Developing and Implementing a Community College GIS Degree

The Community College of Baltimore County

A.A.S Degree in Geospatial Applications

Developing and Implementing a Community College GIS Degree

Community College of Baltimore County

- Largest community college system in the Baltimore Metropolitan region
- 3 campuses and 2 extension centers
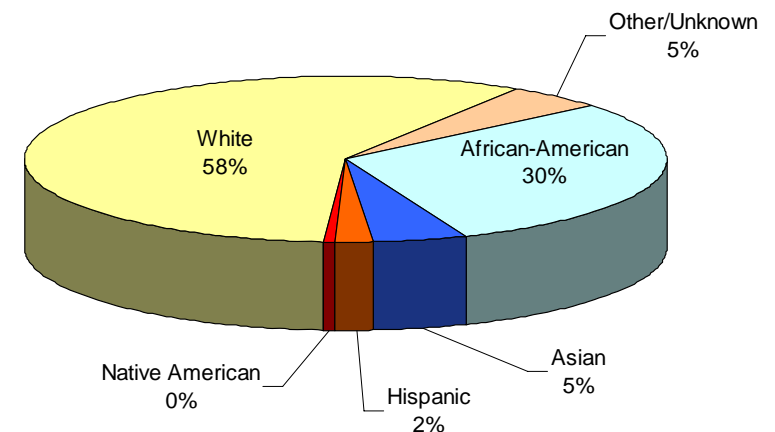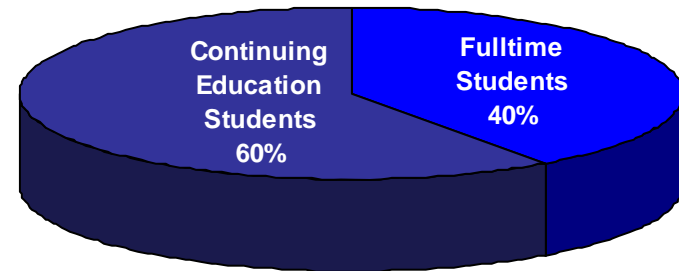
The Community College of Baltimore County

- Student body
  - Nearly 70,000 students
    - 28,000+ fulltime, credit students
    - 41,000+ non-credit students

- Very Diverse population in terms of ethnicity and skill

- Enrollment has increased 20% over the last 5 years

Continuing Education Students 60% · Fulltime Students 40%

White 58% · African-American 30% · Other/Unknown 5% · Asian 5% · Hispanic 2% · Native American 0%

Key Components to the Development of the A.A.S. Degree in Geospatial Applications

1. Demonstrated need for GIS skills in applied fields
2. Support from the Business sector
3. Support from the Administration
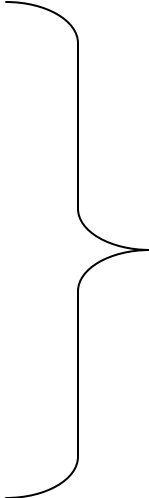4. Articulation streams to 4 year transfer institutions

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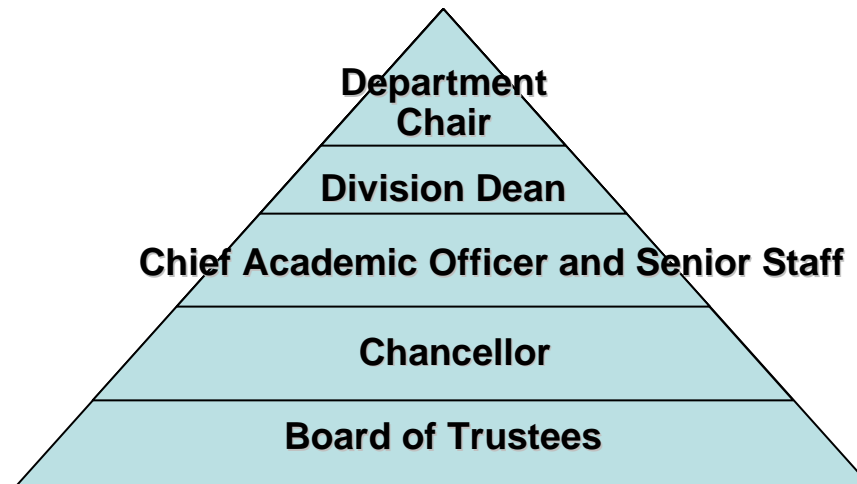2. Support from the Business sector

DACUM Process

Designing **A CU**rriculu**M**
(aka: Tech-Scan)

- Originated as a byproduct of a 3 credit course *Introduction to GIS* (cross-listed in Geography and CADD)

- Brought together industry experts from business, government (city, county, state and federal), and academia to determine
  1. The need/demand for a GIS degree program
  2. The skill requirements that should be addressed by the program

- DACUM participants formed the core of our advisory board

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Department Chair

Division Dean

Chief Academic Officer and Senior Staff

Chancellor

Board of Trustees

A.A.S. in Geospatial Applications

1. Demonstrated need for GIS skills in applied fields
2. Support from the Business sector
3. Support from the Administration
4. Articulation streams to 4 year transfer institutions

    - Made courses outcome-based (fitting the needs of the DACUM results)
    - Made course designations based on DACUM results and transfer curriculums

