary programs. It seeks to link scientists to policy makers to incorporate new knowledge on perturbations to natural processes caused by climate change into social policy. Major research themes are: global change effects of greenhouse gas drivers from the scientific, economic, legal and political perspectives; ecosystem impacts of changes in temperature, sea level, runoff, and ocean acidification; societal impacts of population dislocations, human health, sustainability of fisheries, transnational legal issues and impacts on tourism; and impact on public perception, communications strategies and public policy.

This program is particularly interesting for its inclusion of “collaboratories,” a summer interdisciplinary course, and case-based learning. We plan to include both collaboratories and case-based learning in our program, though our integrative courses will form major components of a student’s program of study in each of the first two semesters.

Inventory of pertinent library resources

The University of Georgia houses an outstanding library system that thoroughly covers both the social and natural sciences that are pertinent to conservation. In 2009, UGA ranked 32nd in total number of volumes held and 22nd in total number of current serials owned (Source: *ARL Statistics, 2009*). The University library system has more than 4.1 million volumes, and subscribes to more than 7,000 print journals and provides online access to 35,000 periodicals. Existing faculty and graduate students in the affiliated programs have largely found these resources to be adequate for their needs, and when a volume or article is not available, it is readily obtained through Inter-Library Loan.

Additionally, the library at the Center for Conservation Research houses numerous volumes, and perhaps more importantly, an extensive collection of grey literature disseminated by conservation NGOs and government agencies. We plan to continue enhancing CICR’s holdings.

Describe the desired qualifications of the students who will be recruited and admitted to the proposed program, including ethnic populations that will be targeted.

Students will be recruited and admitted following the guidelines of the Graduate School and of the home department in which the applicant has expressed interest. Students will apply to and be recommended for admission by one of the four home departments: Anthropology, Ecology, Forestry and Natural Resources, or Geography. If an applicant is approved for admission by both the home department and the Selection Committee of the Integrative Conservation program, the home department will recommend the student for admission to the Graduate School using the major code for the integrative major (eg. Integrative Conservation and Anthropology rather than simply Anthropology). Students not approved by Integrative Conservation may still be admitted to the home department they have selected.

Additionally, we will actively recruit students who are non-traditional in the field of conservation – women and minorities – by reaching through traditional academic channels and by recruiting through partner institutions (NGOs, community groups) and through the communities in which we work.

Facilities

The University has numerous outstanding laboratories, centers, and field stations that will contribute to the excellence of this program. For example, the River Basin Center, the Center for Biodiversity and Ecosystem Processes, the Natural Resources Spatial Analysis Laboratory, and the Center for Integrative Conservation Research can all provide top-notch research facilities for students. Similarly the Coweeta LTER and the Coastal Georgia Ecosystems LTER, along with field stations in Costa Rica and elsewhere and projects such as the Choco Andes Corridor Project, will provide students with a variety of opportunities for exciting field-based interdisciplinary collaborations.

Students who are admitted into this program will be provided office or desk space according to the policies of their home departments. No additional facilities are required at this time.

Administration

We plan to establish this program as four separate majors linked to the four departments of Anthropology, Ecology, Forestry and Natural Resources, and Geography. Students will complete the requirements for the doctoral degree in their home department, while fulfilling the additional requirements imposed by this program: namely the two core courses, the internship, and attendance at the speaker series and professional development and training events. Home department administration will be unchanged.

The Integrative Conservation PhD program will officially be housed across departments, much like the linguistics program and the toxicology program currently are. Day to day administration will be carried out by four committees.

- The **Executive Committee** will consist of the director of the Integrative Conservation PhD program, the Academic Coordinator, one student representative, and an additional three to four faculty members. This committee will address policy issues, ensure effective budget allocation, and accept new faculty members.

- The **Selection Committee** will consist of one to two faculty members from each affiliated department. Students apply to departments indicating their interest in the program. When departments receive applications from students indicating an interest in the Integrative Conservation program, they will send these applications to the Selection Committee, which will be responsible for recommending students for approving applicants so that the home department can recommend them for admission to the Graduate School.
- The **Internship Committee** will consist of four to six members and will be responsible for matching students with mentors in conservation NGOs or government NGOs and helping them to secure internships.
- The **Development Committee** will be responsible for creating a development plan and approaching extramural funders. It will consist of four to six members.

Assessment

Students enrolled in this program will be regularly assessed by their committees, and all requirements for progress – comprehensive exams, dissertation preparation, and dissertation defense – will be in accordance with Graduate School policies. Additionally, each year the student’s committee will provide a written report to the Executive Committee of the program, and to the student, indicating whether the student should continue in the program or be terminated.

In order to assess the effectiveness of our program we will track the number of degrees awarded, time to degree, and the ability of our graduates to find quality postdoctoral, faculty, and non-academic positions. We will also conduct exit interviews with our graduates immediately upon completion of the program to determine how the training has satisfied their educational goals and again with graduates who have been out of the program for several years to determine how well the training prepared them for the work they are doing.

We are currently assembling an Advisory Board which will aid in assessment, fund raising, and graduate placement.

Accreditation

This program does not represent “a significant departure, either in content or method of delivery, from those that were offered when the institution was last evaluated” (from the SACS policy on Substantive Change).

Affirmative Action impact

This program will make a concerted effort to recruit a portion of each entering class from less-developed countries, as we believe that this is critical for US-based students to engage with international perspectives and that this integrative training can help prepare international students to confront pressing conservation and development issues in their home countries. In particular, we plan to initiate discussions with the US State Department to arrange for recruiting and funding students from Indonesia, Peru, and elsewhere.

We also believe that this program will be attractive to domestic underserved populations. The focus of several faculty members in the core group for this program lies in urban areas, and we

believe that our attention to landuse planning, urban green spaces, and water quality issues will draw students who have grown up in underprivileged areas of the southeast's cities.

Degree inscription

Doctor of Philosophy

Fiscal and enrollment impact and estimated budget

We anticipate enrolling 10 new students each year. Five of these students will be covered by new RA, TA, GSA, or GRO lines that we are proposing be newly allocated to this program. The remaining five students will be covered by TA or RA lines from the home department or through grant funding provided by the student's major professor.

In addition to the newly enrolled students, we anticipate that approximately five additional students will take each of the newly created ICON core courses. These courses will be open to any graduate student who is interested and who is approved by the course instructors. Additionally, several faculty members have expressed interest in creating new courses to fulfill the requirements of the Integrative Conservation program. These courses will also draw both IC students and students in traditional departments.

It is critical to have an Academic Coordinator to serve as the central communicator and facilitator for faculty and students in this program. This position will be a PhD-level, bilingual scientist cognizant of relevant conservation issues and capable of coordinating such a program. The Coordinator, appointed at the Academic Professional Faculty Rank, will be responsible for managing day-to-day activities of the program, coordinating recruiting and admittance, verifying curriculum requirements, compiling assessment data and coordinating assessment activities for 51% of the EFT. The remainder of the appointment will be 20% teaching and 29% research. Additionally, a half-time Administrative Assistant is needed to manage the large amounts of financial documentation for this program, including travel arrangements and reimbursements. Finally, as outlined above, we are requesting five lines for support of graduate students – which we are requesting as 4/9 appointments to be competitive with other universities – and nominal support for recruiting and coordination activities.

