

Bucknell on the Susquehanna: Natural and Social Processes Shaping the Susquehanna River and its Watershed

A Domestic Study Abroad Program

Faculty

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Program Description

Bucknell on the Susquehanna (BotS) is a new domestic study abroad program enabled with special grant funding from the Henry Luce Foundation. It offers a full semester of courses and employs interdisciplinary, field-based, and experiential pedagogical approaches by using the entire Susquehanna River basin as an outdoor classroom. The semester program also includes a two-week trip to northern California and southern Oregon in order to compare/contrast natural resource management issues in the eastern and western United States respectively. BotS is designed such that course content is as integrated as possible with all three faculty members contributing key perspectives on environmental issues during all class sessions. In addition to being field-based, BotS is largely experiential so that students will study the scientific and social dimensions of specific issues (eg, river/stream contamination from natural gas drilling), gather data to respond to research questions, analyze the data, and produce policy oriented lab reports that discuss the complexities associated with the issue as well as possible responses. BotS includes three longer excursions in addition to weekly labs including the Chesapeake Bay region, Cooperstown, NY (Susquehanna headwaters/Native American cultures), and California/Oregon.

Course Content

- ENST 297 Watershed Science and Natural History
- ENST 296 Land Use Planning and Social Processes
- ENST 295 Human Dimensions and Cultural History
- ENST 319 Directed Research

Program Objectives

Analyze place-based environmental issues from multiple disciplinary perspectives.
Complete interdisciplinary, field-based research related to watershed science, land use planning, or cultural history.

Class Sessions

In general, we plan to hold class sessions on Mondays, Tuesdays, and Wednesdays in three hour blocks. Most of these class sessions will be held in the field as weather conditions permit. In addition we will meet during most of the day on Thursdays as a lab day. We have blocked out large time slots to guarantee logistical flexibility. Some of the activities we have in mind will need to be adapted to respond to unpredictable weather patterns including major storm events.

Required Texts

- Stranahan, S. (1995). *Susquehanna, River of Dreams*. Johns Hopkins University Press.
- Doremus, H. and A. D. Tarlock. (2008). *Water War in the Klamath Basin: Macho Law, Combat Biology, and Dirty Politics*. Island Press.
- Ernst, H. (2003). *Chesapeake Bay Blues: Science, Politics, and the Struggle to Save the Bay*. Roman Littlefield.
- Dawson, R., P. Goin, and M. Webb. (2003). *A Doubtful River*. University of Nevada Press.
- McPhee, J. (2002). *The Founding Fish*. Farrar, Straus and Giroux.
- Selected texts, publications, and chapters on specific topics will be used throughout the semester.

Program Requirements and Grading

Assignment	% of final grade
Watershed Science and Natural History	
Oral mid-term exams	25%
Applied exercises (3)	35%
Critical analysis essays (3)	25%
Journal/Blog/Participation	15%
Land Use Planning and Social Processes	
Oral mid-term exams	25%
Applied exercises (3)	35%
Critical analysis essays (3)	25%
Journal/Blog/Participation	15%
Human Dimensions and Cultural History	
Oral mid-term exams	25%
Applied exercises (3)	35%
Photo journal and Creative Writing Essays (3)	25%
Journal/Blog/Participation	15%
Directed Research	
Research paper	80%
Poster presentation	20%

Tentative Course Schedule

Date	Topic	Readings/Assignments
Week 1	Introduction	
Aug. 25 (W)	Course overview	
Aug. 26 (Th)	Knowledge Integration	
	Ropes course	
Aug. 27 (F)	River float trip	
Week 2	Geology and Settlement History	
Aug. 30 (M)	Geologic setting	Readings: Stranahan, Ch. 1
Aug. 31 (T)	Settlement History	Stranahan, Ch. 2
Sept. 1 (W)	Research project orientation	
Sept. 2 (Th)	Lab: Mapping exercise: Land use and land forms	
Week 3	Chesapeake Bay and Atlantic Coast Excursion	

Sept. 6 (M)	Chesapeake Bay	Stranahan, Ch. 9
Sept. 7 (T)	Chesapeake Bay	Ernst, <i>Chesapeake Bay Blues</i>
Sept. 8 (W)	Chesapeake Bay	
Sept. 9 (Th)	Atlantic Coast barrier islands	
Sept. 10 (F)	Atlantic Coast barrier islands	
Week 4	Watershed Science and Management	
Sept. 13 (M)	Watershed Hydrology	Stranahan, Ch. 4
Sept. 14 (T)	Stream and river ecology	
Sept. 15 (W)	Water-landscape interactions	Stranahan, Ch. 5
Sept. 16 (Th)	Lab: Roaring Creek—applying watershed science to resource management	Invited guest: Mark Diebler
Week 5	Extractive Economies and Ecological Impacts I	
Sept. 20 (M)	History of Logging	Stranahan, Ch. 3
Sept. 21 (T)	Watershed scale impacts of logging	
Sept. 22 (W)	Coal mining history	Krajick, “Fire in the Hole”; Tietz, “The Great Centralia Coal Fire”
Sept. 23 (Th)	Lab: Geomorphic legacy of logging	
Week 6	Extractive Economies and Ecological Impacts II	
Sept. 27 (M)	Impact of coal mining	
Sept. 28 (T)	Management of coal mining	Stranahan, Ch. 6
Sept. 29 (W)	Marcellus shale and natural gas	
Sept. 30 (Th)	Lab: AMD impact and remediation sites	Invited guest: Carl Kirby
Week 7	Native Americans and Cultural History	
Oct. 4 (M)	Cultural history of the Susquehanna valley	Invited guests: Alf Siewers & Katie Faull
Oct. 5 (T)	History of Native Americans in central PA	
Oct. 6 (W)	Cooperstown excursion	
Oct. 7 (Th)	Cooperstown excursion	
Oct. 8 (F)	Cooperstown excursion	
Week 8	Rivertowns	
Oct. 11 (M)	Cultural history	Reading: Marsh, “Community and Decline” Invited guests: Ben Marsh & Carl Milofsky
Oct. 12 (T)	Relationship between towns and river	Invited guest: Brian Auman
Oct. 13 (W)	Rivertowns sojourn (kayaks)	
Oct. 14 (Th)	Rivertowns sojourn (kayaks)	
Week 9	Artistic Perspectives on the Susquehanna	
Oct. 18 (M)	Fall break	
Oct. 19 (T)	Fall break	
Oct. 20 (W)	Nature photography, creative expression & critical analysis	Invited guest: Cub Kahn
Oct. 21 (Th)	Nature writing and connections to place	Invited guest: Chris Camuto
Oct. 22 (F)	Lab: Nature photography and creative writing	
Week 10	Lower Susquehanna: Power Generation, Agriculture, and (Sub)urbanization	
Oct. 25 (M)	Natural setting	
Oct. 26 (T)	Regional history/land use	Stranahan, Ch. 7
Oct. 27 (W)	Lancaster agriculture	
Oct. 28 (Th)	Lab: Land use and waterways—impacts of impermeable surfaces	

