



A First in GIS Education: Long Island University's Online Advanced Certificate in Mobile GIS Applications Development

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By [Adena Schutzberg](#)

Summary:

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Kiichi Takeuchi is the senior Web application database developer for LIU and an adjunct professor. Gavi Narra is the deputy chief information officer for LIU and an adjunct professor of computer science at LIU Brooklyn, where he teaches courses at both the graduate and undergraduate level. Patrick J. Kennelly is an associate professor of geography at LIU Post, where he teaches GIS, cartography, environmental science, earth science and geology. Christopher League is an associate professor of computer science at LIU Brooklyn.

Directions Magazine (DM): This is the first program of its kind, so far as we know. What evidence is there of demand for this type of focused certificate?

Takeuchi: Since we [the university] started smartphone app development in 2008, we have received many requests to develop apps with GIS functionality. Demand in the mobile consumer app market expanded rapidly with the inclusion of GPS chips in mobile devices. As one example, a project partner who works for a major telecommunications company in the U.S. told us the company is rich in geospatial data, but faces problems in providing mobile access to these data for its hundreds of engineers in the field during major storm events. We strongly believe there is a large demand for mobilizing such data with customizable apps.

DM: The four-course sequence includes an introduction to GIS, an introduction to computer programming, then two of three electives focusing on iOS, Android or Web development. What sorts of pedagogical or technology tools do instructors plan to use to keep students motivated, engaged and learning?

Narra: Whether software developers or GIS professionals, we believe that students learn skills from frequent iteration of learning materials, assignments and feedback, augmented by timely discussion with classmates and instructors. To achieve this goal, we will provide learning materials via screencast videos

and handouts using a fully integrated online learning management system. These materials and assignments will be revealed from week to week, but students will work with these resources at times convenient to their schedule. We will utilize online discussion forums where students will discuss related topics during the week, and online office hours, where students can videoconference live with their instructors. We are also limiting enrollments to less than twenty students, which should enhance the communication experience.

DM: The program requires a bachelor's degree, like many GIS certificate programs. Reading over the course descriptions and the admissions requirements, it seems a strong technical background is essential. What would an ideal candidate or two look like in terms of experience?

Kennelly: One ideal candidate would be a person working with geospatial technology and data, but with little or no formal training in computer programming. This candidate may see potential for developing mobile apps for his mid-sized company that would allow field workers to collect or access geospatial data with a minimum investment in hardware.

Another ideal candidate would be a person dabbling in coding, but lacking a structured approach to programming or geospatial technology. She may be an entrepreneur, with innovative ideas on what sort of geospatially-enabled apps she wants to develop and some idea of what the market is for such apps. She realizes, however, that she needs more formalized education and access to experts in computer programming, GIS and app development to realize this goal.

DM: Sometimes employers pay for GIS certificate and degree programs to educate their employees. Is that likely for this program?

Kennelly: LIU Online offers a [deferred payment plan agreement](#) for students and their employers to facilitate employee reimbursement. Furthermore, we have designed this program to be as attractive as possible to prospective applicants and their employers. As far as we know, we are currently the only registered program in mobile GIS apps development from an accredited university. All of our instructors have extensive hands-on experience with programming, GIS, app development or some combination of these, as well as university instructional experience. Workers and employees alike should benefit from this program being fully online, as coursework can be completed at times convenient to the worker.

We also, however, have designed our program to be as flexible as possible. Some individuals do not work for companies with educational reimbursement programs. Others chose not to use them, either because they do not want to commit to "pay back" the company with their time, or because they are looking to develop skills to be used outside of their current organization. For these people, we are scheduling two overlapping three-credit courses per semester (beginning September 2012) to allow students to apply for federal financial assistance, such as student loans, to defray the cost of the program.

DM: What questions do you hope to learn the answers to once the first cohort completes its first classes?

League: As our first cohort completes the first two classes in fall 2012, we hope to have a better understanding of their motivations and their needs. Although we have extensive experience in GIS, in mobile app development and in online learning, and we believe there's a good market for this juxtaposition of skills, we simply don't know what our students will bring to the table. Will some of them have programming experience already? Have maps always been a hobby? Do the students work for companies looking to use mobile technology in their business, or do they aim to build their own GIS startup? We look forward to learning much from our first cohort of students.

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