



## 2008 USDA-CSREES National Water Conference Sparks, NV

### **A new era of online education: field based, online water quality curriculum for teachers**

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#### Abstract Text:

Online collegiate instruction has rapidly gained popularity, acceptance, and use by faculty and degree seeking students across the United States and throughout the world. In 2005, Montana State University's Extension Water Quality Program and their CSREES Northern Plains & Mountain partners developed a new, innovative online curriculum in the form of a summer graduate field course. This course, Stream Side Science, went beyond traditional online environments and took students independently into the field to actively participate in a hands-on, field-based course with the focus of real-time water quality monitoring. During development, a diverse group of evaluators, including students enrolled in the 2006 course, assessed the successes and limitations of this format of online learning. Based on feedback from evaluators, successful components of the course included: 1) level of science-based content; 2) diversity of teaching resources introduced to teachers; and 3) inclusion of science teaching standards to help guide teachers on content appropriate for the secondary classrooms. Limitations of the course included: 1) duplication of some materials within the course content; 2) need for more feedback from instructors; and 3) more use of small discussions groups to facilitate student-student interaction, provide opportunities for peer input, and serve as additional mechanisms for presenting difficult concepts. The 2006 evaluations guided course designers and curriculum developers toward improving Stream Side Science for the next offering in 2007, where feedback from students indicated that the improvements made from the pilot offering were effective in providing a meaningful, interactive, and successful on-line field course. Additional impact evaluations were performed in the fall of 2007 to determine if teachers who participated in Stream Side Science had incorporated course content and activities into their classrooms.

#### Impact Statement:

Online curriculum for teachers rarely provides them the opportunity to engage in hands on, field based inquiry. By developing an online, field-based water quality course teachers can develop water resource activities that fit into their current classroom curriculum and allow them to provide an experiential learning opportunity for their students. The impact on water resources is that more teachers are empowered to take their students onto the stream to learn and participate in water quality monitoring activities. These experiences will help students gain an appreciation and perhaps a sense responsibility for protecting and conserving water resources in their community.