Week 11	Contemporary Land Use and Ecological Impacts	
Nov. 1 (M)	Power generation	
Nov. 2 (T)	Fish and Wildlife	McPhee
Nov. 3 (W)	Independent Study	
Nov. 4 (Th)	Independent Study	
Week 12	Pacific Northwest Excursion	
Nov. 8 (M)	San Francisco Bay	
Nov. 9 (T)	Agriculture and irrigation: inter-basin water transfers	
Nov. 10 (W)	Management in Sacramento River basin	
Nov. 11 (Th)	Mining history, sediment delivery	
Nov. 12 (F)	Truckee River/Pyramid Lake	Dawson et al., <i>A Doubtful River</i>
Nov. 13 (Sat)	Truckee River/Pyramid Lake	
Nov. 14 (Sun)	Travel	
Week 13	Pacific Northwest Excursion	
Nov. 15 (M)	Klamath River basin	Doremus and Tarlock, <i>Water War in the Klamath Basin</i>
Nov. 16 (T)	Klamath River basin	
Nov. 17 (W)	Klamath River basin	
Nov. 18 (Th)	Klamath River basin	
Nov. 19 (F)	Redwoods	
Nov. 20 (Sat)	Travel	
Week 14	Independent Study	
Nov. 22 (M)	Independent Study	
Nov. 23 (T)	Independent Study	
Nov. 24 (W)	THANKSGIVING	
Nov. 25 (Th)		
Week 15	Project Presentations	
Nov. 29 (M)	Poster sessions	
Nov. 30 (T)	Poster sessions	
Dec. 1 (W)	Poster sessions	
Dec. 2 (Th)	Poster sessions	
Week 16	End of Semester Celebration	
Dec. 6 (M)	Wrap up	
Dec. 7 (T)	End of semester celebration	
Final Project		
Dec. 15 (W)	Final due date for independent research project	

Additional information for review by Curriculum Committee

Courses are proposed as ENST courses because they fit clearly into this departmental designation and because two of the faculty members in the program have appointments in Environmental Studies (Wilshusen, McTammany). As the Environmental Studies entry in the Catalog is currently written, we feel ENST 297 should count as a “science and technical course” while ENST 296 and 295 should count as “social science and humanities courses” in the ENST program. However, individual students may petition for certain courses (e.g., ENST 297) to count as a 200-level elective in biology or geology (analogous to BIOL/ENST/GEOL/UNIV 299, which was offered during Fall 2008 by Carl Kirby, Craig Kochel, and Matt McTammany). In addition, students may petition for ENST 319 (Directed Research as listed in this program and in the Catalog) to be counted for 300-level biology or geology credit if advised by Matt McTammany or Craig Kochel, respectively, or for credit in another department if the research falls clearly in that discipline. Faculty members in Bucknell on the Susquehanna will discuss these individual requests with chairs and faculty members from the appropriate departments and possibly co-advise student research projects with faculty members from these departments if necessary.

We believe the proposed curriculum should satisfy the following Common Learning Agenda requirements:

- Social science (ENST 296)
- Natural science and mathematics (ENST 297)
- Lab science (ENST 297)
- Natural and fabricated worlds (ENST 295, ENST 296, ENST 297)

The above designations apply for the fall 2010 offering of Bucknell on the Susquehanna. If the program is successful and is offered again, the theme of the semester may be completely different and will reflect the faculty members who are developing the curriculum for that semester (like Bucknell in London). In the future, it is possible that faculty member from humanities departments may participate in the program and choose to offer courses that would count for this CLA requirement. However, we believe the NFBW requirement would persist regardless of which faculty members offer the program. Since this program is scheduled for fall 2010, we have not proposed College Core Curriculum requirements that may be met by participating in the program. Obviously, many of these details would depend on which professors are involved in teaching the program, but we believe “Environmental Connections” will be satisfied by students completing this program. We envision Bucknell on the Susquehanna continuing as a program running in alternating years, so it will be important for future terms to identify CCC courses as part of the BotS curriculum approval process by the Curriculum Committee.