I. ENROLLMENT PROJECTIONS

	FY 2011	FY 2012	FY 2013
A. Student Majors			
1. Shifted from other programs			
2. New to institution	10	10	10
TOTAL MAJORS	10	20	30
B. Course sections satisfying program req.			
1. Previously existing	113	115	117
2. New	2	2	2
TOTAL COURSE SECTIONS	115	117	119
C. Credit hours generated			
1. Existing enrollments	30	270	540
2. New enrollments	240	240	240
TOTAL CREDIT HOURS	270	510	780
D. Degrees awarded	0	0	0

II. COSTS

	EFT	Dollars	EFT	Dollars	EFT	Dollars
A. Personnel - reassigned or existing						
1. Faculty						
2. Part-time faculty						
3. Graduate Assistant	5 at 4/9	81120	5 at 4/9	81120	5 at 4/9	81120
4. Administrators						
5. Support Staff	0.5	18020	0.5	18020	0.5	18020
6. Fringe benefits	0.5	7568	0.5	7568	0.5	7568
7. Other personnel costs						
TOTAL EXISTING PERSONNEL COSTS		106708		106708		106708
B. Personnel - new positions						
1. Faculty	1	50000	1	50000	1	50000
2. Part-time faculty						
3. Graduate Assistant						

4. Administrators					
5. Support Staff					
6. Fringe benefits	1	21000	1	21000	1 21000
7. Other personnel costs					
TOTAL NEW PERSONNEL COSTS		71000		71000	71000

C. Start-up costs	FY 2011	FY 2012	FY 2013
1. Library/learning resources	3000		
2. Equipment			
3. Other	500		
TOTAL ONE-TIME COSTS	3500	0	0
D. Physical facilities; construction or renovation			
TOTAL RECURRING COSTS	9500	9500	9500
GRAND TOTAL COSTS	190708	187208	187208

III. REVENUE SOURCES

A. Source of funds	FY 2011	FY 2012	FY 2013
1. Reallocation of existing funds	48672	48672	48672
2. New student workload			
3. New tuition	142036	142036	142036
4. Federal funds			
5. Other grants			
6. Student fees			
7. Other			
Subtotal	190708	187208	187208
New state allocation request			

	GRAND TOTAL REVENUES	190708	187208	187208
B. Nature of funds				
	1. Base budget	187208	187208	187208
	2. One-time funds	3500		
	GRAND TOTAL REVENUES	190708	187208	187208

Appendices

Letters of support

- Dr. Susan Abbott-Jamieson
Senior Social Scientist
Office of Science and Technology
NOAA Fisheries (NMFS)
- Dr. William Adams
Moran Professor of Conservation and Development
Department of Geography
University of Cambridge
- Dr. Joshua Ginsberg
Senior Vice President
Global Conservation Program
Wildlife Conservation Society
- Dr. Thomas McShane
Research Associate & Principal Investigator
Advancing Conservation in a Social Context
Global Institute of Sustainability
Arizona State University

Electives for PhD program in Integrative Conservation

CVs of affiliated faculty

- Bobe, René
Assistant Professor, Anthropology
- Brosius, J. Peter
Professor, Anthropology
Director, Center for Integrative Conservation Research
- Carroll, Ronald
Professor, Ecology
Director for Science, River Basin Center
Program Coordinator, Conservation Ecology and Sustainable Development
- Covich, Alan
Professor, Ecology
- Fowler, Laurie
Associate Dean, Ecology

Director for Policy and Managing Director, River Basin Center

- Gittleman, John
Dean, Ecology
- Gragson, Theodore
Department head, Professor, Anthropology
Associate Director of the Sustainable Human Ecosystems Laboratory
- Hepinstall-Cymerman, Jeffrey
Assistant Professor, Landscape Ecology
- Heynen, Nik
Associate Professor, Geography
Associate Director, Center for Integrative Conservation Research
- Madden, Marguerite
Associate Professor, Geography
Director, Center for Remote Sensing and Mapping Science
- Newcomer, Quint
Director, UGA Costa Rica
- Nibbelink, Nathan
Assistant Professor, Forestry and Natural Resources
- Pringle, Catherine
Professor, Ecology
Program Chair, CESD Steering Committee, Conservation Ecology and Sustainable Development
Associate Director, Center for Integrative Conservation Research
- Sarmiento, Fausto
Associate Professor, Geography
- Velásquez Runk, Julie
Assistant Professor, Anthropology
- Vick, R. Alfred
Assistant Professor, Environment & Design



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Science and Technology

January 26, 2010

Professor J. Peter Brosius
Director, Center for Integrative Conservation Research
University of Georgia
Athens, Georgia

Dear Professor Brosius:

I am writing this letter to support the establishment of a new doctoral program in Integrative Conservation at the University of Georgia. As we contemplate the ongoing 6th great wave of species extinctions, accompanied by the increasing effects global climate change –both spurred on by worldwide cumulative human activity, we are going to need conservation professionals with every possible skill to help us find ways to cope with the future we are making for ourselves.

Future conservation professionals must be able to collaborate across narrow disciplinary boundaries with colleagues from many different disciplines and areas of practice if they are to be effective in their professional lives. While this is true within the academy, it is especially true outside the academy where public policy is developed, enacted, and executed, and human/environment interactions are regulated. The proposed Ph.D. program in Integrative Conservation has the potential to produce environmental professionals with the skill sets that can improve their effectiveness in contributing to finding solutions to the challenges we are facing. I base these observations on a long career that has combined many years experience in a Ph.D.-granting academic department at a major land grant university with several years as a national program leader in a federal natural resource management agency.

My agency, the National Oceanic and Atmospheric Administration's National Marine Fisheries Service provides an illustration of this point. Nearly all professionals in this agency work at least part of the time on multidisciplinary teams on team projects. This is because the problems that concern us demand several disciplines. Recognizing the complexity of these problems has lead the agency to adopt what they call *ecosystem based management* as the primary approach to managing marine fisheries in the United States and its territories. This approach calls for models that combine biological, economic, and social indicators. Human social and cultural systems are explicitly recognized to be part of the overall system. Identifying and understanding trade offs between potential conservation practices to preserve fish stocks, marine mammals, and

other protected marine species like sea turtles and conflicting human needs is central to our work.

Team members are expected to make contributions to ecosystem based management based on their disciplinary backgrounds. To be most effective, they must be able to present their ideas so that others on the team can understand and relate them to their own, often different disciplinary frameworks. One can do this best if one has had interdisciplinary training in the relevant disciplines, mastering others' disciplinary languages and conceptual frameworks. It is also important to control a variety of research methodologies and methods.

Within my own program area, the most effective staff members combine environmental anthropology or sociology with economics, and have grounding in marine fisheries biology and ecology. They also have mastered quantitative research methods as well as the usual qualitative methods. Finally they write well and easily because they write constantly –research papers, white papers, regulatory guidance, and bullet points for leadership, to name some genre. The proposed Integrative Conservation Ph.D. Program, as I understand it, will produce this kind of professional. I would find someone with this background very attractive as a job candidate for my agency. I believe that other agencies and organizations deeply involved in the conservation and management of the environment around the world and humanity's role in molding its future will also find this kind of professional attractive.

