2014

A Spatially-enabled Smart Campus for Community-based Learning

Zhaohui Jennifer Fu
GIS Center, Florida International University, Fujen@fiu.edu

A spatially-enabled smart campus for community-based learning

Jennifer Fu
GIS-RS Center
Florida International University

2014 AAG Annual Conference, Tampa, Florida

Three Layers of Community-Based Learning Environment

- Smart Campus – Infrastructure
  - Spatially Enabled Campus Information Systems
  - Routing, Navigation, Resource Locating and Discovery
- Curriculum – Spatially-Enabled, Multi-disciplinary, from Distance
  - GIS is for every student;
  - A Library-based GIS Center for Campus GIS Community (FIU)
  - GIS Distance Education and Reusable Learning Objects (UF)
- VGI Tools for Community-Based Learning – Local and Global
  - Local – Digital Humanity, History
  - Global – Disaster Reduction, Water Resources, Climate Change

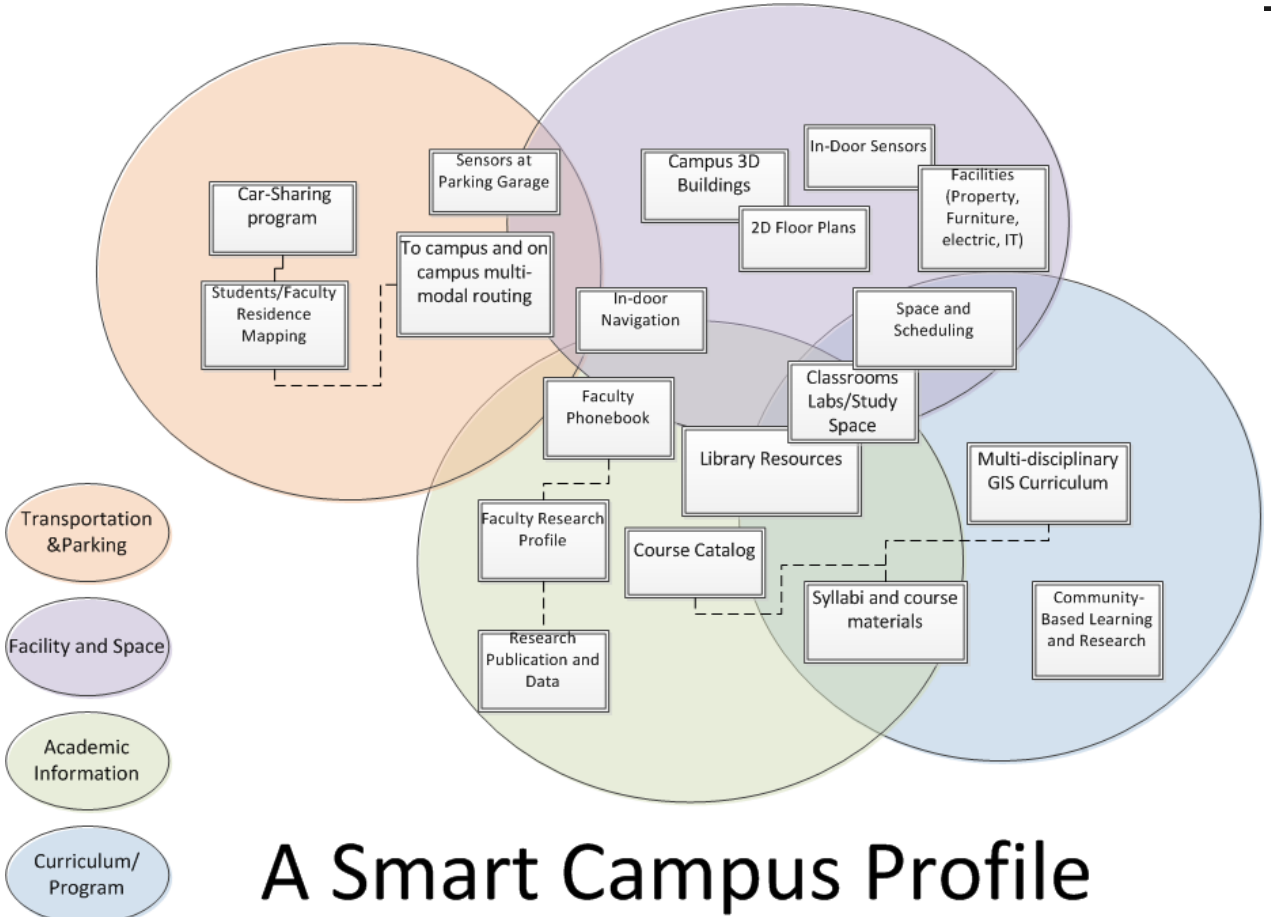
Smart Campus and Student Learning

Active Learning Happens When Students Participate

Learning Starts From Campus

Smart Campus – Infrastructure

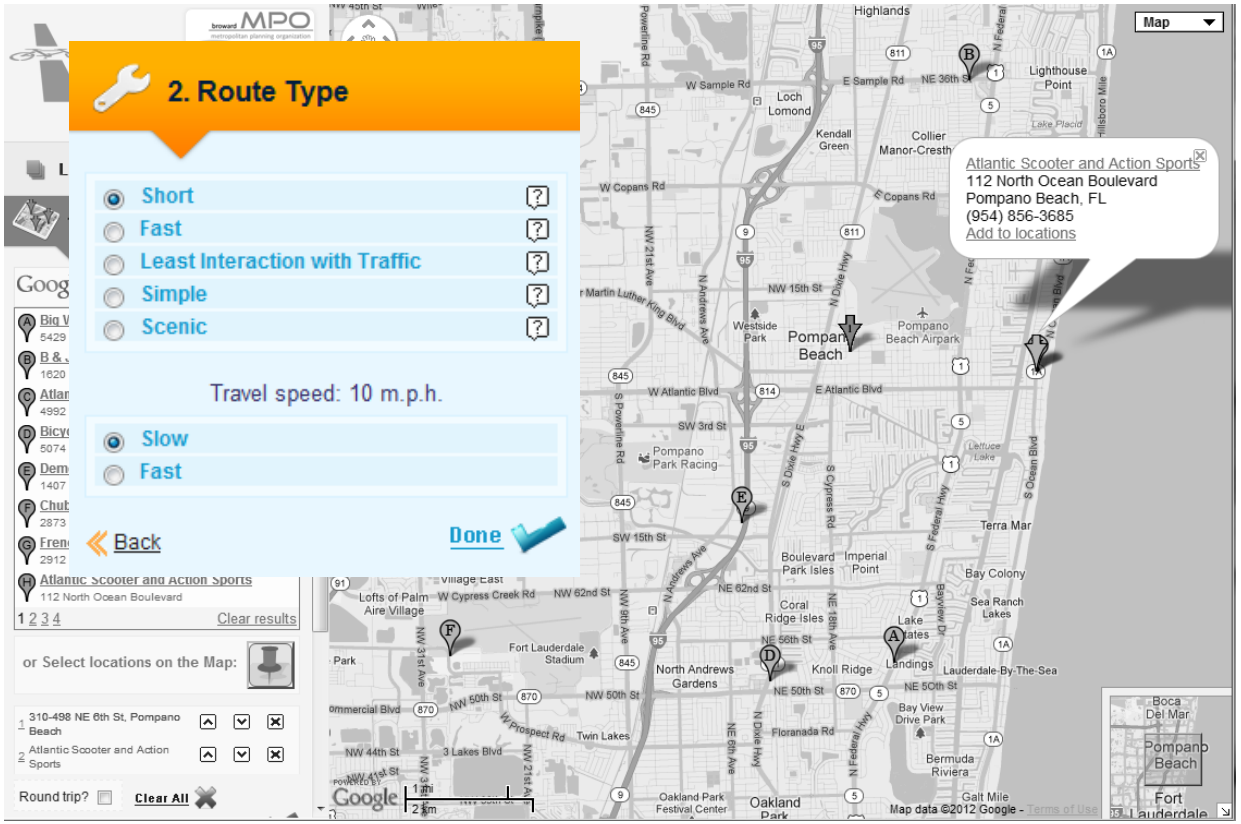
Several aspects of campus can be spatially enabled



