



A Monthly Newsletter of the
National Geospatial Technology
Center of Excellence

Innovation in Geospatial Science and Technology Education

Empowering Colleges: Expanding the Geospatial Workforce

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Contact Information

Vince DiNoto:
vince.dinoto@kctcs.edu
502-213-7280

Rodney Jackson:
rodney_jackson@davidsonccc.edu
336-224-4544

Ann Johnson:
ann@baremt.com
208-894-4541

Rich Schultz:
richs@elmhurst.edu
630-617-3128

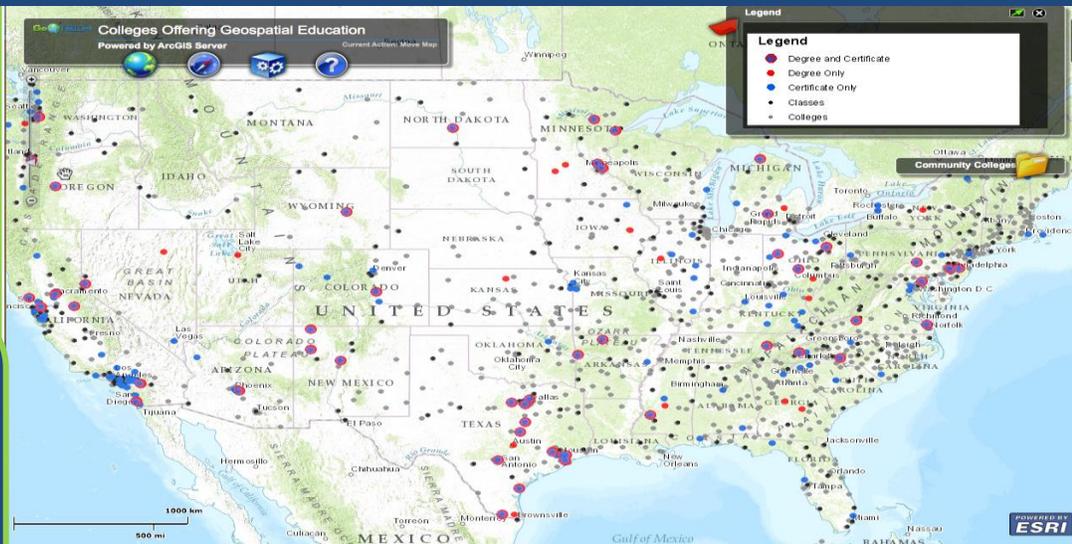
Ken Yanow:
kyanow@swccd.edu
619-421-6700, ext. 5720

The GeoTech Center website is:
<http://www.geotechcenter.org>

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The GeoTech Center is virtual, comprised of a Director, four Associate Directors, and nine Assistant Directors from institutions across the nation. The central office is located at Jefferson Community and Technical College in Louisville, KY.

Jefferson Community & Tech College
1000 Community College Drive
Louisville, KY 40272
(502) 213-GEOT
GeoTech@kctcs.edu



Recruitment & Retention: What Works?

Recruitment Methods: What Works?

Recruitment of students into any science and/or technology field is generally challenging. This is especially true for geospatial technology. Even though “geospatial” is all around us (i.e., navigation systems, satellite imagery, maps on the news), and even though geospatial technology is a “high growth” occupation, the field itself is still not necessarily well known. Traditional recruitment methods such as advertisement from academic counselors, program dissemination, “career fairs”, “majors day”, and other events, are successful in varying degrees. Of course, if these methods were “it”, then all of us would have thriving and student-filled programs.

General Education (GE)

Why not introduce “geospatial” to those students who don’t already know about geospatial technologies? Typically, students enrolling in a geospatial program already know about the field. A general education “geospatial awareness” course would ultimately attract many, many more students. The more students introduced to “geospatial”, the more students who are likely to take additional coursework in the program.

At the GeoTech Center, we are using the Geospatial Technology Competency Model (GTCM) to create a full model course (including learning objectives, outline, learning modules, lectures, and assessments) that could satisfy a variety of GE categories.

The ultimate goal of a GE course is to introduce fundamental concepts of geographic information science & technology to a wide cross section of students. GeoTech Center partners who presently offer such a GE course are seeing positive recruitment numbers (especially with underserved and underrepresented students). As students are introduced to “geospatial” and its applications, they are enthused to continue their studies in the program.

Retention: What Works?

In 2011, the GeoTech Center conducted two national surveys: one for geospatial faculty and the other for geospatial students. A basic question was asked: “What were (are) the best practices to retain students in the course/program and what were (are) the best practices to aid students in their success?” Respondents were asked to select their top four variables (out of 12 choices). The table and figure below (see Page 2 of this newsletter) highlight the responses. For faculty, the top four retention methods were: 1) Good and motivated teaching; 2) Curriculum that is contextual and relevant; 3) Interaction with fellow students; and 4) Involvement in an internship/work experience. For the students, the top four retention methods were: 1) Good and motivated teachers; 2) Curriculum that is contextual and relevant; 3) Project based learning; and 4) Accessible faculty and faculty mentoring. (Continued on Page 2).

