River Communities: CES/BIO 350

Nature as Classroom: Exploring Western River Communities

“I’m a firm believer in getting students out of the classroom and into experiences in nature,” says Nick Baer, assistant professor of Natural Sciences. “If students get out of their element, in a new place that stimulates their senses, that's where the best learning happens.”

Professor Baer and his colleague, Leon-C. Malan, professor of Business Administration, set out to test this theory last spring by leading eight students in the college’s new field course, River Communities (CES 350), an exploration of water resource management which culminated in a 10-day trip to the Colorado River Basin in Colorado and Utah.

The course began on campus with the reading of two texts, The Exploration of the Colorado River and Its Canyons, by John Wesley Powell, and Crossing the Next Meridian: Land, Water and the Future of the West by Charles F. Wilkinson, and weekly discussions on the social, economic, political and ecological implication of water resources in the western United States. The scarcity of water there has led to a complex system of determining water rights and distributing this vital natural resource among demanding stakeholders, which range from small towns and sprawling desert cities to individual farmers and massive hydroelectric plants.

“The idea is to use the Colorado River basin as a model for how we utilize water resources,” says Professor Baer. “The Colorado is a favorite model because it's well known and has an amazing allure, and it's the classic example of an extremely altered river.”

The Colorado River originates in the Rockies and winds through the West and Southwest, with 20 dams along the way, until it reaches—and some years fails to reach—the Sea of Cortez in Mexico. “There are all these competing needs for the water resource from municipalities, agricultural and industrial interests, native people, and, oh yeah, the natural biology,” continues Professor Baer. “The objective of the course was to familiarize students with how people balance all these demands on a finite resource.”

Farmer Mike Olberg explains how his drip irrigation system works.
The class travelled out West to speak with many of the players engaged in the balancing act between human needs and desires and the area's fragile environmental resources, and to experience for themselves the magnificence of the natural landscape.

They hiked and camped in the Rockies to see where the spring snowmelt spawns the Colorado River; they met with municipal hydrologists to discuss water use; and they listened to attorneys specializing in water laws and farmers who depend on irrigation to ensure their farms' survival. After visiting Arches National Park in Moab, Utah, the class flew in tiny bi-planes over the desert, following the Green River north, and ended the trip with an exhilarating four-day rafting trip.

The journey was an intense learning experience wrought with intellectual and physical challenges for the faculty and students. After hiking, camping, cooking, rafting and writing poetry in the wilderness, often while coping with a lack of facilities (no bathrooms or showers), they emerged as a closely connected – and fairly grungy – group of people with a deep understanding of human dependence on water.

**An Amazing Experience With Hard Lessons**

The eight students, mostly Biology or Community and Environmental Studies majors, were drawn to the class for different reasons, including the desire to see their knowledge gained from texts and the classroom put into action. They also cited the opportunity to travel and recreate in parts of the country they'd never seen and to learn from the two extraordinary teachers and mentors who were leading the adventure, as their impetus for taking the course.

The students take their first hike in the foothills of the Rockies outside Boulder, Colo., to acclimate themselves to higher elevations.

The students included Amanda Lambert, Amy McMahon, Carl Herz, Sam Grinnell, Geoff Rush, Sarah Champagne, Sean McCaffrey and Stephanie Seavy. For Carl Herz '09, a CES major and psychology minor, the trip was “non-stop fun and adventure.” He learned some lessons along the hard way (“respect nature” and “don't fall into the rapids”), but was mesmerized by the stark beauty of Utah's Arches National Park and the wildlife in the region. “I will never forget the beautiful places, the animals we saw (bears, elk, beavers, etc.), the cough of a mountain lion in the night, the cliffs and plateaus, and how close we all got to one another,” he says.

Herz also witnessed mankind's tendency toward short-sighted self-interest relative to the use of natural resources. “In Denver, whose water will run out in something like seven years if the city keeps expanding, people use more than 50 percent of their household water for landscaping,” he says. Some Utah desert farmers grow watermelons, each of which consumes about 120 gallons of water. It was disheartening for Herz to realize that such huge issues may not be addressed until the situations become catastrophic.

CES major and biology minor Amanda Lambert '08 was also surprised by how tightly Western states regulate water resources among so many stakeholders and yet still fail to resolve the dire need for conservation.
measures that will preserve the supply for the future. “I never knew people had to be so careful about every aspect of their water supply,” she says. “It made me respect the watershed both at home and in dry areas.”

Canyons as Classrooms

Sean McCaffrey, a non-traditional student and the college's men's and women's tennis coach, described the trip as one of the most amazing learning experiences he's ever been involved with. During the trip, he and the students were required to become "experts for a day" and share their research over the previous months on subjects such as indigenous people, history, geology, ecology and conservation.

“These assignments not only allowed students to speak to what they had learned and share their personal stories of how their research evolved, but they also allowed the entire group to round out their own knowledge base by active involvement while on the river,” McCaffrey says.

“While learning about water and ecology, we had the chance to actually be on the Green River (which flows into the Colorado River). While trying to understand farming practices in the West and how natural resources are utilized, we had the chance to visit some fantastic farms and damming facilities. Reading about these practices in a book will never compare to actually being in the field and learning first hand from those that employ tactics to help conserve the valuable natural resources.”

While everyone felt exhausted by the end, it was a life-changing experience for each participant, according to McCaffrey. “Our tents became our dorms, our backpacks acted as desks, our professors exchanged suits and ties for sandals and shorts, and the canyons and mesa doubled as a classroom,” he says. “The knowledge one gains from being immersed in an educational experience like the Rocky Mountains is great, yet coupling this with two phenomenal educators and mentors, plus seven other students, was fantastic.”

Sarah Champagne ’08, with a major in CES and minor in business administration, opted for the course because it sounded “extremely exciting” and would be led by two of her favorite professors. Some of the highlights of the trip for her were rafting down the Green River and meeting with people and organizations who deal with the day-to-day challenges of managing competing demands for limited water resources.

Champagne, like Herz, was struck by the absurdity of the idea that while Denver may run out of water in just over a decade, water is pumped into desert communities such as Las Vegas and Phoenix to keep lawns and golf courses green. “The water resource issues we came in contact with were things I had never even thought about,” she says. “Being able to see these problems firsthand allowed me to gain an understanding that I would not have been able to do in the classroom.”
Savoring the Quiet Moments

The course was a huge success in giving students an appreciation of the complexity in managing water resources, Professor Baer asserts, and exposing them to career paths they have never considered. “The students interacted with environmental attorneys, hydrologists, river guides, farmers, all people tied to water and all with very different views, and they were incredible experiences,” he says.

Along with all the intensity, the group enjoyed quiet moments at night by the fire, reading poetry and even composing a few poems of their own. “It was lovely, a very lovely experience,” he adds. “People got along well; they were really adaptable.”

The River Communities course will be offered every other year, alternating with another field course, Desert Communities (CES/BIO 366), which takes place outside of Tucson, Arizona.

Judging from their enthusiastic response to the course, the students who took part seem to affirm Professor Baer’s premise that “if students get out of their element, in a new place that stimulates their senses, that’s where the best learning happens.”

Sarah Champagne’s comment echoes those of the other students. “A field study course is such a great form of learning,” she concludes. “I would recommend it to everyone.

-Kimberly Swick Slover

Photographs were taken by Nick Baer and Carl Herz.