A Smart Campus Profile

Smart Campus – Transportation / Routing

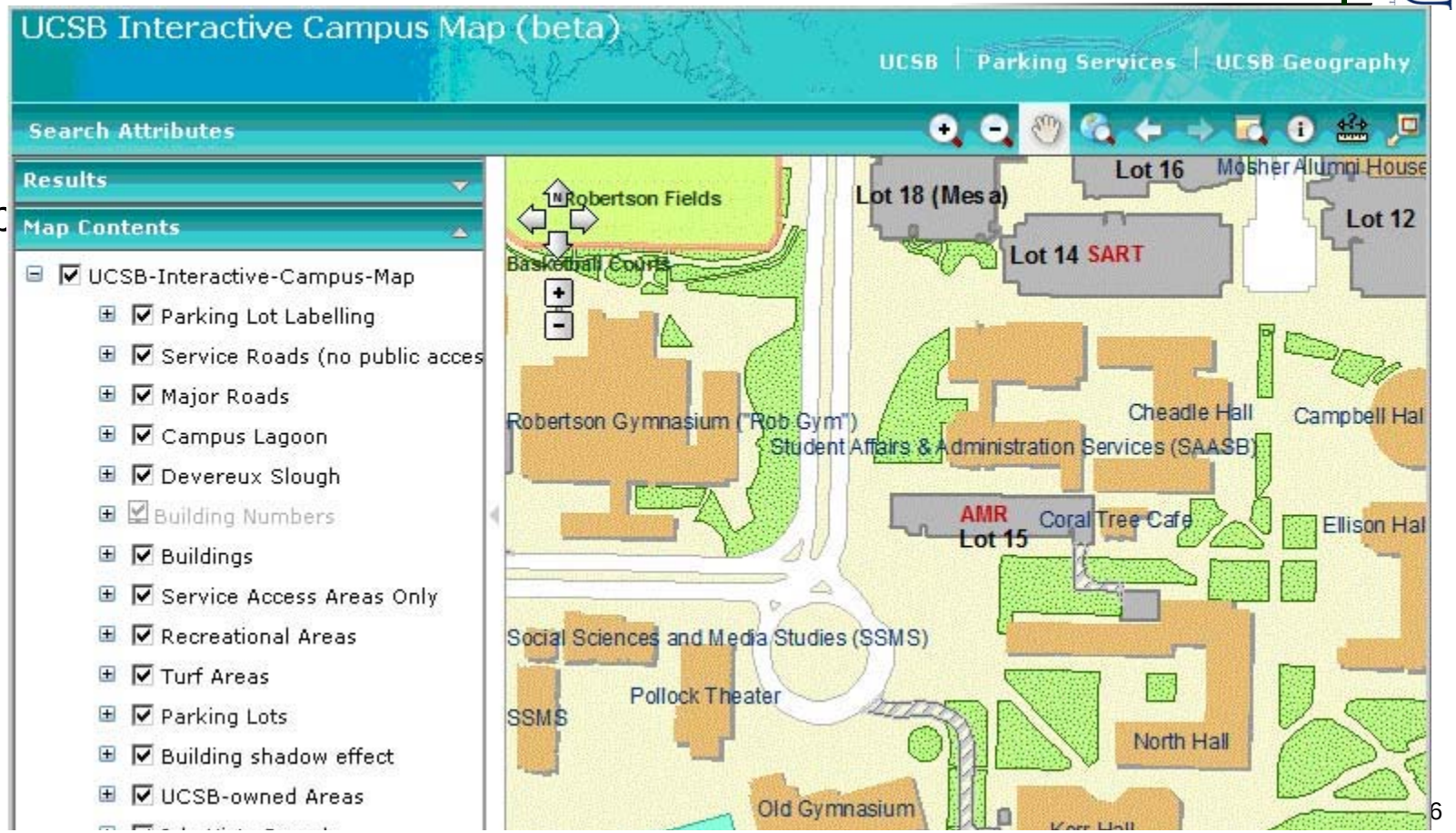
Bicycle and Pedestrian Routing tools To encourage A greener, safer way of to and in campus travel



Smart Campus: Facility and Sustainability

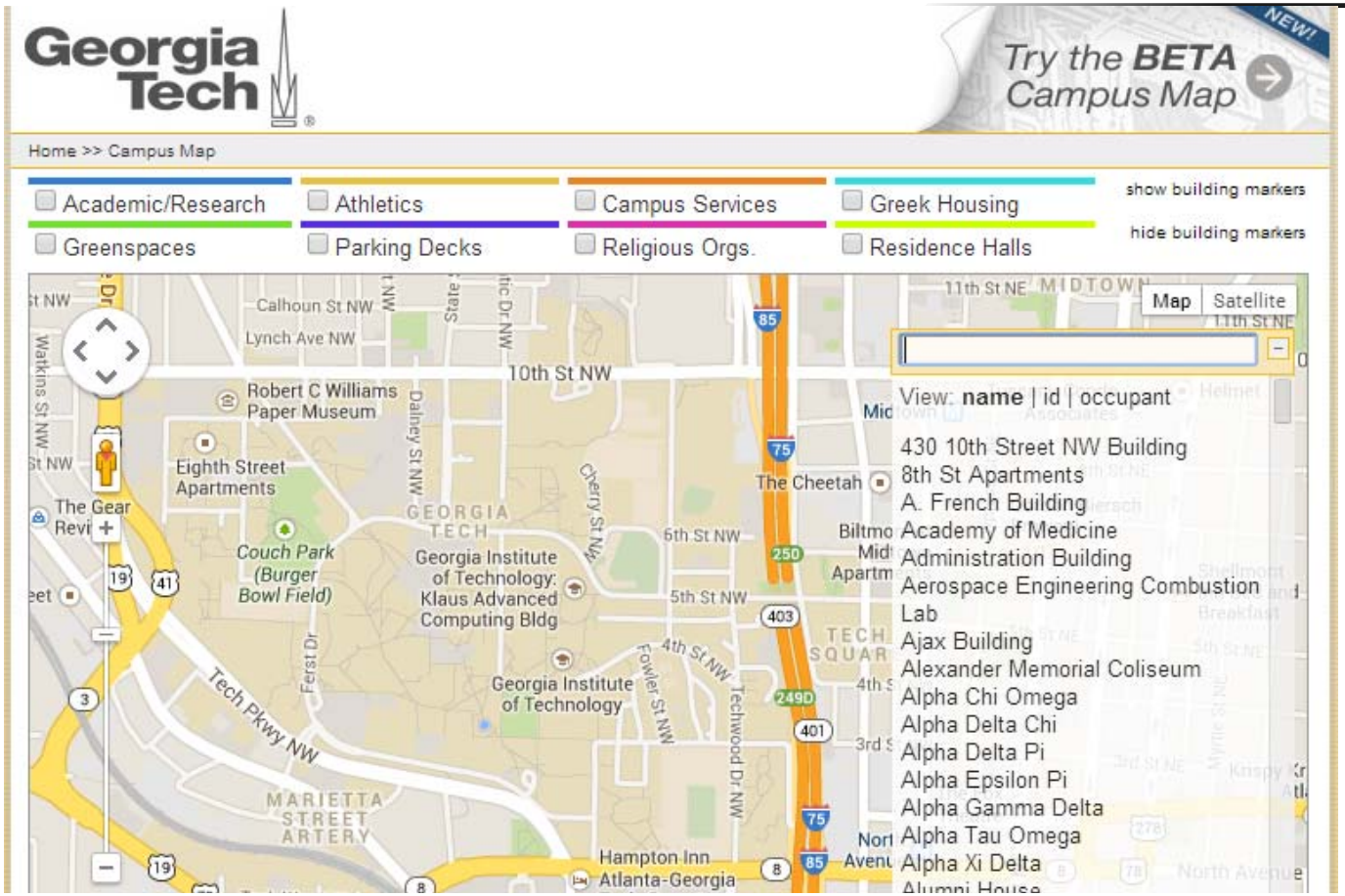
UCSB – Interactive Campus Map (created by students):

