



Online GIS collaboration

**WUN e-Learning workshop
Chicago October 2005**

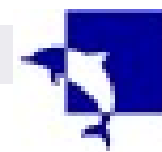




Overview

- Acknowledgement: collaborators
- Necessary history
- What is GIS?
- Course structure
- Areas of collaboration
- Challenges
- Interim conclusions





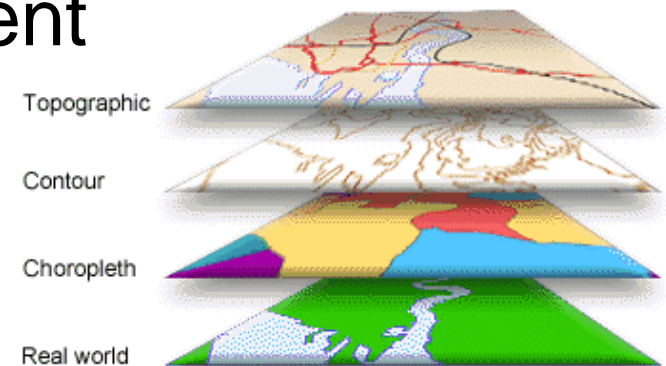
Necessary history...

- Well-established Penn State GIS Masters programme through World Campus
- Leeds-Southampton online GIS Masters programme with UKeU funding
- Demise of UKeU: opportunity to pick up WUN GIS discussions and work with Penn State
- Collaboration underpinned by involvement in DialogPLUS project (Leeds, Southampton, Penn State, UCSB) – additional funding for geography teaching

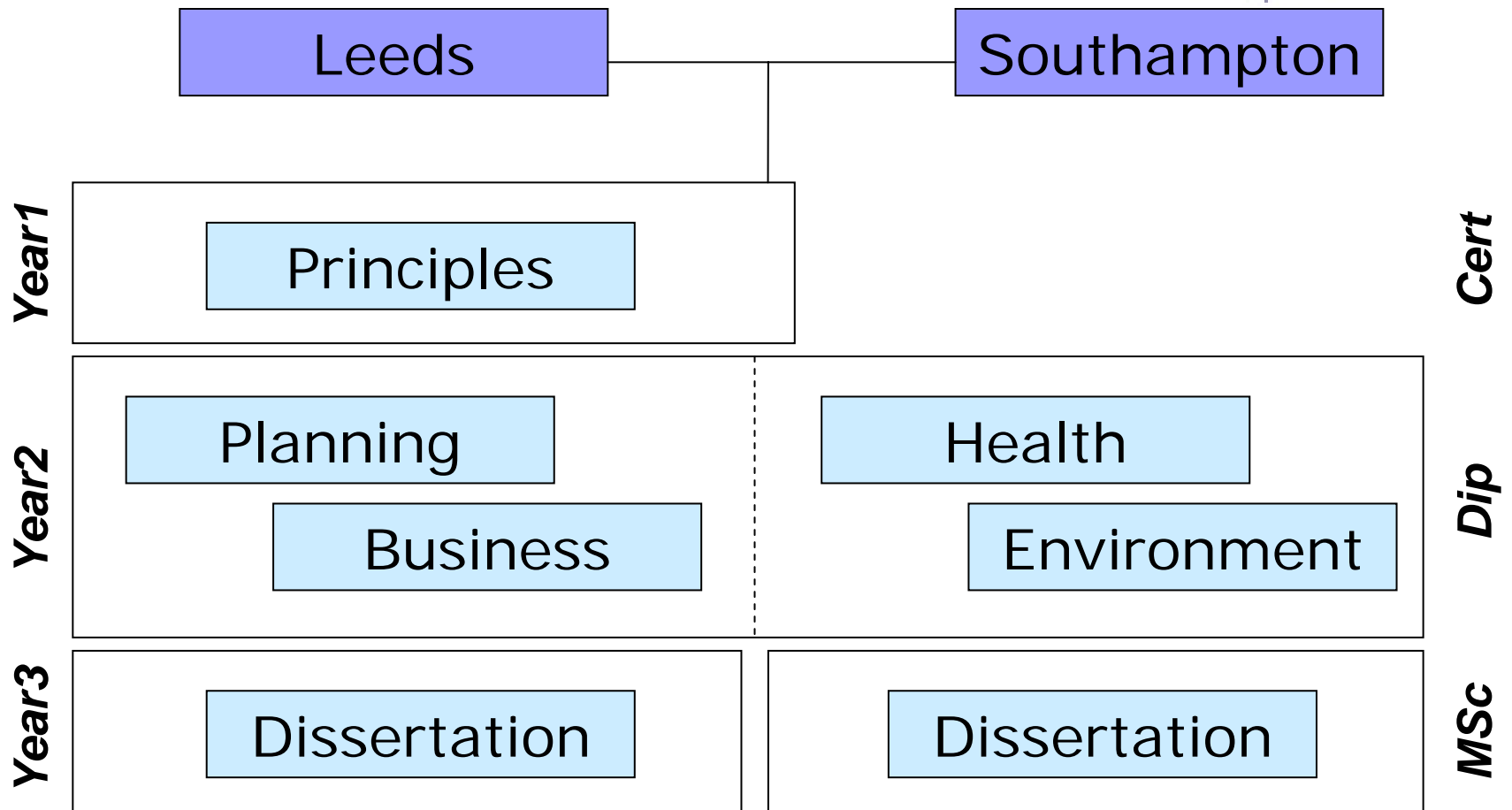
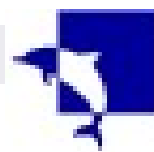


What is GIS?

