

# Yelena Ogneva-Himmelberger, Ph.D.

## Assistant Professor of Geographic Information Sciences for Development and Environment

“CLARK HAS A VERY SPECIAL PLACE IN my heart because this is where I received my Ph.D. and got my very first experience in GIS and remote sensing. While I was a graduate student at Clark, I worked at Clark Labs as a research assistant with Ron Eastman for six years and was involved in many aspects of academic research, development of educational materials and Idrisi software development and testing. So, I knew firsthand what Clark has to offer in the GIS field.”

Yelena Ogneva-Himmelberger graduated from Clark’s School of Geography in 1998 and worked for two years with Geography Professor B. L. Turner, II as a postdoctoral researcher on a NASA-funded project on land-use change in the Yucatan peninsula. The project grew out of her dissertation research, which was titled “Exploring empirical diagnostic modeling of land use/cover change: an example from Southern Yucatan peninsular region.”

After completing the project, Ogneva-Himmelberger accepted a teaching position at Mount Holyoke College as a visiting assistant professor teaching GIS and remote sensing classes. While there, she developed a new course called “State of the Environment in the Former Soviet Union.” Ogneva-Himmelberger grew up in Moscow, traveled extensively within the former USSR, and received her undergraduate degree from Moscow State University.

Prior to coming to Clark, she held a lecturer/GIS research specialist position at Tufts University, which was half-faculty/half-staff. As a core faculty member in the Urban and Environmental Policy and Planning Department, she taught both introductory and advanced GIS courses. As a GIS research specialist within the Academic Technology Department, she helped faculty and students with GIS aspects of their research and gave guest lectures and hands-on workshops about GIS in different schools within the university. This multi-faceted job provided her with an important opportunity to broaden her knowledge of GIS applications in various disciplines. For example, last year she created a new course

GIS Applications in Human and Animal Health which she taught at Tufts Veterinary School.

The GISDE faculty position in IDCE gives Ogneva-Himmelberger an opportunity to work side-by-side with renowned GIS researchers. She finds the interdisciplinary character of IDCE attractive, as it provides possibilities for collaborative work with IDCE faculty in the other three graduate programs.

Ogneva-Himmelberger teaches three GISDE courses: Vector GIS, Advanced Topics in GIS, and Digital Image Processing. In addition, she is working with seven graduate students as part of an independent study in the spring semester. The students are exploring conservation and ecological modeling applications of GIS, prioritizing brownfields for redevelopment in Worcester, mapping and spatial analysis of elevated blood lead levels in children, and access to health-related community assets in Worcester.

Ogneva-Himmelberger is currently working in two major research areas: community-based GIS projects and remote sensing projects, and collaborations with several local government and NGO groups and other research centers. The research topics include GIS analysis for risk assessment of childhood lead poisoning in Central Massachusetts communities, which she works on in collaboration with the Worcester Lead Action Collaborative. She collaborates with Fallon Community Health Plan and the University of Massachusetts, Lowell on the Proximity to Traffic, Air Toxic Exposures and the Development of Asthma in Children. She also researches how GIS can be applied to assess hunger vulnerability in the city of Worcester for the Worcester Advisory Food Policy Council.

Her current remote-sensing research project deals with urban sprawl over the last 15 years in Moscow. Using spatial statistical



tools she is trying to identify systematic land-cover transitions via analysis of gains and losses. Future ideas for remote sensing work are related to the Global Land Project developed by the International Geosphere-Biosphere Programme and include the temporal dynamic of forest fires in Russia, permafrost melting in Siberia and its implications to ecosystems and people, desertification

in Central Asia, and assessment of rural depopulation and the subsequent land-use change in post-Soviet Russia.

Ogneva-Himmelberger is working with three IDCE students on assessing suitability of Worcester’s environment for a healthy lifestyle. They are using GIS to create a composite suitability map that would show areas where city residents have or do not have an easy access to various health-related resources—open space, parks, trails, health clubs, grocery stores, public transportation, and health clinics and hospitals. Areas with low composite accessibility scores will be further analyzed using census data to uncover socio-demographics of these areas.

She is also working on two projects with former students from Tufts University including “Noise pollution from Logan airport: Is there an environmental injustice?” and “Spatial analysis of diesel particulate mater, lung cancer and asthma incidences along major traffic corridors in Massachusetts.”

“I hope students in my classes learn how to think spatially and gain deep understanding of fundamental concepts of GIS science and of remote sensing. I show a variety of GIS applications in my classes and hope students learn to appreciate how powerful GIS is as a tool, both analytically and visually. I would like to spark their interest in GIS and remote sensing, just like it happened to me at Clark more than 10 years ago.”