Cornell University
Ithaca, NY
“Sustainable Development: Green Jobs for the 21st Century”

SCHOOL
Cornell University, public and private, 20,000 students (14,000 undergraduates), Ithaca, New York.

ABSTRACT
Cornell University’s Department of Energy & Sustainability recently created a course called “Sustainable Development: Green Jobs for the 21st Century” as a part of the annual 4-H Career Explorations program for high school students throughout New York State. The three-day course, which was held in June 2010, highlighted a wide range of professions that are focused on preserving and restoring environmental quality, as well as fostering innovation, prosperity, and meaningful work. Through a tour of Cornell’s sustainable campus facilities, including the Combined Heat and Power Plant, the Dilmun Hill Student-Run Organic Farm, the Cornell Water Filtration Plant, and two LEED certified buildings on campus (Alice Cook House and Weill Hall), students were introduced to various examples of green jobs. Students also had the opportunity to hone their teambuilding and leadership skills through activities led by Cornell Outdoor Education’s Team & Leadership Center at the Hoffmann Challenge Course on Mt. Pleasant, a few miles from campus. Through working together on various challenges on the ropes course, followed by group discussions connecting the activities to ecological principles, students reflected upon the power of teamwork, the strength of community, the importance of diversity, the value of holistic thinking, and the capacity of individuals to create change. COE Facilitators, Jim Volckhausen and Andrew McLaughlin, also led a watershed education portion of the program, complete with canoeing on Lake Beebe, a geology lesson about the gorges, and an ecological scavenger hunt. The final day of the program concluded with a workshop called “Developing My Green Career Roadmap,” led by Sustainability Coordinator, Daniel Roth, and Student Intern for the Dept. of Energy & Sustainability, K.C. Alvey. This workshop was designed to help guide students through the process of self-discovery, in order to help them achieve their goals and brainstorm ideas about their potential “green niche.” During this activity, students brainstormed their ideal work environment and additional skills they could add to their natural talent in order to reach their goals.

Current status: This course will likely run again as a part of the 4-H Career Explorations program in 2011. Options for offering this program for local high school students or adapting this program for college students are currently being explored.

Number of faculty involved: 10
Students enrolled: 17
Employer or other partnerships: No
Current funding: $1800
Labor demand in green sectors in your region: Estimates in renewable energy sector are 49,000 new jobs in New York State within 10 years

GOALS AND OUTCOMES
Goals
The overall goals for the program were to expose students to a variety of professions which are a part of the emerging “green economy,” to inspire students to think creatively about their future career paths, to recognize their capacity to create positive change, to promote an enhanced understanding of sustainability principles, and to strengthen awareness of the social components involved in green careers, including leadership, engagement, teamwork, and community. In addition, another goal of the program was for students to identify their passions and then to determine how to turn their skills and interests into a future career. We aimed for approximately 20 student participants.

Cornell’s Dept. of Energy & Sustainability and Cornell Outdoor Education are developing additional experiential sustainability education programs for students, staff, and faculty. These departments are collaborating with Cornell United Religious Works and Hillel for sustainability initiatives related to faith. Jim Volckhausen, Manager of the Cornell Team & Leadership Center, explained, "This program drew together a variety of strengths Cornell has to offer toward exploring green ‘dream jobs’. The wide range of sustainability related careers at Cornell were explored experientially. The program drew on the action learning expertise of the Cornell Team & Leadership Center and Cornell Outdoor Education. The training model was designed to be applicable, with adjustments, to a wide variety of groups."

Accomplishments and Outcomes
This course was highly successful and will serve as the model for future sustainability education programs. Throughout the program, including the tours, ropes course activities, and strengths-based career planning workshop, facilitators prompted students to reflect upon:

- Which academic subjects are most interesting to you?
- What are you most passionate about?
- What are the qualities of an innovative leader in a green economy?
- What are the qualities of a successful team in a green economy?
- What lessons can we draw from ecological systems that highlight the potential characteristics of a thriving green economy?
- How can you use your skill set to make positive change?

This course was one of the most popular offerings among the 4-H Career Explorations program with 17 participants. Student evaluations were highly positive, with an overall rating of 4.5 out of 5. All participants reported that they would recommend the program to a friend. The chaperones noted, “The youth spoke at length about green jobs and dream jobs and what they needed to do to reach their goal.” One student commented, “I think it influenced my career path and gave me a better plan for the future.” Others stated, “It was an amazing program and it was so much fun” and “I definitely want to make a difference now.”