The University of Georgia is in a strong position to develop an outstanding Integrative Conservation program. It has already spent several years developing its Center for Integrative Conservation Research, which I understand will become the coordinating unit for the new program. Its emphasis on identifying conservation practices and policies that simultaneously preserve biodiversity and serve human needs makes it an excellent choice for this role. As a participant in the MacArthur Foundation research initiative Advancing Conservation in a Social Context (ACSC), its associates are actively involved in investigating the complex relationships among conservation goals and economic, political, and social well being for human populations at multiple scales of analysis. There is strength as well in other potentially supporting schools and their centers and programs, e.g., the well-known Odum School of Ecology and the Daniel B. Warnell School of Forestry and Natural Resources. I have long been aware of the Department of Anthropology's program in environmental anthropology, developed during the years I was on the anthropology faculty at the University of Kentucky, and I would expect several faculty from UGA's anthropology department to make contributions to the proposed PhD program.

I applaud your effort to bring this new program to fruition. I see a clear need for

the kind of conservation professional you plan to train. I hope you are successful in the effort.

Sincerely,

A handwritten signature in black ink, appearing to read "Susan Abbott-Jamieson", with a long horizontal flourish extending to the right.

Susan Abbott-Jamieson, Ph.D.
Senior Social Scientist

J. Peter Brosius
Professor of Anthropology
Director, Center for Integrative Conservation
Research
University of Georgia



UNIVERSITY OF
CAMBRIDGE

Department of Geography

20 January 2010

Dear Professor Brosius,

I was delighted to learn that the University of Georgia is seeking to launch a new doctoral program in Integrative Conservation. This sounds a very exciting initiative, both timely and important.

As you know, my own work at Cambridge is concerned with the interfaces between biodiversity conservation and society in Africa. I very often work, as a Human Geographer, with conservation researchers from a wide range of disciplines across the natural and social sciences. The resulting engagements can be challenging, but immensely fruitful. It is my view that, if advances are to be made in on conservation and development, graduate students need to be trained in a wholly new way. It is no good training natural scientists and hoping that they can pick up knowledge of human societies later in their careers, or a social; scientists and hoping they will learn some ecology as they go along. They need training and experience that equips them for work on both sides of the all too-common gulf between the social and natural sciences. Your new initiative seems extremely well placed to do this. There is also a second chasm to be bridged if academic work in conservation is to be effective, and that is between the academy and policy-makers. I am delighted that this, too, is a focus of your new program's work.

I especially like your emphasis on 'integrative' research. It is all too easy to demand that researchers (and especially young researchers) 'integrate' diverse disciplines. It is much more difficult to build effective bridges between those disciplines, drawing on the insights that each offers to create understanding that is robust, effective and lasting. That, it seems to me, is what both academic research and the conservation community need in their young stars.

The building blocks you have the University of Georgia are powerful. I know you own work well, of course, and the existing *Center for Integrative Conservation Research*.

Downing Place
Cambridge CB2 3EN
England

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International +44 1223 333399
Fax: National (01223) 333392
E-mail: enquiries@geog.cam.ac.uk
Website: www.geog.cam.ac.uk

However, an institutional link to the Odum School of Ecology and its various research centers, the School of Forestry and Natural Resources, and wider departments within the University offers an unparalleled opportunity for graduate student training.

Students trained in such an environment will also offer interdisciplinary stimulus and challenge to their professors. It is now widely accepted that conservation research must go beyond conservation biology to embrace a wide range of the natural and social and sciences and humanities. The challenges of living with environmental change are enormous, and frankly existing academic disciplines alone are not going to deliver the insights needed to solve today's problems – let alone train a new generation of thinkers and practitioners.

So, may I wish you every success with your endeavor. It seems to me both well conceived and well timed. The graduates of this program will be extremely well placed to tackle the urgent problems of biodiversity conservation and development. I have no doubt that the program will be well received by students and future employers alike.

Best wishes,

Yours sincerely,

A handwritten signature in black ink that reads "Bill Adams". The signature is written in a cursive, slightly slanted style.

W.M. Adams
Moran Professor of Conservation and Development



WCS
GLOBAL CONSERVATION

January 14, 2010

J. Peter Brosius
Professor of Anthropology
Director, Center for Integrative Conservation Research
University of Georgia

Dear Dr. Brosius,

I am writing in strong support of the proposed new Ph.D. program at the University of Georgia in Integrative Conservation. I write both in my capacity as the Senior Vice President of the Global program of the Wildlife Conservation Society, and as a Professor in the Departments of Ecology, Evolution and Environmental Biology (E3B) and the School for International and Public Affairs (SIPA) at Columbia University, where I have taught graduate level courses in conservation and policy for a decade.

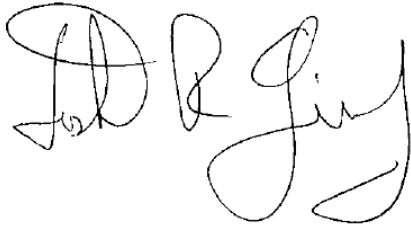
The proposed Ph. D. program at U.Ga. could not be more timely, and important. In developing the current strategic plan for WCS, we recognized that while the core of our mission remains saving wildlife and wildlands, the tools and approaches we have to achieve this mission rely extensively, and increasingly, on being able to bridge a number of disciplines including, but not limited to various fields of biology, anthropology, and climatology, sociology, economics, environmental policy, community development, health and veterinary science, and land use planning. While no one program can provide students with such a breadth of knowledge (and no one human being should be expected to possess it) there is clearly a need for practitioners who are trained in a diverse set of academic disciplines, and who are able to work with others to meet the complex demands inherent in conservation today.

Clearly, the University of Georgia, with its diverse and deep expertise in ecology, forestry, anthropology, and other fields relevant to conservation, is well placed to be at the center of such a program. The establishment of the CICR also provides the University with an established mechanism to ensure that the program is successful. Our experience working with CICR, and staff and students who were at Georgia before CICR was established, convinces me of the power of both the idea of a doctoral program in integrative conservation, and of the ability of the University to deliver on its goals.

2300 Southern Boulevard Bronx, NY 10460 USA t 718.220.5884 f 718.364.4275 e: jjinsberg@wcs.org

I hope it is clear that WCS strongly supports this new program, and that we look forward to working with the CICR in the years to come.

Best

A handwritten signature in black ink, appearing to read "J.R. Ginsberg". The signature is fluid and cursive, with the first name "Joshua" and last name "Ginsberg" clearly legible.

Joshua R. Ginsberg
Senior Vice President
Global Conservation Program



20 January 2010

Dr Peter Brosius
Center for Integrative Conservation Research
University of Georgia
Athens, Georgia

PhD in Integrative Conservation

Dear Dr Brosius,

As you are aware, the Advancing Conservation in a Social Context (ACSC) research initiative was initiated by the John D. and Catherine T. MacArthur Foundation in an effort to better understand the complex trade-offs that exist between human well-being and biodiversity conservation goals, and between conservation and other economic, ecological, political and social agendas at local, national and international scales. One of the most important findings of this research initiative was the difficulty in finding cohesion and commitment between different groups with multiple disparate perspectives about conservation and development which often seemed incommensurable. ACSC's own experience of bringing together academics and practitioners from North and South and from different disciplines highlighted many of these difficulties. It also demonstrated the importance and value of ensuring that these different communities interact and communicate with each other, and of placing special attention on the development of tools and means for facilitating this process.

As a result, ACSC is emphasizing and focusing on the need for conservation professionals to be trained across multiple disciplines and to develop the ability to work across a variety of groups and constituencies in its next phase. This aspect of ACSC's program aims to strengthen instruction about trade-offs with both practitioners and academics and emphasize holistic and critical thinking by using case-based learning as a major pedagogical component. We are looking to support and work with academic integrative multidisciplinary programs like the proposed PhD in Integrative Conservation at the University of Georgia.

