AN INTERDISCIPLINARY SNOW SYSTEMS COURSE FOR UNDERGRADUATES

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ABSTRACT: Despite the growing need for environmental scientists and managers to think with an interdisciplinary perspective, many undergraduate courses are disciplinary in nature and lack adequate exposure to intensive, field-based studies. The winter snow environment provides an excellent setting for interdisciplinary education with a strong hands-on field component. "Snow Systems: Snow Science & Winter Ecology" was designed as an intensive 2 credit hour, five-day, field-based course for undergraduates at Fort Lewis College. The class introduced students to the physical and biological aspects of a winter snow environment while focusing on interactions between physical science and biology, especially those affected by climate change. Students spent a week in the San Juan Mountains based at the Mountain Studies Institute (MSI) field station in Silverton, CO. During the class students: (1) Analyzed snowpack properties, (2) Observed the changes that occur in a snowpack over time, (3) Conducted snowpack albedo experiments by manipulating snow reflectance with screens, (4) Used temperature data loggers to conduct energy balance experiments as related to both the physical environment and organisms, (5) Observed how the physical environment regulates biological patterns and processes in winter snow environments, (6) Discussed winter stress on flora and fauna and adaptations to overcome these stresses, and (7) Identified and analyzed wildlife track patterns and behavior. Our poster at ISSW 2006 illustrated the curriculum, activities, and hands-on studies (including data collected) that constitute this new course. For more information, go to www.mountainstudies.org and click on Education Courses.

KEYWORDS: education, snow science, winter ecology, Fort Lewis College, Mountain Studies Institute, energy budgets





Photos clockwise from top left: (1) snow density measurements, (2) snow pit stratigraphy, (3) comparing subnivean environments, (4) students built, slept in, and measured energy fluxes for a quinzee, and (5) wildlife tracking.

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