Challenges and Responses
Many of the typical challenges in planning a new educational program were not seen, since the program was offered within a larger, well-established program that provided support in recruitment, registration, transportation, finances, and evaluation. The primary challenges that remained involved the logistics of bringing the participants to a variety of work sites around the Cornell campus. The Department of Energy and Sustainability took the lead, working with staff at 6 different sites to ensure the safety and effectiveness of each visit. Multiple emails and phone calls were required to ensure that each site host knew their responsibilities and had opportunities to ask questions and receive clear answers about their role. Another challenging element was designing a wrap-up workshop that helped integrate the earlier two days of site visits and educational experiences. The workshop needed to draw on the variety of experiences and help the participants think deeply about themselves, their skills, passions, and interest and
then begin to think strategically about upcoming choices such as what schools to apply for and internships to pursue. Our team depended on the combination of both an undergraduate and an experienced professional to ensure that the workshop brought solid theoretical approaches such as strength-based youth development together with the recent experience of transitioning from high school to college. Even with these strategies in place, the final workshop had a lot of time sitting in chairs and some students did not stay fully engaged. Looking to improve the program in the future we plan to contact our site hosts further in advance and refine the different sections closing workshop to increase the level of participant engagement.

Campus Climate Action: Your School’s On-Campus Sustainability Projects
This training program highlighted on-campus sustainability initiatives, such as the Combined Heat and Power Plant, the Dilmun Hill Student-Run Organic Farm, the Cornell Water Filtration Plant, and two LEED certified buildings on campus (Alice Cook House and Weill Hall), in order to provide students with an understanding of the wide range and interconnectedness of green careers. All of these facilities work on components of campus climate neutrality as a part of Cornell’s Climate Action Plan. See below for more information on the Climate Action Plan.

Commentary and Reflection
Students left the program energized by the opportunity to contribute to the movement towards a clean energy future, to revitalize and strengthen communities, and to set humanity on a new course toward a just and sustainable world. Participant, Pierre-Francois Wolfe reflected, “The changes that are being made in order to increase the efficiency of the power-plant and the LEED certified buildings were inspiring and the designing of such facilities is a job I would be interested in pursuing…I hope that this program will run next year with an option for past participants to explore further.” For future programs, it would be helpful to ensure that there are more hands-on activities related to each part of the tour.

ENGAGEMENT AND SUPPORT
Leaders and Supporters
Cornell’s Dept. of Energy & Sustainability; http://www.sustainablecampus.cornell.edu/
   Robert Bland, Director
   Daniel Roth, Sustainability Coordinator
   K.C. Alvey, Student Intern

Cornell Outdoor Education’s Team & Leadership Center; http://ctlc.cornell.edu/
   Jim Volckhausen, Manager
   Andrew McLaughlin, Lead Facilitator
   Meghan Fitzgerald, Facilitator
   Molly Smith, Student Intern

Cornell Cooperative Extension State 4-H Youth Development Office; http://nys4h.cce.cornell.edu/Pages/default.aspx
   Celeste Carmichael, 4-H Youth Development Program Specialist

Funding and Resources
The program was funded through the partnership between the 4H Career Explorations Program, the Cornell Department of Energy and Sustainability, and Cornell Outdoor Education. Each group contributed differently. 4H provided financial support along with overarching organization of student recruitment, housing, transportation, and food, Energy and Sustainability staff developed the
programmatic content and worked with departments across campus to secure the spaces and staff time required for the site visits and workshops. The Outdoor Education staff assisted in the content planning and facilitated the outdoor leadership and education components. Additional outside funding from the Park Foundation granted to the Outdoor Education team also lowered the overall expense of using the low-ropes course. All of the partners have agreed to build this program into future budgets to ensure that it continues to be offered.

**Employer and Other School Partnerships**
This course focused primarily on facilities managers and professionals who are working in green careers on Cornell’s campus. Cornell departments that contributed staff time include: Facilities Services, Campus Life, and the Horticulture Department that funds the student farm. Our program did not partner with any local employers or community professionals because we were interested in demonstrating the holistic nature of universities and the many green jobs which contribute to campus sustainability.

