Chapter 1.9
Geospatial Technology:
Curricular Keystone of Applied Geography

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ABSTRACT

Research into the nature and function of curricular matters in applied geography has provided an opportunity to assess the penetration and relative importance of geospatial technology to the discipline of geography. Departments of Geography with degree programs in applied geography were surveyed to find out how important geospatial technology was in the preparation of students for meaningful jobs and careers. The Applied Geography Specialty Group of the Association of American Geographers (AAG) was also surveyed about the value of geospatial technology, as was the 95 academic programs that listed applied geography as a "program specialty" in the AAG Guide to Geography Programs in the Americas. There was a uniform agreement across these various groups that geospatial technology occupied an extremely important position in their overall course offerings, and if you are watching the workplace, such courses are not only sensible but offer critical employable skills for students upon graduation. It is widely known that geospatial technology education and training require a large commitment of departmental resources, including faculty lines, equipment expenditures, space, and technical support. A geography department and its university's administration have to understand these unique requirements and allocate resources, more akin to a computer science department than a traditional academic unit. This reality is of immediate importance to geography departments because almost one quarter of all academic jobs advertised in geography over the last six years have been in the broad area of geospatial technology. A final conclusion to this research is a policy matter that suggests geography departments take a strong proprietorial position toward providing education in geospatial technology because other disciplines and training programs see opportunities in a rapidly expanding workplace skill and they are aggressively pursuing a niche of their own.

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GEOSPATIAL TECHNOLOGY: CURRICULAR KEYSTONE OF APPLIED GEOGRAPHY

Applied geography has always been a subterranean matter within the discipline, lacking scientific credibility because of its client relationships, and appearing too vocational for serious scholars to pay much attention. Hart (1989) said it well,

Applied geography, however one chooses to define it, is essential to the good health of the discipline, but we would be foolish to ignore the fact that, from a strictly scholarly perspective, it suffers from two serious weaknesses: advocacy and parasitism. First it is difficult for an applied geographer to avoid becoming an advocate for a particular position, and second, applied geographers may be described as intellectual parasites who draw from the larder of the discipline but do little to enrich that larder (p. 20).

That was then, and this is now. For some time, parents, who have sent their children off to college, have expected them to develop employable skills, and successful geography departments have altered their curriculum and course offerings to comply with these demands. A further nudge in this direction came in 2004 when the United States Department of Labor and United State Department of Education identified geospatial technology as one of three emerging career paths, along with biotechnology and nanotechnology (Gewin 2004). This single statement from the federal government has acted as a clarion call for geographers in higher education, opening research paths and preparing students with geospatial technology skills for the workplaces. And, in 2009, the *U.S. News and World Report* continues to list urban and regional planners in the top 30 careers in the U.S.

The authors of this article were challenged by these situational realities. We began a series of studies that analyzed the role of geospatial technology in the education and training of applied geographers. Over several years, we collected data from United States geography departments, members of the Association of American Geographers (AAG) Applied Geography Special Group (AGSG), the "Jobs in Geography" section of the AAG *Newsletter*, and applied geographers themselves. What is clear from the analysis of these data sets are several trends in geospatial technology as it relates to the education and training of applied geographers.

First, courses in geospatial technology form the keystone of the applied geography curriculum across the United States. Second, within the discipline of geography, individuals that focus on research or practice in geospatial technology far outnumber any other research specialty in geography (according to the AAG specialty group statistics). Third, jobs for Ph.D.'s in geospatial technology far outnumber any other geography specialty, and these jobs can be found in academia or the private sector. And, finally, the number of undergraduate students entering jobs using geospatial technology exceeds all other jobs in geography. The remainder of this paper will discuss these trends in detail and give recommendations to geography departments who have a vested interest in preparing successful applied geographers for the public and private sector.

Geospatial Technology in the University Curriculum

In 2004, Boehm published the first article in a series about curricular issues in applied geography. Specifically, this article investigated required coursework in geography departments with degree programs in applied geography. At that time, Boehm identified only 10 programs in the U.S. and Canada with degree programs in applied geography, and using this list, he surveyed course offerings as part of these degree programs. If at least three of the 10 programs offered the course, this indicated the course qualified as a tentative core course in the education of applied geogra-