Way-finding; accessibility elements; time-aware layers



Smart Campus: Space and Sustainability

Georgia Tech – Green Space Identification using interactive mapping



Smart Campus: Integration and Participation

University Jaume I (UJI) of Castellón (Spain)

ESRI technology

Computer Science Faculty

Student involvement

http://smart.uji.es/smartUji/

Search: 'water ' :
We found **74,930** matching items at Florida International University
Limit by: Publication Year or Popular Format

*Show **230,307** items that you can request statewide* UBORROW *(what's this?)*

Narrow Results By:
Books in the library

Library/Collection
- FIU Green Library Documents (16,271)
- FIU Online (10,270)
- FIU Green Library (6,356)

show more...

Format
- Book (70,345)
- Govt Publication (58,335)
- Online Resource (47,408)

My Folder is empty | Add All

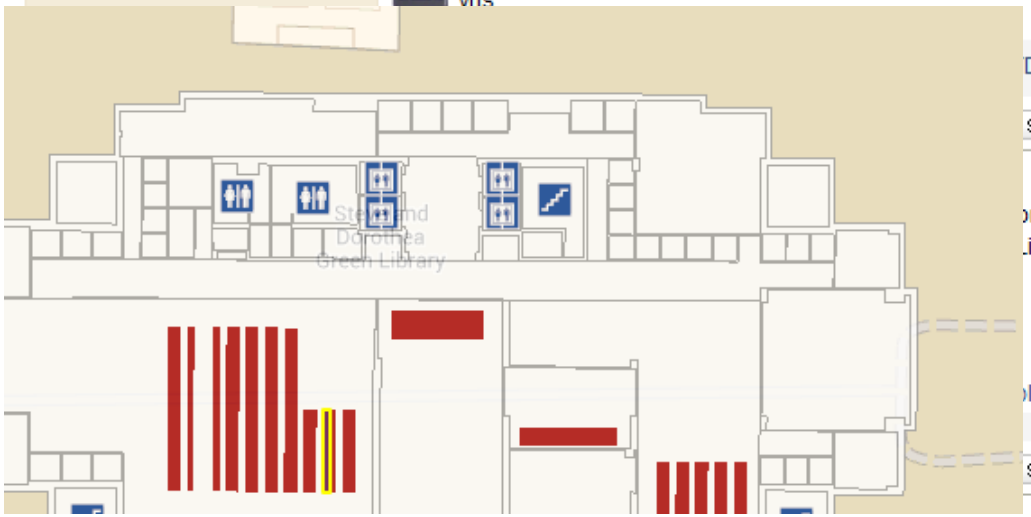
Results/page: 10 Sort By: Relevance RSS

1 2 3 4 5 6 7 8 9 10 Next >>

1. Water

produced by Peter Pastorelle Productions for Maryknoll Missioners.
Published: Maryknoll, N.Y. : Maryknoll World Video Library, 1980.
Summary: Deals with the problems of the Third World countries and their quest for pure water, emphasizing that a fresh water supply is an essential element for quality of life and dignity for all people.

vhs



D353 .D48 1980 MAP IT Available (14-Day Loan)