Making the Program Work:
Putting Bodies in the Chairs

INTEGRATION WITH OTHER DISCIPLINES

INCORPORATING THE ADVISEMENT PROCESS

OUTREACH

INNOVATION

TRANSFERABILITY

Making the Program Work:
Putting Bodies in the Chairs

INTEGRATION WITH OTHER DISCIPLINES
(Using GIS as a tool)

School of Business, Social Science and Education Division

- – Sociology
- – Service Learning
- – Age and Ethnicity
- – Real estate
- – Marketing

School of Justice and Public Services

- – Crime Mapping and Analysis
- – Homeland Security

School of Applied and Information Technology

- – CADD

School of Mathematics and Science

- – Geography
- – Geology
- – Oceanography
- – Meteorology
- – Biotechnology
- – Environmental Science
- – Botany

Making the Program Work:
Putting Bodies in the Chairs

INCORPORATING THE ADVISEMENT PROCESS

Educate the college advisors about the program with "cheat sheets" that outline the program and its "relevance" to students

- HOWEVER -

MAKE SURE THE COUNSELORS SEND THE STUDENTS TO YOU FOR "REAL" ADVISEMENT!!!!

1. **You know the courses (and the necessary prerequisites)**

2. **You are familiar with the transfer options and opportunities**

3. **You are familiar with the local and regional job market**

Notes for Counselors on CCBC Geospatial Applications Program

- Geospatial Technology: New and still evolving field, combines/integrates:
  - Geographic Information Systems (GIS): aka "Smart Maps"
  - Remote Sensing (RS): aerial photos and other imagery
  - Global Positioning (GPS): precise location information

- Applications in many disciplines
  - Business: where are the customers for BMWs, hair-doos, trips to Disney Land etc.
  - Criminal Justice: where are the incidents, e.g. Baltimore City Stats
  - Environment: hazardous materials: fauna, flora and habitat
  - Engineering: transportation planning; utilities management
  - Emergency Response: fire, police: where is the emergency and where are the responders, e.g. hurricane Katrina

- Geospatial Technology identified as one of 12 Presidential High growth fields
  - US Department of Labor estimates +208,000 jobs to be added 2002-2012 in Geospatial and related fields
  - Community Colleges identified as a prime training resource

- Current internet search shows:
  - 71 GIS jobs within 100 miles of Baltimore
  - 750+ GIS jobs nationally

- There are no existing Maryland CC Geospatial or GIS programs
  - There are at least 6 Maryland universities offering bachelor or advanced degrees in Geography or GIS

- CCBC Spatial Applications curriculum will offer AAS with Certificate option
  - initial implementation Fall 06, full implementation Fall 07 and Spring 08
  - Courses on Catonsville and Essex Campuses

- Working on transfer agreements with
  - Towson
  - UMBC
  - Salisbury

For more information, contact:
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sjeffrey@ccbcmd.edu   410-455-6936

Making the Program Work: Putting Bodies in the Chairs

OUTREACH

- Community Organizations (Rotary Club, Better Business Bureau, etc.)
- Public Schools (Elementary, middle, and High School)
- CONTINUING EDUCATION

Making the Program Work: Putting Bodies in the Chairs

INNOVATION

- Student/faculty internship
- Business mentorship
- 2+, 2+, 2 Programs
    - (clear cut articulation programs)

Making the Program Work: Putting Bodies in the Chairs

TRANSFERABILITY

• Made courses outcomes based
• Limited the program to 5-6 courses and an internship
    (An A.A.S degree has fewer Gen-Ed requirements)

A.A.S. in Geospatial Applications

- **5 Courses and an Internship** (18-20 credits)
  - Introduction to Geographic Information Systems (3 credits)
  - Intermediate Geographic information Systems (4 credits)
  - Remote Sensing and Global Positioning (3 credits)
  - Geospatial Analysis and Decision Making (4 credits)
  - Advanced Geospatial Applications (3 credits)
  - Internship (1-3 credits)
- Other Courses
  - Cooperative Education course (1-3 credits)
  - Special Topics Course (1-6 credits)
  - Independent Study Course (1-3 credits)

A.A.S. in Geospatial Applications
Two Major Transfer Institutions

Towson University – 15 credits transfer

GEOA 101: Introduction to Geographic Information Systems
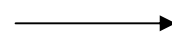GEOA 110: Intermediate Geographic Information Systems
⎫
⎬
⎭
GEOG 412: Introduction to Geographic Information Systems
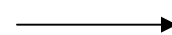
GEOA 150: Remote Sensing and Global Positioning ⟶ GEOG 221: Interpretation of Maps
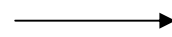
GEOA 210: Geospatial Analysis and Decision Making ⟶ No direct transfer course
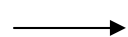
GEOA 250: Advanced Geospatial Applications ⟶ GEOG 223: Physical Geography Applications
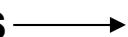

University of Maryland, Baltimore County

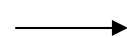GEOA 101 Intro. to GIS ⟶ GEOG 386: Introduction to GIS

GEOA 150: Remote Sensing & GPS ⟶ GEOG 381: Remote Sensing

GEOA 110: Intermediate GIS and
GEOA 210: Geospatial Analysis & Decision Making
⎫
⎬
⎭
GEOG 389: GIS Database and System Design

GEOA 250: Advanced Geospatial Applications ⟶ Elective [400 or 300 level?]

MOU under Construction