April 2018

Dear NS professional students and faculty:
Here is some information (mostly Durham-based, with some Marine Lab news) that may be helpful to you in planning your academic program for the Fall 2018 semester. We have included changes to the schedule of Nicholas School courses and alerted you to changes in faculty whereabouts. Please refer to the course synopsis in DukeHub or in the catalogue to examine a course’s content in more depth. We continue to encourage faculty to paste syllabi and other course information there.

- Professor Deb Gallagher, Director of Professional Studies
  & Cynthia Peters, Assistant Dean

Faculty/Staff Information

Faculty on Sabbatical
Stuart Pimm, Fall 2018
Dalia Patino-Echeverri, Academic year 2018-19
Jennifer Swenson, Academic year 2018-19
Xavier Basurto, Fall 2018
Charlotte Clark, Spring 2019
Susan Lozier, Spring 2019
Avner Vengosh, Spring 2019
Brian Silliman, Spring 2019, will be in Australia but not on sabbatical. He will offer ENVIRON 273LA/773LA Marine Ecology in the spring.

New faculty:
Professor David Gill coming to the Duke Marine Lab. He will not be teaching in the fall term. He has a background in marine biology and natural resources management.

Professor John Poulsen and Professor Dean Urban will head up the ESC program area while Jennifer Swenson is on sabbatical.

Changes to Existing Courses:

ENVIRON 290: New crosslist for Bass Connections course, Rights and the Environment: This Bass Connections class seeks to bring humanities tools -- human rights, oral history, the history of gardening, documentary photography, mapping and curation -- to the issue of environmental justice. Working as a research team, we will document how Durham residents from three areas engage with issues around climate change, environmental justice and gentrification through their gardens. The class partners with the Humanities Action Lab and their 2017-2019 theme of environmental justice. Students will help prepare an exhibit as part of the class.

ENVIRON 501, Environmental Toxicology. Rich DiGiulio will be teaching from the Marine Lab this fall so his course will be linked to Durham from Beaufort.
ENviron 305A/705A Social Impact Analysis will be taught in Spring 2019 by Grant Murray.

Environ 887A Policy Analysis for the Commons, Xavier Basurto, will not be offered in the fall 2018; he will teach Community-based Marine Conservation, a travel course in the Gulf of Mexico in spring 2019.


This class examines agriculture and food production through some of the laws and policies that promote environmental protection and consumer welfare. There are several reasons for this focus. First, it is impossible to talk seriously about the environment without talking about agriculture: it is the largest single land use in the U.S., occupying approximately 50% of the land mass in the lower 48 states. Second, the industrial-agricultural model that has come to dominate food production in the U.S. has brought about environmental degradation in many communities, including communities that are downwind and down-stream. Third, in many areas of the country, including North Carolina, local food markets represent one of the most exciting opportunities for environmental stewardship, economic growth (think value-added agricultural niches and job creation), and community building. However, these opportunities will not be realized without attention to the legal and policy structures that confront sustainable food production. This class aims to provide that attention, as a complement to Duke’s environmental law curriculum. As a new variant in this course, most class sessions will include a guest speaker with expertise relevant to the day’s topic. These speakers will provide diverse perspectives from a rich set of professional experiences, and I encourage you to take full advantage of their presence by asking questions and engaging them in thoughtful discussion. They also may offer insight into the types of careers that are possible in this field of practice.

Environ 738. U.S. Water Governance Mullin, Megan (instructor). NEW PERMANENT COURSE NUMBER (previously special topics 590.28).

This course examines the governance systems that manage freshwater resources in the United States. American water policy is densely institutionalized, constrained by historical systems of rights and long-established patterns of water usage. It is also organizationally complex, with authority fragmented among myriad agencies and authorities at all jurisdictional levels. Our task will be first to understand current governing structures as a consequence of historical, functional, and political forces, and second to analyze contemporary efforts to promote collaboration, adaptive management, and market solutions within the framework of existing governance systems.


This seminar will focus on designing and costing microgrids. Microgrids range from building to campus to community power systems that are connected to the conventional electric grid but can be islanded off from it, to systems that power remote facilities beyond and thus totally disconnected from the grid. Designing a microgrid entails more than simply hooking up distributed generation technologies to one or more loads. It also involves understanding existing regulations and the circumstances under which they can be connected, resolving ownership, etc. This seminar will explore how to analyze both load data and data on local renewable energy resource potential.
New Courses:

Durham

ENVIRON 290S Politics of Climate Change. Pechar, Emily (instructor). NEW COURSE. Climate change has become one of the defining issues of modern politics. Beyond simply a question of science, climate change has become a central part of mainstream political debates, defining part of what it means to be a Democrat or a Republican, and acting as both a unifying and a divisive issue in international politics. Most scientists agree that emissions need to be reduced in order to limit serious global impacts, but governments are not in agreement about whether, or how, to do this. We will analyze the political dynamics of climate change by focusing on the problem, the politics, and the policies at a domestic and an international level. In the first unit, we will focus on the problem of climate change. We will evaluate the scientific consensus established by the Intergovernmental Panel on Climate Change (IPCC), and the dynamics between science and society as studied in the political science literature. We will also look at the issue of climate change from an economics lens: why are global emissions a problem, and what does the economics literature tell us about how to solve it?