Programs such as the one you are proposing remain rare in academia; especially those that look to bring together theory and application as well as cutting across disciplines in conservation. ACSC is very supportive of your approach and we look forward to continued and future collaboration with CICR and the University of Georgia.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Thomas O. McShane', with a long, sweeping underline.

Thomas O. McShane
Research Associate & Principal Investigator
Advancing Conservation in a Social Context
Global Institute of Sustainability
Arizona State University

ADVANCING CONSERVATION IN A SOCIAL CONTEXT
Global Institute for Sustainability

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Electives for PhD program in Integrative Conservation

<u>DEPARTMENT</u>	<u>COURSE ID</u>	<u>COURSE TITLE</u>	<u>DESCRIPTION</u>	<u>PREREQUISITE</u>
Agricultural and Applied Economics	AAEC 4050/6050	Agribusiness and Natural Resource Law	Students will survey legal principles applying to agribusiness firms and natural resources, legal basics, and learn how to access legal materials. Through an understanding of common law, case law, statutes and regulations, students will learn how to discern rights and obligations regarding contracts, torts, property, and natural resources. The materials should enable students to recognize and avoid legal problems and effectively use legal counsel.	Third year standing and (POLS 1101 or HIST 2111 or HIST 2112)
Agricultural and Applied Economics	AAEC 8750	Natural Resource and Environmental Economics II	Management of natural and environmental resources. Major theoretical concepts will provide a basis for examination of efficient production and consumption allocation decisions related to natural resources. Emphasis will center on economic, institutional, and legal aspects which prevent private markets from efficiently valuing resources.	AAEC 6580-6580L
Agricultural and Applied Economics	AAEC 8760	Topics in Natural Resource and Environmental Economics	Classical and contemporary topics in natural resource and environmental economics following a seminar/discussion format.	AAEC 6580-6580L
Agricultural and Environmental Sciences	AESC 2990S	Understanding and Communicating with the Latino Community in the Green Industry	Introduction to cross-cultural communication with the Hispanic/Latino community on horticulture-related topics. Use of basic green industry content-specific Spanish phrases, diversity and commonalities of Latino cultures and cultural values. Applied service-learning and other interactions with Latinos on projects related to the green industry.	
Anthropology	ANTH 4010/6010	Historical Ecology	Principles of human impact through time on ecological landscapes and how these principles can guide contemporary communities in the design of future sustainable land and water use. Special focus on the American southern piedmont covering a ten thousand year period from pre-agriculture to post-industrial societies.	ANTH 1102
Anthropology	ANTH 4015/6015	Landscapes and Memories	Through readings, discussions, and research projects this course will try to confront what D.W. Meinig's "central problem," "Any landscape is comprised not only of what lies before our eyes but what lies inside our heads."	NONE

Anthropology	ANTH 4060/6060	Agricultural Anthropology	Origin and evolution of agriculture, comparative analysis of current agricultural issues, and alternative approaches to sustainable food production, emphasizing anthropological perspectives and case studies. Includes farming systems, indigenous knowledge, agrobiodiversity, globalization, farmer-scientists collaboration, interdisciplinary research, and role of anthropology in sustainable agriculture.	ANTH 1102
Anthropology	ANTH 4070/6070	Cultural Ecology	The influence of the environment on human behavior and analysis of common adaptive responses among human populations to particular environments, emphasizing the role of culture in the ecological process.	ANTH 1102 or permission of department
Anthropology	ANTH 4560/6560	Anthropology of Development	Relationships among development, culture and environment from the world system perspective. Concepts of dependence, hegemony, inequality, and resistance are brought to bear in exploring interlinkages between (and among) underdevelopment, resource exploitation, and local autonomy and self-reliance.	ANTH 1102 or permission of department
Anthropology	ANTH 8540	Conservation and Community	Contemporary conservation is characterized by an ongoing debate about the merits of top-down vs. bottom-up approaches in the effort to achieve balance between effectiveness, equity, and justice. This course examines a series of issues related to the anthropological study of conservation through attention to specific case studies.	Permission of department
Anthropology	TBD	TBD: Faculty would like to create course	A course on the long-term environmental history of various parts of the world, primarily Africa and South America, and on the evolutionary history of species that we are trying to conserve, e.g., orangutan.	Third year standing and (POLS 1101 or HIST 2111 or HIST 2112)
Crop and Soil Sciences (Horticulture)(Ant hropology)(Ecolo gy)(Geography)	CRSS(HOR T)(ANTH)(ECOL)(GE OG) 4930/6930	Agroecology of Tropical America	Crops and cropping systems in tropical America; influences of geography, climate, and socioeconomic factors, as well as the impact of agriculture, on the ecosystems of the region.	Permission of department
Ecology	ECOL -- TBD	Sustainability Principles through the Lenses of the Earth Charter	This course is a deep examination of the principles of sustainability, with the aim of understanding the integrated approach of Sustainable Development using the Earth Charter as a framework for the course. The Earth Charter's inclusive ethical vision recognizes that environmental protection, human rights, equitable human development, and peace are interdependent and indivisible. This course will require students to critically think about and talk about these topics and hopefully inspire them to take action to create a more just,	TBD

sustainable and peaceful world.

Ecology	ECOL -- TBD	Watershed Services: Ecosystem services provided by inland waters	This class provides students an opportunity to thoroughly examine the environmental services that watersheds provide, their connection to human well-being and livelihoods, and the market mechanism and payment programs that have been designed to provide incentives for their maintenance. Specific focus will be on the environmental service payment program in Costa Rica and the multitude of ways that markets have been arranged for paying for these services.	N/A
Ecology	ECOL (FORS)(A NTH) 6140	Principles of Conservation Ecology and Sustainable Development II	Social science dimensions of conservation and sustainable development; social, economic, and political considerations in managing natural resources; policy-level aspects to project implementation.	ECOL 6080
Ecology	ECOL 4560/6560	Science and Art of Conservation	Multidisciplinary field course examining contemporary challenges in resource conservation, using Ossabaw Island, Georgia as the primary study site. Open to third-year students, fourth-year students and graduate students from all departments. All students are required to conduct two projects, and present their projects and findings to the class at end of session. Lab fee required.	Permission of department
Ecology	ECOL 4570/6570	Comparative Biodiversity and Land Conservation Policy: Costa Rica and the United States	Comparison of the land conservation and biodiversity policies of Costa Rica and the United States. Seven of Costa Rica's leading attorneys, policy developers, and economists in the field of biodiversity and land conservation policy will give lectures to students throughout the course.	NONE
Ecology	ECOL 6080	Principles of Conservation Ecology and Sustainable Development I	Ecological principles applied to conservation of habitats and biodiversity. Influence of human activity on population dynamics, genetics, and community structure.	ECOL(BIOL) 3500-3500L or permission of department
Ecology	ECOL 6130	Geographic Information Systems for Environmental Planning	An overview of spatial analysis tools and how they can be utilized in research, planning, and management, by exploring the fundamental concepts of Geographic Information Systems, remote sensing, and spatial analysis.	
Ecology	ECOL 8400	Perspectives on Conservation Ecology and Sustainable Development	Ecological issues of conservation and development.	

