

Backdraft: How Undergraduate Courses Can Teach Teachers

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Hands-on experience in collecting GPS data is a great way of catching the interest of teachers and students alike



Alaska's farflung schools face many problems, among them how to improve the science curriculum for grades 8-12. At the University of Alaska Fairbanks, an intensive summer course has shown that lessons of a 300-level undergraduate course, Introduction to Geoinformatics, can be applied effectively to the training of pre-service and in-service teachers.

The course, which introduces undergraduates to concepts of remote sensing, geographic information systems (GIS), global positioning system (GPS), data management, and cartography, was retailored as a two-week, intensive course designed to attract outstation teachers who could not attend a semester long course

Because recreational grade GPS receivers are now commonly available at affordable prices (about \$100 per receiver), it has become easy to introduce GPS into middle and secondary schools. GPS still has a certain "wow" factor, so teachers are eager to learn about the technology. Indeed, while undergraduates take less time to study and practice GPS, our teacher training course spent a fair amount of time on its use, with the result that teachers felt confident of being able to passing this knowledge on to students.

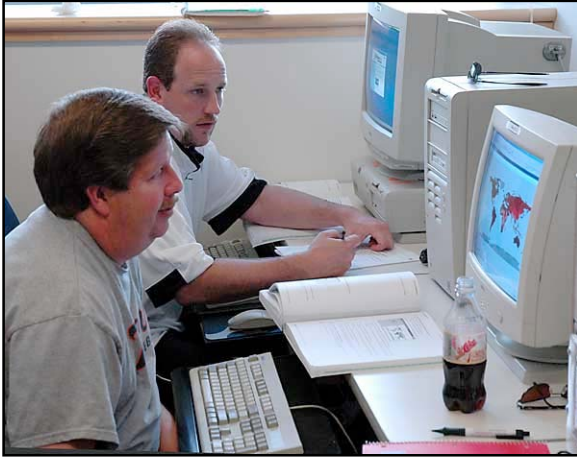
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We made other adaptations, including shortening lab exercises. A typical lab period in an undergraduate class varies from 2 to 3 hours. In contrast, the longest class period for grades 8 through 13 is 75 minutes. Considering this limitation, we reconstructed the lab exercises so that they could be successfully completed by students in roughly 45 minutes.

In addition, we adopted a "cook book approach" to lab assignments, providing more detailed instructions than we do for undergraduates.

Our experience showed that teachers needed greater support for learning new computer-based tools, such as GIS software packages, than younger students do. Consequently, we encouraged teachers to participate and work in teams of two from each school. This team approach also meant that when teachers implemented the course once they returned to their classrooms, one teacher could provide backup to the other.



Working in teams of two reduces anxiety among teachers and helps when they later try to implement parts of the course in their classroom setting

ESS at the University of Alaska Fairbanks

http://esse21.usra.edu/ESSE21/esse21_alaska.html

GEOS 595: GIS/GPS for Alaska Teachers

<http://www.gi.alaska.edu/~prakash/teaching/geos595/index.html>