SHARE

on, 2006.
Like most families in the countryside, they don't have running

loyees

SHARE

Curriculum and Beyond

Increased Geo-spatial Awareness on Campus

Coordinated Learning Environment and Curriculum

Distance GIS Learning

Geo-spatial Workforce Development

NAME	TITLE	DEPARTMENT	EMAIL	OFFICE
Dr. Dean Whitman	Committee Chair	Earth and Environment	whitmand@fiu.edu	PC 325
Zhaohui (Jennifer) Fu	Committee Co-Chair	GIS Center	fujen@fiu.edu	GL 273-C

COMMITTEE MEMBERS

Dr. Xia Jin	Civil and Environmental Engineering	xjin1@fiu.edu	EC 3603
Dr. Assefa Melesse	Earth and Environment	assefa.melesse@fiu.edu	ECS 339
Dr. Jeffrey Onsted	Earth and Environment/Global and Sociocultural Studies	jonsted@fiu.edu	ECS 332
Ebru Ozer	Landscape Architecture	Ebru.Ozer@fiu.edu	PCA 374A
Dr. Derrick Scott	Global and Sociocultural Studies	derrick.scott@fiu.edu	SIPA 306
Dr. Moses Shumow	School of Journalism & Mass Communication	mshumow@fiu.edu	AC II 317
Dr. Rick Tardanico	Global and Sociocultural Studies	tardanic@fiu.edu	SIPA 312
Dr. Keqi Zhang	International Hurricane Research Center/Earth and Environment	zhangk@fiu.edu	MARC 360

Geo-spatial training and informal ed

GIS Center at FIU : http://gis.fiu.edu

Routine free workshops for all interested students – topics ranging from Intro to GIS, GPS, Census Mapping, etc;

ESRI's Virtual Campus training;

GIS guest lectures to support non-GIS curriculum (e.g Journalism, Architecture);

One-to-one consultation

Geo-spatial workforce development

GIS Center at FIU : http://gis.fiu.edu

90% of 10-15 GIS Center's employees have a FIU degree;

99% of student interns who worked at GIS Center find salaried positions within the first year of graduation; Or continue on graduate degree in geo-spatial sciences;

External funding allow hiring of graduate students;

Matching GIS students with internship outside FIU community;

GIS Center trained 400+ Miami Dade County employee on basic GIS technology;

Distance Learning Programs in GIS (UF)

> Video-conferencing,
> web conferencing,
> e-Learning management systems
>instructional videos on mobile devices

Distance Education Development

The University of Florida Geomatics program has embraced digital technologies to make efficient use of teaching resources and to unify the geographically dispersed student body. A program wide integration of videoconferencing (Fig. 2), web conferencing (Fig. 3), e-Learning management system (Fig. 4), and instructional videos for hand-held devices (e.g., iPhones) has enriched the student experience and the facilitation of learning for GIS students not only across the state of Florida but across the world. Further, students are able to participate synchronously or asynchronously (Fig. 5) allowing flexibility for student schedules.

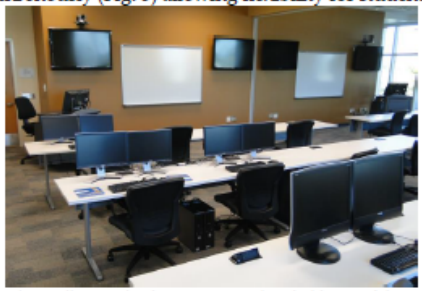


Fig. 2 - All Geomatics classrooms are equipped with state-of-the-art Polycom videoconferencing equipment.

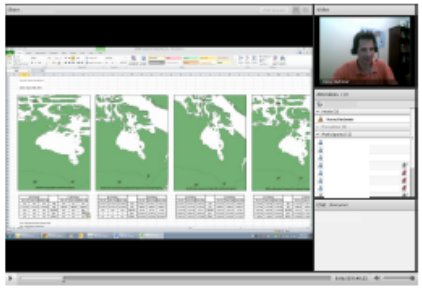


Fig. 3 – Adobe Connect, a web conferencing software, is utilized in courses to facilitate students showing class assignments through desktop sharing and to increase interaction between instructors and students working with geospatial software packages (e.g., ArcGIS, ENVI).

Fig. 4 –Sakai is the e-Learning course management software that Geomatics courses utilize for organizing course resources, collaborating on discussion prompts, and administering low stakes quizzes for reinforcement of lecture concepts.

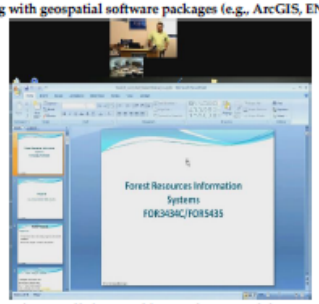


Fig. 5 –Full-time working students watch lecture recordings asynchronously. Office hours and discussion boards are used to clarify lecture concepts for asynchronous students.