Ecology	ECOL 8420	Watershed Conservation	Environmental problems in freshwater systems over a variety of scales (local to global) from a conservation perspective. Systems examined include streams, rivers, lakes, wetlands, groundwater and coastal waters, with a strong focus on effective incorporation of ecological knowledge into resource management efforts.	BIOL 1108-1108L and permission of department
Ecology	ECOL 8710	Environmental Law Practicum	Ecology, law, and other graduate students work together to address pressing environmental concerns identified by community stakeholders. Skills used include problem identification, research and analysis, legislative drafting, and presentations.	
Ecology (Agricultural and Applied Economics)	ECOL (AAEC) 8700	Environmental Policy and Management	Evolution, form, and substance of United States federal policies and programs that address ecological problems, focusing on the nature of problems and alternatives for effective resolution.	
Economics	ECON 8010	Microeconomic Theory I	The theory of consumer behavior, the analysis of production and cost, and the determination of output level and input mix of the profit-maximizing firm under perfect competition and monopoly.	
Economics	ECON 8020	Microeconomic Theory II	Welfare economics, including the concepts of Pareto efficiency and consumer surplus and the analysis and measurement of welfare costs of public goods, externalities, and other "market failures."	ECON 8000 and ECON 8010
Economics	ECON 8070	Statistics for Econometrics	The statistical foundations of econometrics, including probability, random variables, sampling, expectation, distribution functions, parametric and conditional distributions, independence, functions of random variables, and maximum likelihood.	
Economics	ECON 8080	Introduction to Econometrics	Linear regression models, with special attention to estimator properties and hypothesis testing under various statistical assumptions. Least-squares, maximum likelihood, and method-of-moments estimation procedures and seemingly unrelated regressions and simultaneous equation models.	ECON 8070
Economics	ECON 8110	Econometrics I	Advanced econometric techniques, including full-information estimation of simultaneous equation models, non-linear regression, generalized methods of moments estimation and specification testing, and estimation and inference using panel data.	ECON 8080
Economics	ECON 8120	Econometrics II	The theoretical properties of maximum likelihood estimators and their use in overcoming shortcomings of the classical linear model. Computer algorithms are	ECON 8080

			developed and used to compute maximum-likelihood estimators for logit, probit, tobit, sample-selectivity, and failure time models.	
Economics	ECON 8130	Time Series Econometrics	An introduction to the economic and statistical analysis of time series. Topics include linear regression with time series data, ARMA models, VAR models, ARCH and other non-linear models, unit-root non-stationary processes, and cointegration.	econ 8080
Economics	ECON 8310	Public Economics I	Market failures involving public goods and externalities, and of methods for measuring and reducing their efficiency costs, together with analysis of taxation and income-redistribution policies and discussion of collective choice theories, including social choice and public choice paradigms.	ECON 8010
Economics	ECON 8320	Public Economics II	The effects of taxes on economic decision making by individuals and businesses, with discussions of alternative tax systems, tax evasion and avoidance, social insurance programs, and issues in fiscal federalism.	ECON 8010
Engineering (Geography)	ENGR(GE OG) 4180/6180	Special Topics in atmospheric sciences	Special interest topics in atmospheric sciences.	Permission of department
Environmental Design	EDES 4270/6270	Environmental Design Uses of Geographic Information Systems	Lecture/studio in the use of geographic information systems software for the development of environmental design and land planning projects.	EDES 3230 or LAND 6220
Environmental Design	EDES 4680/6680	Conservation of Culturally Significant Resources in Rural Areas	The cultural evolution of rural landscapes in the United States. Exploration of approaches and methodologies used in identifying and protecting significant features, both natural and cultural, in a constantly changing environment.	Junior standing
Environmental Design	EDES 6530	Ideas of Nature	The idea of nature as a cultural construct that is continually subject to reappraisal and revision with critical implications for the environmental sciences, the design arts, and humanistic studies.	LAND 6030
Environmental Design	EDES 7350	Landscape Management	Landscape management techniques with an emphasis on the values of environmental conservation and historic preservation.	
Environmental Economics and Management	ENVM 2060	Green Economics	Green economics involves an exploration of the world of work, human desires, the Earth's resources, and how they mesh together most harmoniously. It is primarily about "use-value," not "exchange-value" or money. It is about quality, not quantity; about regeneration of individuals, communities and ecosystems, not about accumulation of either money or material.	

Environmental Economics and Management	ENVM 4800/6800	Water Resource Economics	The economic aspects of the use, supply, development, and management of water resources with special emphasis on river basin and project planning, benefit-cost analyses, water demands, and multiple use management of water resources.	Third year standing and (AAEC 2580 or ECON 2106)
Environmental Health Science (Agricultural and Applied Economics)	EHSC (AAEC) 8120	Roles and Responsibilities of Environmental Policy Makers	Roles of science, engineering, law, journalism, economics, grass roots activism, and the legislative and regulatory process in the development of environmental policy.	Permission of department
Forestry (Ecology) (Geography)	FORS(ECO L)(GEOG) 4250/6250	International Forest Management	Study-abroad to examine issues pertaining to the management of forested landscapes in the visited country. Introductory lectures on the natural and cultural history of the visited country will be followed by extended field examination of the country's forest resources and their management.	Permission of school
Forestry and Natural Resources	FANR 4271/6271	Field Studies in Natural Resources	Field studies to explore the management and conservation of natural resources with a focus on issues related to forestry, wildlife, ecology, recreation and tourism, geology, and/or coastal/water resources. The impact of humans on these resources will also be emphasized.	Permission of department
Forestry and Natural Resources	FANR 4350/6350	Conservation Genetics	The theory of conservation genetics, the methods to sample and analyze genetic diversity and applications for the management of natural plant and animal populations.	(BIOL 1107-1107L and BIOL 1108-1108L and STAT 2000) or permission of major
Forestry and Natural Resources	FANR 4800/6800	Renewable Resources Policy	Renewable resource policy as a process, concentrating on analysis of laws and rules affecting the use and production of renewable natural resources. Topics of focus include property rights development with discussion given to private property resources, such as forests, common property resources such as wildlife and fish, and the evaluation of current policy issues.	FORS 3710-3710D or FANR 3300-3300D or FORS 4700/6700-4700L/6700L or permission of school
Forestry and Natural Resources	FANR 5620/7620-5620L/7620L	GIS Applications in Natural Resources	The application of geographic information systems (GIS) for natural resource analysis and management taught entirely in a computer laboratory.	FORS 3910-3910L or FANR 3800-3800L
Forestry and Natural Resources	FANR 5680/7680	Economic perspectives on natural resource issues	Applications of economics to natural resource and environmental decision making. Topics include water, wildlife, forests, fisheries, land-use, sustainability, development, and uncertainty. Emphasis is on practical applications and case studies, stressing the value of interdisciplinary research and decision making.	

