The MGIS:  
A Master's Degree in GIS

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MGIS: What is it?

- One year, course-based Master’s Program
- A new degree designation, MGIS, approved in the summer of 2000 by the Alberta Government.
- GIS: “Systems to Science”
- Core competencies in GIS, RS, Spatial Statistics
MGIS: What is it?

- MGIS program is a course-based, professional degree…
  BUT with a strong research emphasis

- Part-time or full-time

- Residency requirements
  - Not distance education
MGIS: Rationale

- Recognition of rapid changes in industry requirements
- Demand for professionals with diverse backgrounds and strong technical and analytical capabilities
- Opportunity to provide advanced education versus just software training
How did it start?

• Provincial funding supports IT initiatives in development of the “new economy”

• MGIS Program is funded through an ACCESS Cycle IV grant by the Alberta Government

• Seven students accepted in September 1999

• First student completed program in January, 2001; first degree awarded June, 2001.
MGIS: Program Structure

- Ten courses required
- Five required core courses:
  - Spatial Statistics
  - Advanced Remote Sensing
  - Advanced GIS
  - Project: Theory
  - Project: Applied
- Upgrading courses available if needed
MGIS: Program Structure

- Substantive research project
- 5 optional courses
  - To build application strength
  - To develop skills and knowledge in GIS
  - Geomatics Eng., Management, EVDS,
  - Enrichment courses:
    - Proposal Writing
    - First Nations GIS
    - Visual Basic
    - Business Geographics
    - Project Management
**MGIS: Goals**

- Provide a thorough education in theoretical and practical spatial analysis
- Instill a professional attitude and skills in a supportive environment
- Interact and cooperate with industry – a dynamic relationship
- Increase awareness of spatial analysis applications and tools
MGIS: Administration

- **Department Steering Committee**
  - Syllabus, curriculum, staffing
  - Student members

- **University Academic Community**
  - External examiners
  - GIS awareness

- **Industry Committee**
  - Advising on current skills requirements
  - Identification of mutual benefits
  - Sessional lecturers, speakers
  - Student contact, employment opportunities
  - External examiners
MGIS: Facilities

- 75 high-end PCs
- Peripherals: CD burners, large plotters
- Software: ESRI suite, Idrisi, PCI, S-Plus, SPSS, MS Visual Studio, IDL ENVI, eCognition, + “the usual”
- Access to map collections, MADGIC data (AltaLIS), U of C Library
MGIS: Progress

As of Fall, 2002:

• 200 applicants
• 68 currently in program
• 25 have finished
• Student intakes of roughly 25 in September + 25 in January
  – September entry recommended for those needing upgrading courses
MGIS: Who do we attract?

- Undergraduate students just finishing
- Graduate students wanting further training
- Industry professionals in geomatics and other fields looking for an “overview” and update
- International contingent: students, consultants, government officials
  - International interest is extremely high
  - Students today from China, India, Korea, Nigeria, Pakistan, Switzerland, Tanzania, Venezuela, ……
MGIS: The Student Face

- Geographers, Environmental and Earth Scientists
- Archaeologists, Political Scientists and other Social Scientists
- Computer Scientists, Geomatics Engineers
- Management specialists
MGIS: Where do they go after?

- From Spain to SAIT…
- Health Care
- Consulting in Switzerland
- GIS industry in central Canada
- Alberta Research Council
- Smithsonian Institute of Environmental Studies
- Wetlands research group in Saskatchewan
- Oil companies in Saudi Arabia
MGIS: The business connection

- Program reviews
- Updates on geomatics news
- Job postings and bulletins
- Industry association affiliations
- Interaction with business leaders through speakers, industry committee representatives
- Project management training
MGIS: Current Research Examples

- Calgary Regional Health Authority
  - Cardiac Care facility location

- Municipal District of Foothills
  - Land use and habitat mapping for environmental zoning

- City of Calgary
  - Transportation planning
  - Parks and natural areas design and management

- PFRA
  - Wind erosion

- BC Highways
  - Avalanche hazard mapping

more...
MGIS: Current Research Examples

- Ducks Unlimited: pintail habitat tracing
- University of Calgary research teams
  - Distance GIS education
  - Archeological predictive models
  - Hydrological connectivity analysis
- Nunavut government
  - Place names database
- Benchmarking ArcSDE and Oracle8i
- Aboriginal GIS and indigenous knowledge archiving
Core Faculty Members

• Nigel Waters: Director, MGIS Program
  – Transportation, GIS, spatial statistics
• John Yackel: Interim director, Fall 2002
  – Remote sensing, climate change
• Stefania Bertazzon
  – GIS, economic geography, tourism
• Darren Bender
  – GIS, remote sensing, animal biogeography
• Shelley Alexander
  – GIS, environmental geography, wildlife
• Now interviewing for database management specialist
Affiliated Faculty, core areas

- Steven Franklin
  - Remote sensing, forestry, wildlife habitat
- Mryka Hall-Beyer
  - Remote sensing theory, vegetation biogeography, cartography
- Brian Moorman
  - Arctic geography, remote sensing
- Darren Sjogren
  - Geomorphology, DEM landscape modelling
- Clarence Woudsma
  - Transportation, GIS theory
Affiliated Faculty, research projects

• Dianne Draper  
  – Environmental geography
• Masaki Hayashi  
  – Hydrogeology, spatial analysis
• Shawn Marshall  
  – Glaciology, 3-D modelling
• Yvonne Martin  
  – Landscape modelling, geomorphology
• Byron Miller  
  – Urban studies
• Derald Smith  
  – Geomorphology, fluvial environment
MGIS: Campus Alberta

Coordinated programs with:
- Olds College
- NAIT / SAIT
- U of Lethbridge
- U of Alberta
MGIS: Global Campus

Agreements on bridging with

- British Columbia Institute of Technology (BCIT)
- Southern Alberta Institute of Technology (SAIT)
- Information Technology Institute (ITI), Cairo, Egypt
International student information

- Student authorization available to US citizens and permanent residents at point of entry into Canada
  - Geography is a NAFTA class for work permits
  - International Students may work on campus or in research
  - Other countries: allow extra time when applying

- Application deadlines 2003:
  - Sept. entry: May 30 or April 30 for international
  - Jan. entry: Sept. 22 or Aug. 29 for international
  - Jan. entry not recommended for those with little background who need upgrading courses

Assistantships not normally available, competitive scholarships can be had

U of C Office of International Students:
http://www.ucalgary.ca/UofC/departments/IC/homestudents.html
MGIS: Contacts

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