



## Laurence W. (Bill) Carstensen Jr.

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Laurence W. (Bill) Carstensen Jr. is professor and head of the **Department of Geography** at Virginia Tech, where he teaches courses in mapping and Geographic Information Systems (GIS) and does research in GIS. Carstensen arrived in Blacksburg in 1983, after two years at the University of Wisconsin-Green Bay, to teach cartography and computer cartography courses.

With the rapidly increasing use of GIS at every level of government and in the private sector, he initiated Virginia Tech's first program in GIS in 1987. Carstensen has published an award-winning paper on teaching methods in geography, and from 1991 to 1994 devoted much of his research to the development of software and multimedia tutorials for improving the instruction of introductory geography through Project GeoSim ([geosim.cs.vt.edu](http://geosim.cs.vt.edu)). More recently, Carstensen has been involved in K-12 teacher training in geography through a Virginia Geographic Alliance sponsored summer course, in which groups of Virginia teachers and Virginia Tech students travel across the continent via rail to explore the physical and cultural regions of the United States and Canada.

As department head, Carstensen led the establishment of a field experience requirement for all undergraduate majors in which students in study abroad, internship, undergraduate research, and service learning settings put their geographic study to work in the field. He continues to lead study abroad travels. Carstensen's research interests lie in three areas: GIS technology, GIS-based decision uncertainty, and teaching and learning GIS. His research

has produced publications dealing with database accuracy, algorithm design, fractal analysis of map data, and more effective teaching methods using GIS-based computer simulations. He has received significant grants from government agencies and private firms to support these interests. Project GeoSim received national awards from the Ames Research Center and the National Council for Geographic Education.

Carstensen's research efforts in the early 2000s were focused on the application of GIS to the design and layout of wireless telecommunications systems. He was principal investigator on the National Science Foundation's GETWEBS (Geographic Engineering Tool for Wireless: Evaluation of Broadband Systems) project, which completed its first year with an innovative course he co-taught with professors of both electrical engineering and finance. Carstensen's recent research interests include the application of GIS to technology, navigation, and location-based services, and the navigation of autonomous ground vehicles.

Carstensen is also the associate director of the Center for Geospatial Information and Technology, an interdisciplinary, university-wide center whose mission is to generate visibility, procure research funding, and provide technical expertise in GIS, global positioning systems, and computer-aided design. He received his M.S. in geography in 1978 and his Ph.D. in 1981 from the University of North Carolina-Chapel Hill.

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