**Education and Community Outreach**
This course was offered and advertised through the state-wide 4-H Career Exploration program. Student participants were from all over New York State, including the Ithaca area, Albany, New York City, and additional regions.

**CONTACT INFORMATION**
Daniel Roth; Sustainability Coordinator for Cornell’s Dept. of Energy & Sustainability; dnr6@cornell.edu

Case study submitted by: K.C. Alvey; Student Intern for Cornell’s Dept. of Energy & Sustainability; 2012; kca27@cornell.edu

**MORE ABOUT YOUR SCHOOL**

**Campus Sustainability History**
Over the last century, Cornell University has earned a reputation for energy innovation through hard work and visionary leadership from across campus. While the challenges for a research university to achieve climate neutrality are significant, President Skorton immediately recognized the importance of engaging the entire campus in this visionary endeavor. In 2007 he formed the Presidents’ Climate Commitment Implementation Committee (PCCIC) with representatives from across the university including faculty, staff, and students.

The PCCIC, with a $500,000 matching grant from NYSERDA (http://www.nyserda.org/HigherEd/), oversaw two years of planning that established a goal of climate neutrality by 2050. The successful participatory process included outreach, working groups, and an online idea exchange. The process culminated in endorsements by the Board of Trustees and all five campus assemblies, along with praises from leaders across the region and nation. To enable ongoing climate neutrality education the Climate Action Plan (CAP) (http://www.sustainablecampus.cornell.edu/climate/index.cfm) web portal highlighted the entire planning process (http://www.sustainablecampus.cornell.edu/climate/process_breakout.cfm), triple-bottom line decision-making (http://www.sustainablecampus.cornell.edu/climate/docs/Stage_1_Report_FINAL.pdf), and the portfolio of endorsed actions (http://www.sustainablecampus.cornell.edu/climate/actions.cfm).

The momentum from the CAP led to the establishment of the President’s Sustainable Campus Committee (PSCC) that brought a new level of senior administration support to sustainability initiatives. Equally important, a new Department of Energy and Sustainability was established to run all utilities and
infrastructure including renewable energy and energy conservation programs. Within the first 6 months of CAP implementation Cornell dedicated a new 30MW Combined Heat & Power facility (50,000 metric tons annual reduction), committed to eliminating the on-site combustion of coal by July 2011 (20,000 metric tons annual reduction), and allocated $5 million for 2011 energy conservation projects (6,000 metric tons annual reduction). NYSERDA again provided roughly $2 million dollars toward these combined projects.

Two critical academic partners in the CAP process were the Cornell Center for a Sustainable Future (CCSF) (http://www.sustainablefuture.cornell.edu/index.php) and the Climate Neutrality Faculty Working Group. The Faculty Working group engaged teaching faculty to integrate climate neutrality planning into 15 courses over two years. In support the CAP, CCSF co-funded five campus-based research projects that examined; behavior-related energy use, carbon capture technologies, forest sequestration, smart-grid technologies and attitudes of 1500 county residents on CAP actions. addition the Cornell University Renewable Bioenergy Initiative (http://www.cuaes.cornell.edu/cals/cuaes/ag-operations/curbi/) has completed a feasibility study for a facility to demonstrate energy production from the integration of multiple bioenergy technologies utilizing diverse bioenergy feed stocks.

Highlights in campus education were the student-led Focus the Nation events, a faculty-led ‘climate controversies’ seminar series, and public lectures by Senator Timothy Wirth, Bill McDunough, and James Hansen. Student governments initiated a student-fee funded bike sharing program and a Lights Off campaign both of which are now being institutionalized. Additionally a comprehensive energy conservation behavior change pilot project was initiated by academic staff and will launch in 10 buildings in September 2010. An ongoing focus on outreach off-campus had many successes as well including; creation of a youth energy conservation corps (http://cce.cornell.edu/learnAbout/GetInvolved/Pages/energyconservation.aspx), assisting in formation of the Finger Lakes Climate Fund (http://fingerlakesclimatefund.org/), a partnership with NREL to develop website on Climate Neutral Research Campuses (http://www.nrel.gov/applying_technologies/climate_neutral/), and a new climate change web portal (http://blogs.cornell.edu-climatechange/).

Cornell Sustainable Campus: http://www.sustainablecampus.cornell.edu/