

Dr. Rinku Roy Chowdhury at the [Department of Geography](#) at [Indiana University](#) is seeking motivated M.S. and Ph.D. students with interests in spatial analysis and modeling of urban land management, land cover dynamics and/or hydrological impacts. Full funding is available through **two** open research assistantships and supplemental teaching assistantships, and includes a monthly stipend, tuition waiver, health benefits, and travel funds for fieldwork and conference presentations. The graduate assistantships are funded by the National Science Foundation (NSF) Long-Term Ecological Research (LTER) and Macrosystems Biology programs, and entail research on the following substantive and methodological themes:

***Integrated Climate and Disturbance Legacies, Florida Coastal Everglades (FCE-LTER)***

The FCE-LTER Program is dedicated to long-term studies of how changing patterns of freshwater availability interact with climate variability to affect ecosystem structure and processes in the estuarine ecotone regions of the coastal Everglades. The Legacies research theme focuses on the legacies of wetland conversion to urban and agricultural land uses and resulting shifts in water demand in the greater Everglades watershed-ecotone, and the system's vulnerability to climate change. Retrospective analyses integrating four decades of multi-resolution remote sensing (GeoEye, Landsat, MODIS) and hydrology data will examine the interplay of climate and land-use change in changing saltwater intrusion rates into Biscayne aquifer, driving ecosystem C sequestration and loss in the FCE, and resource use/distribution in South Florida's urban-agricultural gradient. Surveys of urban/agricultural land managers (e.g., farmers, residential homeowners) will be conducted to ascertain their water use and land management practices, and elicit their (variable) experiences and perceptions of vulnerability to climate variability and change. These land use, water demand and survey data will be used to characterize the *sensitivity* of land users and the regional land use system as it is *exposed* to hydrological changes due to climate variation and saltwater intrusion, and profile the terrestrial-hydrological system's *adaptive capacity* in terms of water policy regimes.

***High-resolution social-ecological analysis of urban residential landscapes***

This research investigates whether processes of urbanization in the US lead to homogenization in ecological structure and functions relevant to ecosystem carbon and nitrogen dynamics, with potential continental scale implications. To this end we will leverage a series of preexisting and new datasets, from household-level surveys to regional-scale spatial analyses, across six metropolitan statistical areas (MSA) that cover the major climatic regions of the US: Phoenix, AZ, Miami, FL, Baltimore, MD, Boston, MA, St. Paul, MN and Los Angeles, CA. At the household and parcel scale, we are coupling homeowner surveys with biophysical measurements to determine how household characteristics (e.g. household size, socioeconomic status, attitudes and preferences) correlate with both landscaping decisions and land-management practices and ecological structure and functions. Neighborhood scale dynamics will be assessed with high-resolution (1.0m pixels) remotely sensed data and spatial analyses that allow for assessing the extent and quality of lawns and other cover types at the parcel and neighborhood levels. These data will be used to link social characteristics (based on lifestyles and perceptions, socioeconomic status, parcel characteristics, social institutions) with ecological patterns and processes at broader (MSA) geographic scales. This research has the potential to transform both understanding of an important and increasingly common ecosystem type ("suburbia") and the capacity to scale the effects of local (i.e., parcel-level) land use change to regional and continental extents.

The qualified masters or doctoral student must fulfill all requirements for admission to the graduate program in Geography at Indiana University, and hold a B.S., B.A., or a Master's degree in geography, sociology, economics, ecology, environmental science, forestry, hydrology, natural resources, statistics, or related fields. They should have research interests in land change science and urban cultural/political ecology, possess excellent oral and written communication skills and proficiency in one or more of the following areas: Geographic Information Systems, remote sensing, statistical analysis of household- and parcel-level data, spatial modeling, and social surveys and/or ecological field sampling. Knowledge of Spanish, while not required, is an additional advantage for the FCE-LTER research project.

Accepted candidates will work with Dr. Roy Chowdhury and have the opportunity to collaborate with several research centers at Indiana University focused on multi-disciplinary approaches to the study of Human-Environment Systems. These include the Center for the Study of Institutions, Population and Environmental Change (CIPEC), the Anthropological Center for Training and Research on Global Environmental Change (ACT), the Workshop in Political Theory and Policy Analysis, and the School for Public and Environmental Affairs (SPEA).

Students interested in the aforementioned research projects should contact Dr. Rinku Roy Chowdhury ([rroychow@indiana.edu](mailto:rroychow@indiana.edu)) with a CV and a one-page statement of their research interests and qualifications, by January 31, 2013 or as soon as possible. Application materials should be submitted by February 15, 2013 for full consideration. For further information, visit the webpages noted below.

Indiana University Department of Geography (*please review graduate admission requirements*)  
<http://www.indiana.edu/~geog>

Center for the Study of Institutions, Population and Environmental Change (CIPEC)  
<http://www.indiana.edu/~cipec>

Anthropological Center for Training and Research on Global Environmental Change (ACT)  
<http://www.indiana.edu/~act/>

Workshop in Political Theory and Policy Analysis:  
<http://www.indiana.edu/~workshop>

School for Public and Environmental Affairs (SPEA)  
<http://www.indiana.edu/~spea/>