Forestry and Natural Resources	FANR 7750	The Science of Sustainability	Sustainability is everywhere. Despite its popularity, however, the concept of sustainability is difficult to define or operationalize. This seminar will investigate definitions of sustainability and the scientific basis for operationalizing the concept. We will focus on quantifiable metrics that might help determine if we are managing our natural resources sustainably.	
Forestry and Natural Resources	FANR 8400-8400L	Advanced Spatial Analysis for Natural Resources	Advanced theory and applications of spatial information technology and spatial analysis techniques in natural resources. Focus will be on addressing realistic problems within the field of natural resources, including in student's own research area.	Permission of department
Forestry and Natural Resources (Agricultural and Applied Economics)	FANR (AAEC) 7860	Natural Resource and Environmental Economics I	Economic and physical concepts of scarcity, the impact of market and social factors on resource use, and the optimal management of renewable and nonrenewable resources.	AAEC 6580-6580L or ECON 8000
Geography	GEOG 4020/6020	Fluvial Geomorphology	Landforming effects of surface-water movement with emphasis on surface-water hydrology, streamflow mechanics, floods, sediment transport and storage, and landform evolution. Field trips included.	GEOG 1111 or GEOG 1113 or permission of department
Geography	GEOG 4030/6030.	Geomorphology and Environmental Change in Karst and Arid Environments	Weathering, erosional and depositional processes, and landforms in karst and arid areas. Formation of sinkholes, sinking streams, caves, springs, sand dunes, playas, and yardangs. Geoarchaeological and other evidence on the nature of past environments, including dating cave and aeolian sediments. Field trips included.	GEOG 1113 or permission of department
Geography	GEOG 4040/6040	Global Environmental Change During the Quaternary	Chronology and geomorphic, isotopic, and palynological evidence of Quaternary paleoclimates. The effects of past climatic changes upon present landscapes, historic short-term fluctuations in temperature and precipitation, and possible explanations for climatic change are emphasized.	GEOG 3010 or permission of department
Geography	GEOG 4050/6050	The Environment of Egypt	Introduction to the landforms, history, and environmental problems of Egypt focusing on the Nile Valley, the oases in the Western Desert, and the Sinai. This is a Maymester field course that will be taught in Egypt with the collaboration of Geography faculty at Ain Shams University, Cairo.	GEOG 3010 or two of the following: GEOG 1111 or GEOG 1113 or GEOG 1125 or GEOL 1121 or GEOL 1250-1250L or GEOL 2120 or permission of department
Geography	GEOG 4060/6060	Field and Laboratory Methods in Physical Geography	Methods in measurement, observation, recording and synthesis of field data in physical geography. Students conduct field research and present oral and written reports (with maps) of findings.	GEOG 3010 or GEOG 3110 or GEOG 3210 or permission of department

Geography	GEOG 4120/6120	Synoptic Meteorology/Climatology	Theory and observations to understand mid-latitude weather systems. Focus is on application of quasi-geostrophic theory in weather forecasting. Analysis and interpretation of weather maps and numerical models. Development and life cycle of cyclones, fronts, and jet streams.	GEOG 3120-3120L or permission of department
Geography	GEOG 4140/6140	Satellite Meteorology/Climatology	Application of satellite remote sensing in meteorology and climatology. Applications include clouds, atmospheric water vapor and precipitation, the Earth's radiation budget, sea and land surface temperatures.	(GEOG 1111 and GEOG 1111L) or (GEOG 1112 and GEOG 1112L) or (GEOG 2110H and GEOG 2110L) or permission of department
Geography	GEOG 4150/6150	Physical Climatology	Advanced, quantitative study of Earth's physical climate. Includes global energy balance, surface-atmosphere energy exchanges, surface hydrology and water budget at various temporal and spatial scales. Methods of measuring and modeling are discussed. Case studies are used to illustrate how the physical processes govern the climate system.	GEOG 3110 or GEOG 3120-3120L or GEOG 4140/6140 or GEOG 4160/6160 or ENGR(GEOG) 4161/6161-4161L/6161L or GEOG(ENGR) 4112/6112 or permission of department
Geography	GEOG 4160/6160	Applied Climatology in the Urban Environment	Do cities create their own thunderstorms? Will pollution from emerging mega-cities change climate? Exploration of fundamental concepts of the urban-climate system, observational and modeling strategies for studying the urban-climate system, and context for how human activity in the built environment is changing Earth's weather and hydro-climate.	GEOG 3110 or GEOG 3120-3120L or permission of department
Geography	GEOG 4170/6170- 4170L/6170 L	Mesoscale and Radar Meteorology/Climatology	Fundamental theory, analysis, and exercises on mesoscale weather phenomena and principles of radar meteorology. A major topical focus will be thunderstorms, mesoscale convective systems, and tornadic supercells. Other topics will include mesoscale classification, observing systems, the boundary layer, circulations, flooding, mesoscale tropical systems, mesoscale modeling, short-range forecasting/nowcasting, and mesoscale climatology.	GEOG 3120-3120L, MATH 2250

Geography	GEOG 4290/6290	Geography and Ethnoecology of Neotropical Mountains	Mountain ecological principles are applied in geographical settings of Latin America and the Caribbean. Geographical narratives of culture and nature emphasize human-environment interactions on tropical mountains, cultural landscapes, ethnic traditional knowledge, post-colonial political effects on natural resources, Third-world development, rural/urban dynamics, poverty alleviation, nature conservation, and sustainable development.	Permission of department
Geography	GEOG 4300/6300	Introductory Spatial Analysis	Descriptive and inferential techniques used in quantitative geographic analysis. Probability distributions, sampling techniques, parametric and nonparametric inference, analysis of variance, spatial autocorrelation measures and regression procedures. Applications of statistical methods to spatial analysis and geographic research design. Exercises develop knowledge of statistical programming with computer software.	GEOG 2300 or permission of department
Geography	GEOG 4305/6305	Introduction to Qualitative Research Methods	An introduction to qualitative research problems in geography and to the major modes of qualitative data collection, analysis, and representation. Students will gain practical experience with interviews, focus groups, archival research, and observation techniques.	
Geography	GEOG 4330/6330- 4330L/6330 L	Aerial Photographs and Image Interpretation	Principles and techniques of extracting descriptive and metric information about the environment from aerial photographs acquired in analog and digital forms. Applications emphasize planimetric mapping and interpretation of physical and cultural landscapes. A term project using the techniques is required.	
Geography	GEOG 4350/6350- 4350L/6350 L	Remote Sensing of Environment	Remote sensing with emphasis on aerospace applications in the natural sciences. Fundamental properties of the electromagnetic spectrum and remote sensing devices such as multispectral cameras, thermal infrared line scanners, and television and radar imaging systems.	GEOG 4330/6330- 4330L/6330L or permission of department
Geography	GEOG 4370/6370- 4370L/6370 L	Geographic Information Science	Principles and applications of geographic information systems (GIS). Examines the nature and accuracy of spatially referenced data, as well as methods of data capture, storage, retrieval, visualization, modeling, and output using one or more GIS software packages.	CSCI 1301-1301L or sophomore standing or permission of department