- Geographical information systems/science
- Computer-based systems for the management and analysis of spatially referenced information
 - Business and service planning
 - Environmental management
 - Health care management
 - Census analysis



Source: <http://www.ordnancesurvey.co.uk/>





Leeds

Southampton

GIS Online Learning

Welcome to the site for distance learning in Geographic Information Systems (GIS)! Here you will find details on how you can gain qualifications in GIS while studying online. We offer a range of courses including an MSc in GIS as well as short courses designed to suit your needs.

MSc in Geographic Information Systems Distance Learning Online

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Want to study full-time from home? Click now to find out more!

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Want to study while working? Click here to learn more!

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Want to skill up your workforce? We can show you how!

Studying In The UK
Want a UK qualification? Find out more!

Studying Online

How Do I Start?

Courses

MSc in GIS

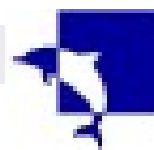
Past Students

Contact us

Links

[geographic information system resources](#) | [virtual campus](#) | [online gis course](#)
[msc distance learning](#) | [geographic information systems training](#) | [degree](#)
[geographical information systems](#) | [gis online certificate](#)

Site design by Federa

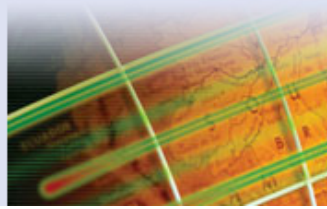


PENN STATE | ONLINE

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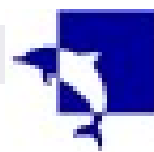
Master of Geographic Information Systems

The Master of Geographic Information Systems (MGIS) degree program is designed to give working professionals, who are aspiring to leadership positions in the field, an opportunity to pursue a world-class master's degree online. This 35-credit program allows you to study around your own schedule, where and when it's most convenient for you.

Learn from Respected Leaders in the Field

Interact online with attentive educators from one of the nation's top-rated graduate programs in geographic information systems.

Penn State



Leeds

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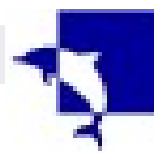


GIS Programming and Customization

GIS for Analysis of Health

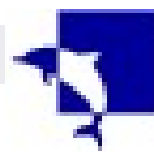


Penn State



Challenges

- Learning design issues
- Registration and contractual
- Which VLE to use?
- Alternative delivery models
- Different assessment regimes
- Student access to resources



Learning design

- Each current module developed for own Masters programmes
- Good fit to prerequisites and course structure but some adaptation required
- Modify student hours, assessment regime
- Learning objects structure inherited from UKeU with high independence; 'sacrificial objects' sacrificed and recreated for UK-US delivery
- Html objects; Flash presentations; activities – GIS, reflective, literature etc.



Example structure (GAH)

Units (8): Learning objects (~65) : Files (N)

Unit 2:
Spatial
Aspects
of health
analysis

Calculating Standardized Rates

It is particularly important when working with geographical health event data that prevalence rates are standardized to appropriate population denominator counts. We shall consider the standardization of rates here in relation to mortality data, although the principles apply equally to morbidity data.


Mortality rates are one of the most frequently used health indicators and are derived from information about death registrations. Death certificates vary in detail between countries but will generally include a record of the age, sex, place of residence of the person who has died and cause of death. In many countries additional information such as employment allow social class and other analyses to be conducted on death registration records. A standard encoding system known as the International Classification of Diseases (ICD) is generally used in order to classify the cause of death recorded on the certificate for statistical purposes. Crude rates - expressed as the number of occurrences in relation to a population denominator - use denominator populations of different sizes according to the rarity of the event. The paper by Banton and Kelly (1997) that examines geographical patterns in suicide rates uses crude rates per million population, for example, while the World Health Organization data used here are reported per 1,000 population.

The table below shows main causes of death by age-group in Scotland in 1999 (Death rates per 1,000 population) from the World Health Organization Statistical Information System: <http://www.who.int/whosis>

| Death by Age Group in Scotland | | | |
|----------------------------------|------|-------------------------|-----------------------------|
| All causes (per 1000 population) | 1st | 2nd | 3rd |
| Under 1 | 4.84 | Perinatal causes (2.32) | Congenital anomalies (0.93) |
| 0 to 4 | 0.24 | Accidents (0.05) | Congenital anomalies (0.04) |
| 5 to 14 | 0.14 | Accidents (0.18) | Traffic accidents (0.03) |
| 15 to 24 | 0.11 | Accidents (0.20) | Eligible (0.12) |

GIS Exploration of a Point Pattern

The purpose of this object is to consider a classic study in the history of epidemiology involving the investigation of a point-based disease dataset for which the causal mechanism was not understood at the time. Although conducted more than a century before the advent of GIS, the principles involved are of great relevance to our use of public health datasets in the GIS investigation of disease causality.