Recruitment & Retention (Continued)

The following table below highlights the responses of the faculty and student respondents. Note: Although the survey was relatively small, it still provides an indication of the thoughts of faculty and students. Larger surveys are planned for the near future.

	Faculty Response (n=127)	Overall Student Response (n=101)	DIFF
Project based learning.		50%	--
Strong Institutional Support.	13%		--
Accessible faculty. Faculty mentoring.	41%	42%	1%
Positive and reliable role models.	19%	21%	2%
Curriculum that is contextual and relevant.	55%	51%	3%
Activities that strengthen math or spatial skills.	22%	29%	7%
Positive reinforcement.	27%	34%	7%
Interaction with fellow students.	47%	37%	10%
Good and motivated teacher(s).	66%	81%	15%
Participation in service learning.	24%	2%	22%
Participation in a research project.	40%	10%	30%
Involvement in an internship/work experience.	45%	13%	32%

Clearly, both faculty and students believe that good and motivated teaching is the most important variable to student retention and success. However, students found this variable **much** more important than faculty. As instructors, we should *not* take this with a grain of salt. If we want our students to stay in our classes/programs and be successful, we need to be good stewards. Also, as both cohorts indicated, having contextual and relevant curriculum is paramount to success. Button pushing and merely learning how to use a software package will not do. Students need to see how geospatial technologies are being used to help solve relevant and important problems (the same can be said as to why students selected "project based learning"). "Contextual" is highlighted even further with regards to female versus male learners and younger versus older learners (see the tables below).

For access to the full report, please contact Ken Yanow at kyanow@swccd.edu.

Additional data of interest:

Female versus male student responses:

	Female (n=45)	Male (n=56)	DIFF
Positive and reliable role models.	20%	21%	1%
Good and motivated teacher(s).	80%	79%	1%
Project based learning.	49%	48%	1%
Participation in a research project.	9%	11%	2%
Activities that strengthen math or spatial skills.	31%	27%	4%
Participation in service learning.	4%	0%	4%
Interaction with fellow students.	33%	39%	6%
Positive reinforcement.	38%	30%	8%
Accessible faculty. Faculty mentoring.	47%	38%	9%
Involvement in an internship/work experience.	18%	9%	9%
Curriculum that is contextual and relevant.	56%	45%	11%

Younger versus older student responses:

	<25 to 36 (n=56)	37 to 69 (n=44)	DIFF
Participation in service learning.	2%	2%	0%
Good and motivated teacher(s).	79%	80%	1%
Participation in a research project.	9%	11%	2%
Accessible faculty. Faculty mentoring.	39%	43%	4%
Positive reinforcement.	30%	36%	6%
Involvement in an internship/work experience.	9%	18%	9%
Activities that strengthen math or spatial skills.	34%	23%	11%
Positive and reliable role models.	27%	14%	13%
Project based learning.	55%	41%	14%
Curriculum that is contextual and relevant.	61%	36%	25%
Interaction with fellow students.	23%	55%	32%

BMCC (Borough of Manhattan CC)

Dr. Ching-Song Don Wei, Professor Hoa Tang, and Professor Patricia Mathews Salazar just received a \$300,000 National Science Foundation (NSF) Advanced Technological Education (ATE) grant to develop five new courses in Geographic Information Science at BMCC – the first program of its kind at a CUNY community college.

The project will prepare students for entry-level employment in the fast-growing field of geotechnology, and provide the basic skills to enter the 3rd year of a bachelor's degree program in GIScience at Hunter College. "We will work with Hunter College's 4-year geography program and create a pipeline of students from our program to theirs," said Dr. Don Wei.

"Students will be able to look at social problems, and learn practical tools to solve them," says Professor Salazar, Director of the Ethnic Studies department at BMCC. "Interdisciplinary approaches are the future when it comes to solving many issues where we don't just look at mapping, but at what humans make with their environment." Geospatial technology, she explains, "means using computer systems to map social landscapes – which have to do not just with place, but with groups of people and communities, all represented by data – and that's a skill related to many emerging employment opportunities, at many levels."

In order to create their curriculum, BMCC consulted with the GeoTech Center. Dr. Don Wei used the GeoTech Center-created Geospatial Technology Competency Model (GTCM) assessment tools to determine gaps in the geospatial curriculum at Hunter College. Then, in consultation with Hunter College, crafted their new program.

For additional information regarding the BMCC program and/or their NSF ATE grant, please contact Dr. Don Wei at cwei@bmcc.cuny.edu.



Dr. Ching-Song Don Wei with Professor Patricia Mathews Salazar at the 2013 American Association of Community Colleges ATE PI Conference.