



## **Integrating Experiential and e-Learning in Sustainable Agriculture**

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Sustainable agricultural courses at the university level are increasingly being taught via distance education. Though an astounding variety of university agriculture courses teach hands-on laboratory, greenhouse and field techniques, very few of these procedures and practices are available to the on-line student of agriculture. Rather than having dedicated space for experiential learning, instructors and developers of e-learning courses must implement novel methods that will teach distance students the same principles of agriculture as would the in-class or field-based experiences. Integration of the vital on-farm, experimental and experiential course components, typically available to students housed at a centralized location, into a distance curriculum presents unique challenges to distance course developers and instructors. Questions that must be addressed to ensure a complete educational experience include: How can students fully comprehend the diversity of current farming technologies? What is the best way to teach students the basic principles of soil testing? How can instructors encourage meaningful farmer x student interaction? Is it possible for a class composed of students from a broad range of environments to conduct a statistically valid experiment? Using three different agricultural courses currently taught at Washington State University as models, various approaches will be discussed that address these and other important questions. These approaches include: blended learning, agroecological experiments, in-depth farmer interviews, hands-on soil analysis and interpretation, and experimental design of taste test evaluations. Potential solutions to the problems associated with student conduction of agroecological experiments without access to university provided laboratories, greenhouses and fields will be discussed. This lack of experimental design framework is currently a major barrier to expansion of online and distance education in the agricultural sciences. Therefore, novel course designs and innovative assessment frameworks utilizing participatory methods of various experimental methodologies are still needed to best meet the needs of distance-based students in sustainable agricultural.