Broad Street cholera cluster and modern replica of the water pump

The presentation of this case is therefore a potential first step not only for medical cartographers but also for virtually all disciplines interested in the origin and diffusion of diseases (Voch and Denke, 2004)

In the Nineteenth Century London experienced a series of cholera epidemics. Cholera is an acute bacterial infection of the intestine caused by ingestion of food or water contaminated with the vibrio cholerae bacterium. Symptoms include diarrhoea and vomiting leading to severe dehydration which may be fatal (WHO, 2002). At the time, little was known of the causal mechanism of cholera and two principal rival theories were (a) miasmatic theory, that the spread of cholera was through the air, polluted by decaying bodies and vegetation, and (b) polluted water theory: that it was through drinking water that had been polluted through some previous contact with the disease. John Snow was a physician who took a particular interest in the cholera epidemics and his observations led him to be a strong proponent of the polluted water theory. He noted that transmission rates

www exercise

Flash slides

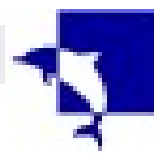
Html text

Images

GIS zip

Shapefiles

PDF



Registration and contractual

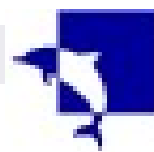
- Leeds-Southampton and Leeds-Southampton-Penn State collaborative agreements; consortium agreement for DialogPLUS
- Student remains with own institution
- Student pays own institution
- Conform to UK QAA requirements
- Much easier to transfer UK to USA than USA to UK

THE UNIVERSITY OF LEEDS

and

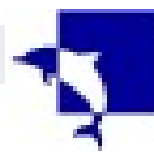
THE UNIVERSITY OF SOUTHAMPTON

AGREEMENT



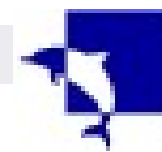
Which VLE to use?

- Leeds-Southampton modules currently delivered through Leeds' Bodington VLE
- Southampton institutional VLE is Blackboard, but modules constructed within Moodle
- Penn State World Campus modules delivered through Angel
- Penn State students already registered and familiar with Angel
- Which VLE to use?



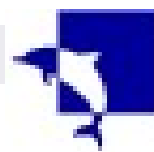
Alternative delivery models

- Relocate students, tutors or content?
- Solution (from Penn State): deliver through student VLE with remote tutor and content
- Current delivery of Leeds-Southampton modules in Leeds' Bodington VLE
- First module with Leeds/Southampton students in Angel
 - using Shibboleth, running now



Different assessment regimes

- Leeds-Southampton broadly comparable models
- Penn State submission model: online portfolios
- Transatlantic differences in student expectations of assessment and marking
- UK courses: more discursive, less procedural
- Use marks equivalence table developed from Leeds-Southampton-Penn State negotiation
- Use Penn State/DialogPLUS evaluation tools



Student access to resources

- Adaptation of practical exercises to different GIS software where necessary
- Students have own GIS software
- Data for activities attached to objects
- UK institutions: comparable resources, Athens
- Online references favour open-source
- All subscription journal items identified and checked for Transatlantic exchange



First results

- 68 students enrolled, mostly in Leeds
- Second Southampton deliveries, first Penn State deliveries Fall 05
- Positive feedback from staff and students
- Adaptation of learning and assessment expectations

PENNSYLVANIA STATE UNIVERSITY
World Campus

Geog 497k
GIS for Analysis of Health
The College of Earth and Mineral Sciences

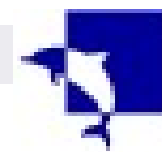
Welcome!
Register for this Course
Syllabus
Meet the Faculty
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Welcome to GEOG 497k: GIS for Analysis of Health

This course focuses on the growing role of GIS within the health sector. The health sector has been divided into two types of application. Healthcare management applications involve the investigation of spatial patterns of health services such as clinic locations, and access to health services such as clinical applications involve the investigation of spatial patterns of illness. This course covers relevant GIS techniques, such as methods for detecting areas at high risk of disease, techniques for displaying health data. The course also introduces relevant issues in epidemiology and social medicine, such as the different types of study design and issues involved in establishing the causes of a given disease. Concepts are presented graphically and in text and developed further through practical activities. The course is orientated and brings together health-related GIS techniques and relevant

The Spring 2005 schedule for this course is as follows:

- Course orientation period: April 6
- Course start date: April 13
- Course end date: June 22



Interim conclusions

- Robustness of (ex-UKeU) learning object model to repurposing
- Viability of remote tutoring and ex-VLE content: but we need discussion sharing tools?
- Organizational barriers to e-learning collaboration are bigger than technical ones
- WUN global GIS academy? Research methods?
- Online collaborations involve real people working together...

