2YC / 4YC Collaboration to Bring Geospatial Technology to a Rural Region

Tora Johnson, Director of GIS and Instructor of Environmental Studies
University of Maine at Machias/ Washington County Community College

I teach geospatial technology (GST) in two two-year programs shared between the University of Maine at Machias and Washington County Community College, both in beautiful and remote Downeast Maine. The Associate of Science program is administered by WCCC and the certificate program is administered by UMM; all courses are taught by UMM faculty.

Both schools--the two smallest public institutions in Maine--provide important education and workforce development services in the most rural and economically-challenged region of New England. Before we established the GST programs, neither school had the resources to maintain a geospatial technology laboratory or to offer courses consistently. The region's municipalities, agencies and organizations had almost no GST capacity with which to manage critical environmental resources and grapple with economic, public safety, and public health challenges. Several statewide studies had shown a need for more technical training in GST, but no Maine institution offered an associate's degree, and only one in southern Maine offered a certificate. We sought to fill that void with the new programs by building on prior collaborations among the state's public universities with help from a 2008 NSF Advanced Technological Education grant.

We designed the programs specifically to serve Maine's largely rural and suburban workforce. Unlike in more urban areas, Maine's economy is comprised of a large number of small businesses, organizations and municipalities. Consequently, there are very few jobs in Maine for workers who specialize in GST. Instead, the vast majority of workers in Maine are "jacks-of-all-trades" who use GST use it in the context of another career. This was a critical insight for us: it didn't make sense to educate large numbers of specialized workers for non-existent jobs. Therefore, we needed to design a system that would produce a small number of specialist technicians with associate's degrees and a large number of ancillary users with significant GST expertise from courses, certificates or minors.

The content of our courses is shaped by workforce research in Maine and elsewhere, and we offer all courses in either blended, online or short-term intensive formats to provide access to incumbent workers. Through the university's Geographic Information Systems (GIS) Service Center, students engage in real-world class projects, and they are linked with employers via internships. This has the added plus of providing low-cost and no-cost GIS services to area clients, generating demand. Many of these projects and internships lead to work for graduates. Our graduates have been getting hired, even through the economic downturn and often before they are done with the program.

By creating courses that serve multiple audiences, each contributing a small number to the total enrollment, we've been able to create a sustainable model that serves the growing needs of the region without creating competing programs at the two institutions. In fact, the first year the programs were offered in 2009, enrollment in our introductory course was three times that of the previous year when only UMM four-year students were enrolled. We've run the second course in the sequence fully enrolled each year since. Even so, enrollment remains a challenge in our programs, especially in our advanced courses. In spite of the fact that employers are calling for more skilled workers, we struggle to put "butts in seats." We have been able to use funding from service clients to support under-enrolled courses, which is a win-win for the students and the clients, but this may not be a sustainable solution.

Looking to the future, we are collaborating with the state's school laptop program and Esri, Inc., to get more geospatial technology into K12 classrooms and raise awareness. We're also working to better align our curriculum with the National GeoTech Center's Geospatial Technology Competency Model. Finally, we hope to support similar collaboration among the community colleges and universities in the state, but close relationships like the one between WCCC and UMM are apparently pretty rare and tough to build.