

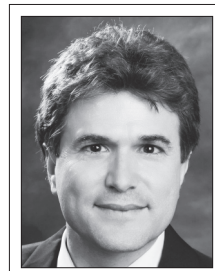
EDUCATION AND TRAINING ON WEB MAPPING AND THE GEOSPATIAL WEB

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This paper presents the content of two courses on Web mapping and the geospatial Web for geographers and geoscientists, formulated after a continuous development and delivery in several European and Canadian institutes since 2007. The author wishes to share the challenges and opportunities as well as the experiences and perspectives with educators around the globe who either consider the introduction of a relevant course to their institute curriculum or offer relevant courses and seek ideas for revision of content and teaching practices.

Cet article présente le contenu de deux cours sur la cartographie en ligne et les services géospatiaux en ligne pour les géographes et les géoscientifiques, rédigés suite à un développement et une mise en application continus dans plusieurs institutions européennes et canadiennes depuis 2007. L'auteur souhaite partager les défis auxquels il a fait face et les occasions qui se sont présentées, ainsi que ses expériences et ses perspectives, avec les enseignants autour du monde qui considèrent l'introduction d'un cours pertinent au curriculum de leur institution ou qui offrent des cours pertinents et qui sont à la recherche d'idées pour la révision du contenu et des pratiques d'enseignement.



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1. Introduction

Geographic information science and technology (GIS&T) education has evolved drastically over the last thirty years. The complex and dynamic interaction between technology, the GIS industry, and academia [Unwin *et al.* 2012b] transformed the niche courses in a small number of academic departments of the '80s into the ubiquitous GIS&T courses of today, that are offered in almost all geography and environmental studies programs, as well as many other disciplines in social studies, humanities, education and business [Tate and Unwin 2009; Sinton 2012]. The GIS&T Body of Knowledge [DiBiase *et al.* 2006] is one of the most significant achievements in GIS&T education. It provides a systematic thematic catalogue with the learning outcomes for the discipline, and can support the development of sound curricula. On the other hand, the great breadth of the GIS&T Body of Knowledge makes it difficult to know what to include in a particular course or module [Foote 2012].

Web mapping and the geospatial Web is a fast evolving area in cartography and geomatics. The concepts associated with this area were already

reflected in GIS&T Body of Knowledge [DiBiase *et al.* 2006] and further elaborated in GIS&T version 2 [Ahearn *et al.* 2013]. At the same time, the emerging need for education and training of students and professionals in this area over the last decade, has led to the development and delivery of relevant courses worldwide (e.g., PennState [2012]).

This paper summarizes the challenges, practices and outcomes of a seven-year experience in the education and training of senior undergraduate and graduate geography and geomatics students in European and Canadian institutes in web mapping and the geospatial Web. This includes the development and delivery of multiple courses in both class-based and online mode, which were recently formulated into the syllabus of two courses: an introductory and an advanced course. Lately, the introductory course has also been transformed into online mode.

The challenge in teaching a web technology course to students with limited skills in programming and computer networks has been alleviated by applying various innovating developments in