Reusable Learning Objects (RLOs)

Lego pieces as learning objects and topics, such as:
Topographic Maps;
Coordinate Systems;
Datums;
and LiDAR

Reusable Learning Objects

To enhance the student learning experience, instructors have developed numerous peer-reviewed Reusable Learning Objects (RLOs). Each RLO is a digital lesson stored in a central repository (e.g., EcoLearnIT - http://ecolearnit.ifas.ufl.edu/) that focuses on one primary learning objective. These RLOs break down complex subject matter into clear and concise presentation material suitable for viewing on an as needed basis. To enhance the learning experience in GIS courses (Fig. 6 & Fig. 7), instructors in the Geomatics program have created a series of RLOs covering topographic maps (coordinates/elevations), coordinate systems, datums (vertical/horizontal), projections (cylindrical/conic, azimuthal), and LiDAR (principles/data sources/applications).

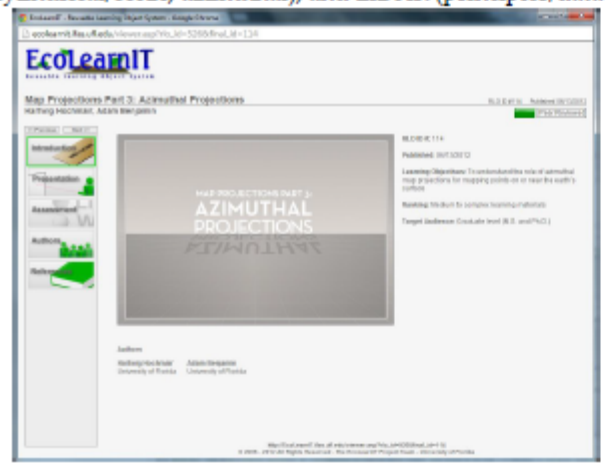


Fig. 6 - Typical GIS RLO showing publication status, learning objectives, ranking (i.e., material complexity), and target audience

Fig. 7 - Typical GIS RLO presentation showing navigation menu

VGI learning tools – Local to Global

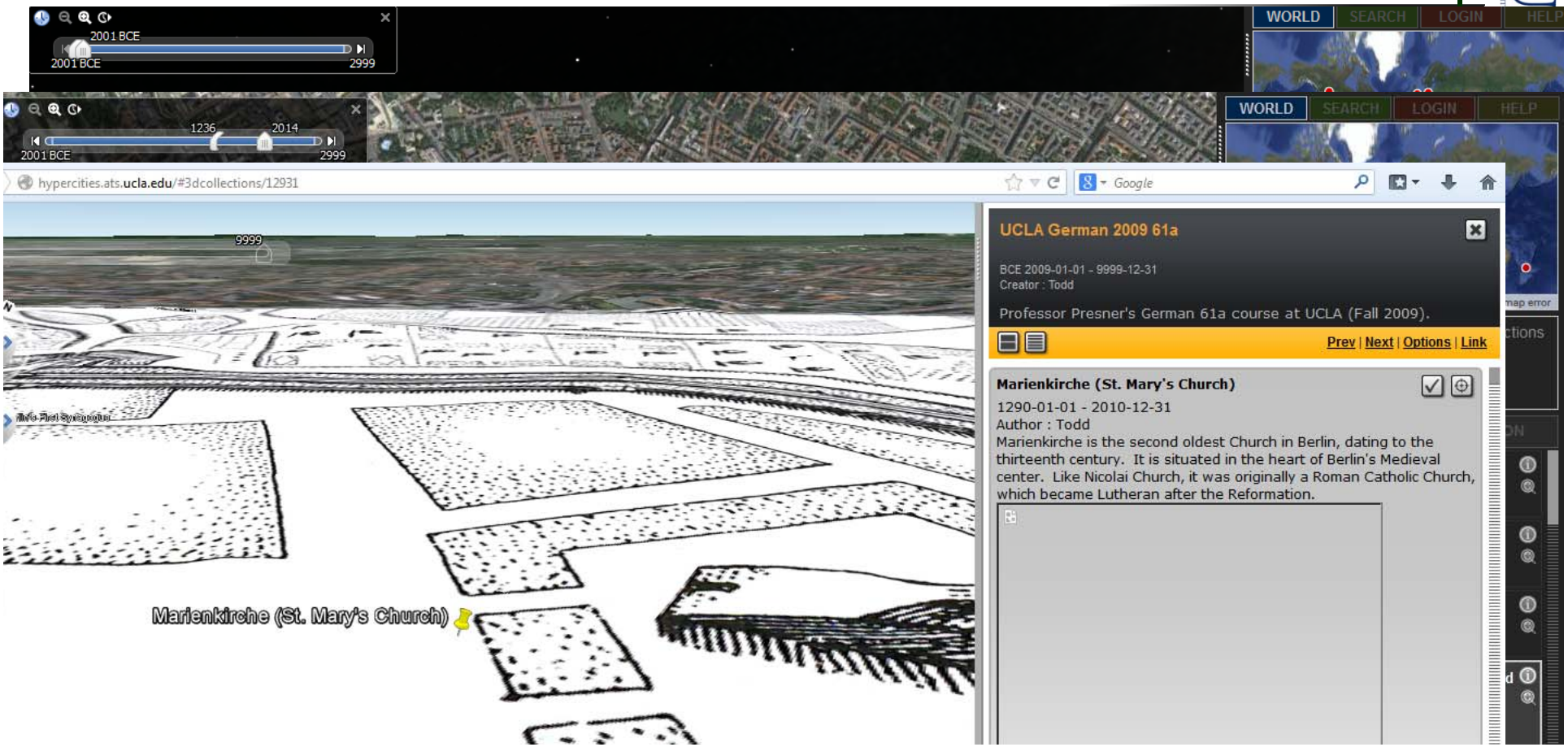
Increased Geo-spatial Awareness on Campus