Geography	GEOG 4430/6430- 4430L/6430 L.	Advanced Image Analysis and Photogrammetry	Theories of analytical and digital (soft copy) photogrammetry as applied to topographic mapping. Topics include refinement of photographic measurements, coordinate transformations, stereoscopic parallax, collinearity equations, aerial triangulation, orthophotography, and digital image correlation.	GEOG 4330/6330- 4330L/6330L or GEOG 4350/6350- 4350L/6350L or permission of department
Geography	GEOG 4470/6470- 4470L/6470 L	Geospatial Analysis	Geographic analytical methods and implementation. Theory and concepts of spatial analysis. Description, reduction, and comparison of point, line, area, and volumetric geographic data sets. Implementation and limitation of geographic information systems.	[(GEOG 2300 or STAT 2000) and GEOG 4370/6370- 4370L/6370L] or permission of department
Geography	GEOG 4570/6570- 4570L/6570 L	Advanced Geographic Information Science	Advanced concepts in the development and implementation of geographic information science (GIS) are presented, including consideration of the underlying structure of GIS models, geo-database design and geocomputation, GIS applications to locational decision making, network analysis, geographic representation and spatial cognition.	GEOG 4370/6370- 4370L/6370L or permission of department
Geography	GEOG 4590/6590- 4590L/6590 L	Programming for Geographic Information Science	Computer programming skills tailored to the needs of advanced users of geographic information science (GIS) are developed, including customization of GIS applications with academic and commercial programming tools. Topics include GIS user-interface design, advanced functions and tools coding, fundamental spatial data structures and algorithms, and geospatial database management.	GEOG 4370/6370- 4370L/6370L or permission of department
Geography	GEOG 4640/6640	Population Geography	The distribution of world population and an introduction to population data and to basic demographic techniques. Topics include theories of population change, fertility, mortality, migration, population policy, and population-environment relationships.	GEOG 1101 or permission of department
Geography	GEOG 4680/6680	Gender and Geography	Relationships between gender and globalization. Women and development, industrialization, and third world regions.	GEOG 1101 or WMST 1110 or permission of department
Geography	GEOG 4710/6710	Geography of Sub- Saharan Africa	Geographic and socio-economic issues that face sub-Saharan economies into the twenty-first century. Emphasis on the physical landscape, environmental conditions, social and cultural distributions, and strategies and theories of economic development.	GEOG 1101 or permission of department
Geography	GEOG 4720/6720	Geography of Latin America	The geography of Latin America, including physical, cultural, and economic characteristics of different regions. Prospects for expansion of settlement,	GEOG 1101 or permission of department

			development of resources, and growth of industries.	
Geography	GEOG 4730/6730	Geography of China	The physical and human geography of contemporary China. Emphasis is on modernization and development of agriculture, industry, and transportation within the context of China's resource base and large population.	GEOG 1101 or permission of department
Geography	GEOG 4740/6740	Geography of East and Southeast Asia	The physical and human geography of East and Southeast Asia. Major focus on resources, land utilization, population characteristics and distributions as they relate to economic and political problems. Emphasis is on Japan, Korea, Indonesia, Philippines, and Indo-China.	GEOG 1101 or permission of department
Geography	GEOG 4750/6750	Geography of Europe	Geographic issues that affect Europe into the twenty-first century. Emphasis on current economic, social, and political controversies in Europe, as well as the historical context for these.	GEOG 1101 or permission of department
Geography	GEOG 4810/6810	Conservation Ecology and Resource Management	Ecological and economic analysis of human use of global and regional resources, emphasizing ecological requirements, sustainable use, and holistic decision-making. Topics include ecosystem dynamics, functional biodiversity, landscape management, socioeconomic traps, global change, and ecological restoration.	GEOG 1125 or GEOG 2250H-2250D or permission of department
Geography	GEOG 4860/6860	The Industrial Agro-Food System and Its Alternatives	Examination of the historical and geographic development of the industrialized global agro-food system. Alternatives to the global agro-industrial food system, such as organic food production, local food movements, and urban food systems are presented. Students will critically examine the possibilities for, and limitations to, such alternative food systems.	Permission of department
Geography	GEOG 8020	Seminar in Geomorphology	Advanced problems in geomorphology and physiography. Topics may vary	GEOG 4020/6020 or GEOG 4030/6030 or permission of department
Geography	GEOG 8040	Seminar in Quaternary Paleoenvironments	Methods used in reconstructing the hydrological and vegetation characteristics of former environments. Emphasis is on the analysis of cave, fluvial, and marine sediments. The changing Quaternary environments of North America, Europe, and Africa are discussed in detail. Specific topics may vary.	GEOG 4040/6040 or permission of department

Geography	GEOG 8120	Seminar in Climatology	Advanced topics in physical climatology such as climate change, microclimatology, urban climatology or synoptic climatology. Specific topics may vary.	GEOG 4120/6120 or GEOG 4140/6140 or GEOG 4160/6160 or permission of department
Geography	GEOG 8220	Seminar in Biogeography	Advanced topics and research trends in biogeography. Specific topics may vary.	GEOG(PBIO) 4220/6220 or GEOG(PBIO) 4240/6240 or permission of department
Geography	GEOG 8240	Seminar in Geoecology	Geographical ecology, with specific topics ranging from landscape to global scale (e.g., landscape ecology, regional ecology, conservation problems, biosphere-atmosphere interactions, global ecology and global change).	Permission of department
Geography	GEOG 8260	Seminar in Environmental Geography	Advanced topics and research trends in environmental geography. Specific topics may vary.	Permission of department
Geography	GEOG 8300	Multivariate Techniques in Geography	Application of multivariate statistical procedures to research problems in geography, with emphasis on peculiarities of such applications. Spatial autocorrelation, areal aggregation, modifiable areal unit problem, spatial interpolation, and trend surfaces are investigated with statistical and GIS software packages.	GEOG 4300/6300 or permission of department
Geography	GEOG 8305	Seminar in Qualitative Research Methods	Readings address the purpose, scope, and procedures of qualitative research in human geography. Principle themes: a) situating qualitative research, b) epistemological stances, c) strategies of inquiry/methodologies, d) research methods, and e) representing qualitative research. Students will engage in theoretical debates about rigor, representation, and implications of qualitative research.	
Geography	GEOG 8350	Advanced Remote Sensing and Geospatial Techniques	Mapping datums, coordinate systems, and accuracy requirements for geographic information systems (GIS). Global positioning system (GPS), softcopy photogrammetry, and digital image processing techniques for GIS database construction. GIS modeling for environmental studies. Includes the use of various software packages.	(GEOG 4350/6350-4350L/6350L and GEOG 4370/6370-4370L/6370L) or permission of department
Geography	GEOG 8450	Geospatial Techniques in Landscape Analysis Course	Topics on geospatial analysis tools to display, analyze, model and visualize landscape characteristics. Aspects of geographic information systems, remote sensing, spatial analysis, geovisualization, landscape metrics, and landscape ecology	GEOG 4370/6370 or permission of department

			will be included.	
Geography	GEOG 8530	Advanced Topics in the Use and Interpretation of Aerial Photographs	The extraction of quantitative and qualitative information from aerial photographs, with emphasis on appropriateness of various approaches and on means of improving interpretation accuracy. Includes applications involving physical, human, and regional geography.	GEOG 4330/6330-4330L/6330L or permission of department
Geography	GEOG 8550	Problems in Remote Sensing of Environment II	Advanced problems in photointerpretation, photogrammetry, and remote sensing. Topics may vary. Emphasis on research and applications.	GEOG 4350/6350-4350L/6350L or permission of department
Geography	GEOG 8570	Seminar in Geographic Information Science	Problems in geographic information systems, including methods and techniques and the application to specific topical areas.	GEOG 4370/6370-4370L/6370L and permission of department
Geography	GEOG 8590	Directed Problems in Geographic Techniques	Topics in mapping sciences, such as cartography, air-photo interpretation, remote sensing, photogrammetry, and geographic information systems.	Permission of department
Geography	GEOG 8640	Seminar in Population Geography	Theoretical and empirical issues in population geography. Topics vary, and include geographic aspects of immigration, internal migration, fertility, mortality, and age structure.	GEOG 4640/6640 or permission of department
Geography	GEOG 8660	Seminar in Regional Development	Topics on regional development and effects of globalization on regional economies of industrialized countries. Specific topics may vary.	GEOG 4660/6660 or permission of department
Geography	GEOG 8670	Seminar in the Geography of Development	Research topics related to the geographical aspects of Third World development. Topics may vary.	GEOG 4670/6670 or permission of department
Geography	GEOG 8680	Seminar in Feminist Geography	Research topics related to the geographical aspects of feminism and gender identity. Topics will vary by instructor.	GEOG 4680/6680 or permission of department
Geography	GEOG 8710	Seminar in Regional Geography	Research topics on the geography of a selected region; data sources and methodologies for research. Regions may vary.	Permission of department
Geography	GEOG 8810	Seminar in Human- Environment Relationships	Problems, methods, and techniques in human-environment relationships and economic development, including decision-making strategies in resource exploitation.	
Geography	GEOG 8810	Seminar in Human- Environment Relationships	Problems, methods, and techniques in human-environment relationships and economic development, including decision-making strategies in resource exploitation.	Permission of department
Geography (Plant Biology)	GEOG(PBI O) 4220/6220	Ecological Biogeography	Patterns of plant distribution in contemporary landscapes and underlying processes, including vegetation dynamics, disturbance ecology, biogeomorphology, dendrochronology, and environmental history.	GEOG 1111 or ECOL(BIOL) 3500-3500L or permission of department