There are silver and gold in the mountains and ravines of California[,]” William H. Seward declared in March 1850 as he exhorted fellow senators to ratify the giant new military colony’s statehood. “The granite of New England and New York is barren.” A master orator, the future Vice President of the United States thus invoked in consecutive sentences twinned anxieties intrinsic to natural resource extraction: the promise of abundance, and the threat of depletion. Over the subsequent decades, countless politicians, policymakers, and entrepreneurs would follow Seward’s lead, with profound implications for societies all over the world. This course analyzes the development of extractive industry around the globe from prehistory to the present, providing wide-ranging historical overviews of the large-scale exploitation of five categories of natural resources: 1) biotics (e.g., timber, fish, fur); 2) rocks and minerals (metal ore, dimension stone, salt); 3) gems and precious metals (diamond, amber, gold); 4) fossil fuels (coal, oil, natural gas), as well as; 5) radioactive and rare-earth elements (uranium, scandium, cerium).

ENVIRON 790.05. Economics of Modern Power Systems. Lima, Luana (instructor). NEW COURSE.

The electric power grid is undergoing a major transformation. On the generation side we see an increase in renewable energy penetration driven by the need to reduce CO2 emissions. On the demand side we face new consumption profiles such as plug-in vehicles, smart homes and smart buildings. The course will focus on the economics of modern power grids to facilitate the integration of these new agents. Students will learn about the additional strains placed on the existing grids such as balancing electricity supply and demand. We will discuss energy storage that gained a lot of attention due to the intermittent and fluctuating energy availability from renewable energy sources. Since most of the transformation is happening at the distribution level we will also talk about distribution network pricing. The pricing mechanism is the key to ensure the success of the new Smart Grid environment and has an important role in sending economic signals to network users. Yet there is no established practice or common pricing principle that can best serve the industry in the coming period of great change. Upon completion of this course students will understand how information and communication technology will be incorporated into every aspect of electricity generation, delivery and consumption to minimize environmental impact and improve reliability and efficiency.
**ENVIRON 790SA.02.** Law and Policy for the Oceans (Fall Break Travel Course). Roady, Steve (instructor). NEW COURSE.

This short course explores the manner in which laws and policies can affect ocean resources. We focus on several specific case studies, which involve federal statutes (and occasionally international laws) that play an important role in the protection and sustainable management of these resources. Statutes include the Magnuson-Stevens Fishery Conservation and Management Act, National Environmental Policy Act, Endangered Species Act, and Clean Water Act. As time permits, we also will consider possible actions under the United Nations Convention on the Law of the Sea.

**Duke Marine Lab**


The major environmental, social and economic drivers of increasing global aquaculture, with a focus on marine systems. Quantitative evaluation and comparison of the range of species for aquaculture, locations where operations occur, operational aspects including environmental impacts and management considerations. Investigation of alternative approaches and potential future areas for aquaculture expansion as well as social, economic and technical barriers to implementation. Taught in Beaufort at Duke Marine Lab.

**ENVIRON 570LA/BIOLOGY 570LA.** Marine Ecology of the Pacific Coast of California. Johnson, Zackary (instructor). NEW CROSSLIST.

Ecology of the rocky intertidal, kelp forest, and mud flat habitats. Introduction to marine mammals, fish and other large West Coast vertebrates. Taught in Beaufort, with preparation for fieldwork before and analysis and presentation of projects after required one-week intensive field experience on the coast of Northern California. Prerequisite: Introductory course in Biology or Environmental Science and consent of instructor.

Be sure to check under ENVIRON 590, 590S, 790 and 790S for various special topics courses including ENVIRON 590S.01 Anthropocene and Global South; Instructor Taddei Renzo; 18 seats; Th 4:40-7:10 New Crosslist

ENVIRON 790.02 Intro to Environmental Finance, Chris Wedding; some seats will be reserved for BE and EE but class will be increased in size; look in DukeHub over the summer. M 4:40-7:10; 1.5 credits, 8/27-10/1/18

ENVIRON 790.03: Clean Energy Finance, Gary Wedding; 20 out of 30 seats reserved for BE students; 7 seats reserved for EE students; M 4:40-7:10; 1.5 credits, 10/15-11/26/18

ENVIRON 790.04: Economics of Modern Power Systems, Luana Lima, 40 seats MW 1:25-2:40, 3 credits

ENVIRON 790.10: Environmental Cheminformatics; P. Lee Ferguson, 5 seats, TuTh 1:25-2:40

ENVIRON 790.126: Big Cats Decline-Africa & Asia; Professor TBA; 10 seats; WF 7:30-8:45 p.m.

ENVIRON 790SA.02: Law and Policy for the Oceans, Stephen Roady; 10 seats; taught at Duke Marine Lab

ENVIRON 790SA.25: Managing Ocean Noise, Doug Nowacek; 20 seats; taught at Duke Marine Lab