Coordinated Learning Environment and Curriculum

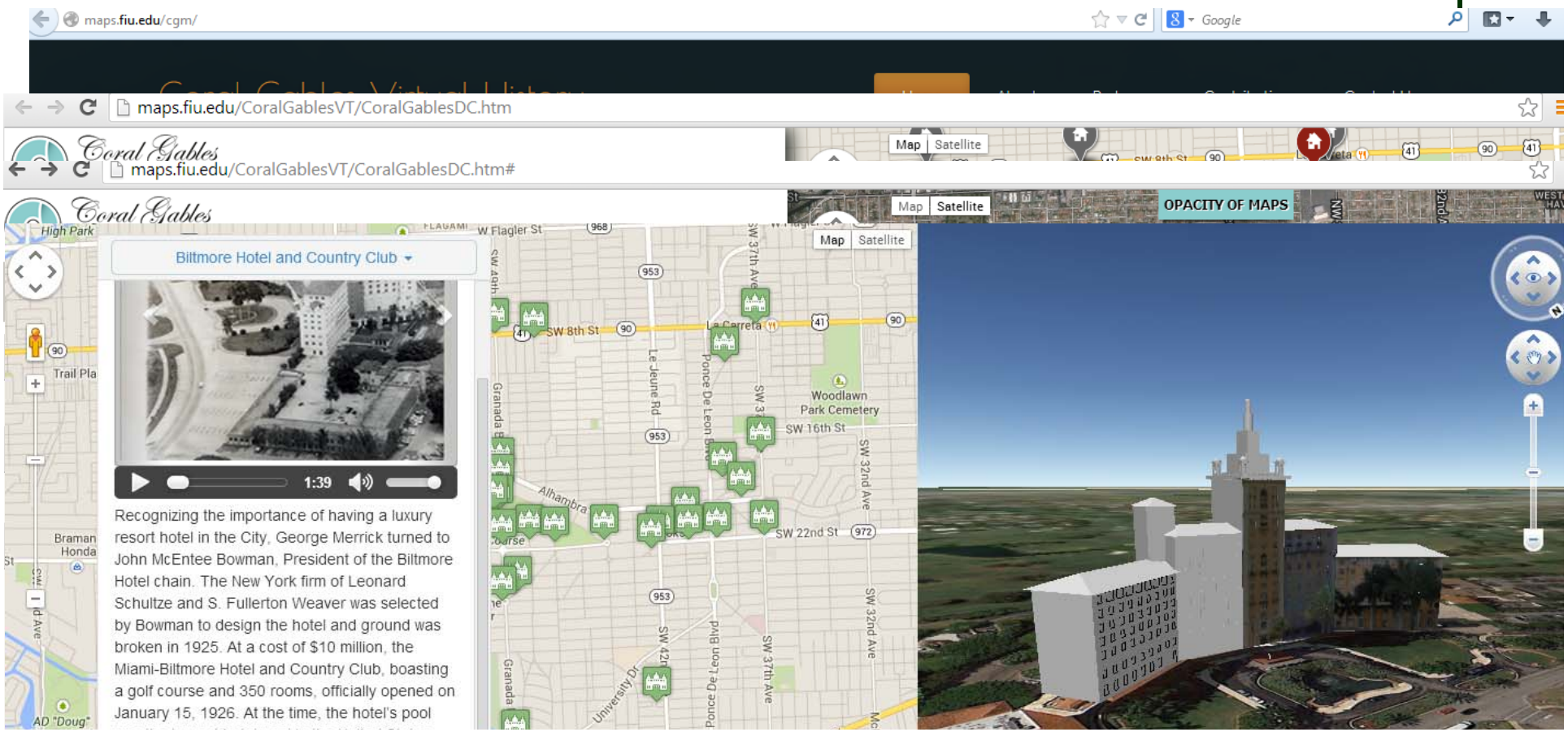
Distance GIS Learning

Geo-spatial Workforce Development

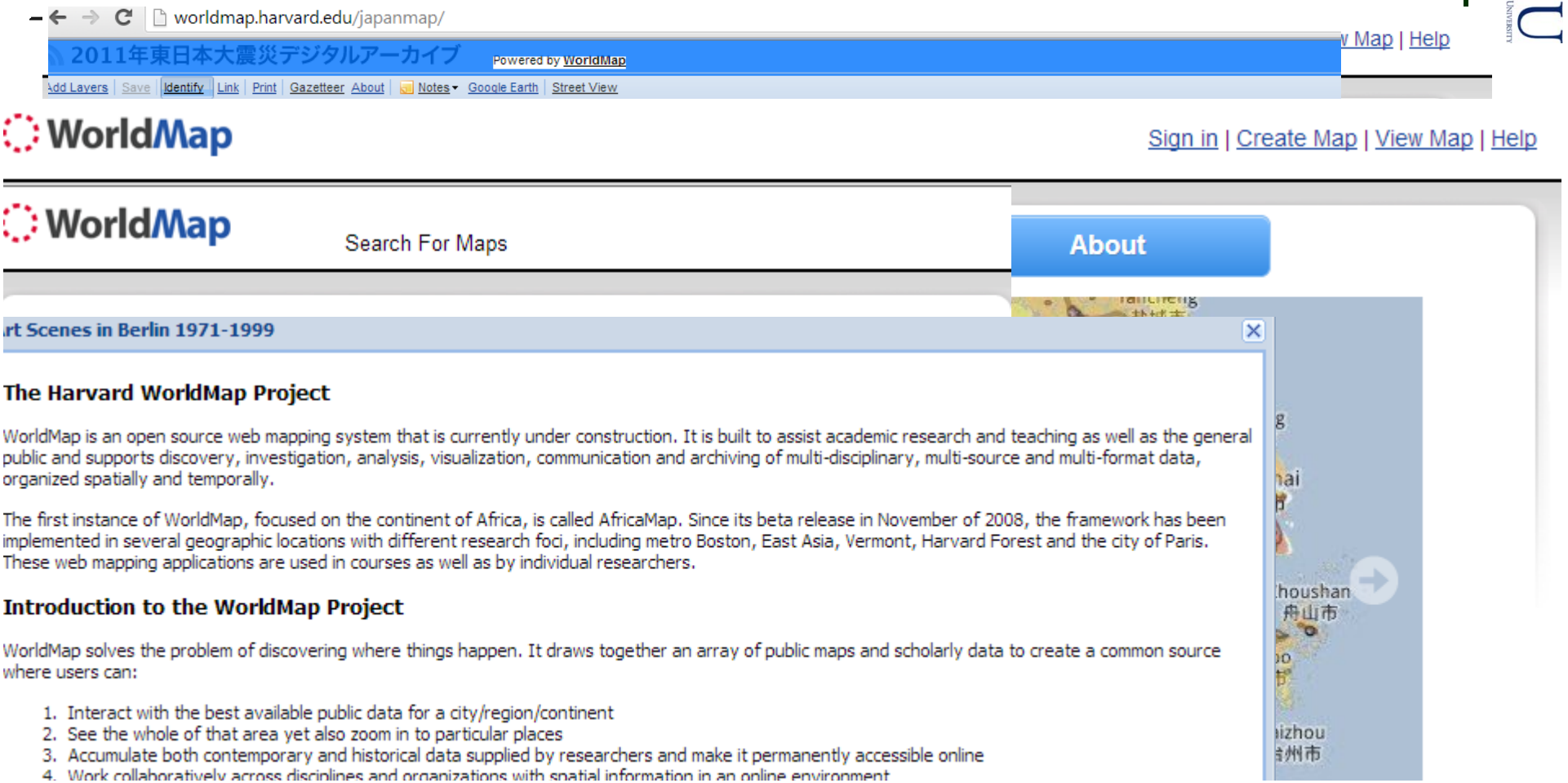
Web GIS tools for Digital Humanity



Local Community Learning and Engagement



Web GIS tools for Global Learning

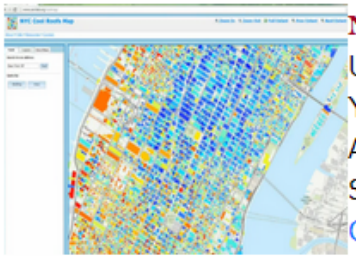


Student Participation and Creation (AAG)

- http://mappingideas.sdsu.edu/mashup/Voting/vote.html

1. 

GeoSocial Footprint
URL: http://geosocialfootprint.com/
Youtube Intro: Link to YouTube
Authors: Chris Weidemann
School: University of Southern California
Click to see description

2. 

NYC Cool Roofs MapClimate Change
URL: http://www.carsilab.org/coolmap/
Youtube Intro: Link to YouTube
Authors: Gordon Green - Group
School: Hunter College / CUNY
Click to see description

3. 

Country Based Migration Map
URL: http://migrationmap2010.appspot.com/
Youtube Intro: Link to Utube
Authors: Jie Zheng - Group
School: Wuhan University