History	HIST 4725/6725	Environmental History of the Modern World	Examination of the environmental history of the world from approximately 1500 AD until the present, with a focus on the global processes-- such as colonial and imperial expansion, industrialization and the rise of modern technological systems, agricultural intensification, and population growth-- which have driven the historical acceleration of human-induced environmental change. Examination of the environmental impacts of these processes, and local responses, in all regions of the world.	2000-level HIST course
Jurisprudence	JURI 4910/6910	Natural Resources	The law governing the acquisition and use of natural resources, with particular regard to natural resources on publicly-owned lands.	
Landscape Architecture	LAND 6030	Nature and Sustainability	Concepts of nature and their implications for landscape architecture, with particular attention to the issue of sustainability. Projects selected to investigate alternative design strategies in a variety of environments from wilderness to city center.	EDES 6530
Landscape Architecture	LAND 6350	Ecological Landscape Restoration	Introduction to landscape restoration, with an emphasis on restoration of natural function, diversity and aesthetic character to degraded landscapes. Reading and discussions on history and philosophy of restoration, techniques for rehabilitation of ecosystems, and case studies.	
Landscape Architecture	LAND 6400	Plant Communities of the Southeast	The plant communities of the southeastern United States, with emphasis on botanical and aesthetic characteristics, factors affecting community composition, and community dynamics.	LAND 4360 or LAND 6320
Landscape Architecture	LAND 6730	Issues and Practices in Sustainable Design	The issues and practices used in contemporary green buildings, including the United States Green Building Council's LEED (Leadership in Energy and Environmental Design) rating system. Prepares students to take the LEED accreditation exam, if they so choose, after the course is completed.	LAND 4380 and LAND 4570
Marine Sciences	MARS 6810	Global Biogeochemical Cycles	An overview of global biogeochemical cycles, with emphasis on the role of the ocean, including box models and both fundamental principles and quantitative analyses. Focus is on modern day conditions, but glacial-interglacial changes and effects of global change are included.	Permission of department

Marine Sciences	MARS 8210	Topics in Coastal Marine Policy	Coastal marine policy approached from scientific, legal, and anthropological perspectives. This interdisciplinary course provides a general background in coastal policy, and uses a case study approach to examine current topics in marine resource management. Topics include: coastal zone management, coastal groundwater supply, coastal fisheries, development in the coastal zone.	ECOL(BIOL) 3500-3500L or permission of department
Plant Biology (Ecology)	PBIO (ECOL) 4750/6750	Tropical Ecology and Conservation	patterns and processes in the origin, maintenance, and loss of the high biological diversity in the tropics, emphasizing particular communities and ecosystems, including tropical rainforest, tropical savannas, tropical islands, and coral reefs.	BIOL 1107-1107L and BIOL 1108- 1108L
Water and Soil Resources (Crop and Soil Sciences) (Ecology) (Engineering) (Geography) (Geology)	WASR(CR SS)(ECOL) (ENGR)(G EOG)(GEO L) 4700L/6700 L	Hydrology, Geology, and Soils of Georgia	This field course focuses on the physical environment of Georgia by examining the diverse geology, soils, and surface and subsurface hydrologic processes within the state. We will travel to all of Georgia's physiographic areas, visiting mines, farms, forests, wetlands, rivers, lakes, and estuaries to explore the influence of human activities on the physical environment.	Permission of school
Wildlife (Ecology)	WILD(EC OL) 4575/6575- 4575L/6575 L.	Conservation Medicine (Costa Rica)	Conservation medicine is a multidisciplinary emerging field that is concerned with the interface between human health, animal health (both wild and domestic) and ecosystem health. This provides students from various backgrounds with the opportunity to learn/practice the principles of conservation biology/medicine using the ecology and fauna of Costa Rica.	Graduate student standing
Wildlife (Ecology)	WILD(EC OL) 8330	Landscape Ecology	The emerging field of landscape ecology, emphasizing the study of large land areas and the effects of spatial pattern on ecological processes. Fundamental theories, analysis tools, research methods, and their applications to natural resource management at broad spatial scales.	
Wildlife (Population Health)	WILD(POP H) 5100/7100	Wildlife Disease Ecology and Management		

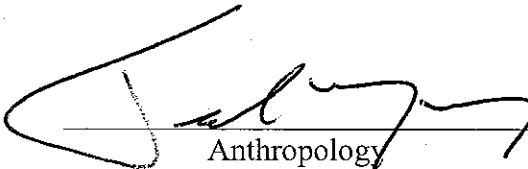
University of Georgia

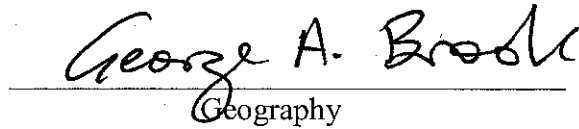
New Program Proposal

Date: January 2010
Institution: University of Georgia, Athens
Departments/Schools/Colleges: Department of Anthropology
Odum School of Ecology
Department of Geography
Warnell School of Forestry and Natural Resources
Name of Proposed Program: Integrative Conservation
Degree: Ph.D
CIP code:
Starting Date: Fall 2010

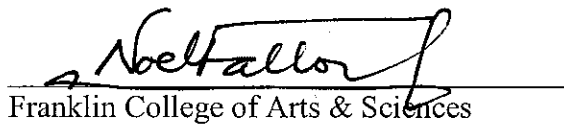
Signatures:

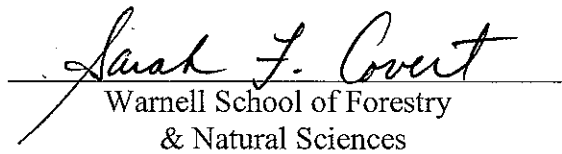
Department Heads

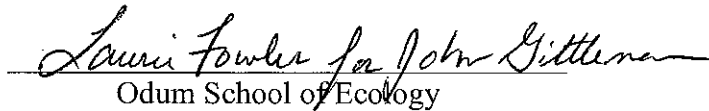

Anthropology


Geography

College/School Deans


Franklin College of Arts & Sciences


Warnell School of Forestry
& Natural Sciences


Odum School of Ecology

Graduate School Dean

Dean of Graduate School