S&E Without Borders
From an EPSCOR Perspective

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October 20, 2009
EPSCoR is .........

A Complex Program with Lots of Requirements

**Cyber Plan**
- State Committees
- S&T plan

**Education/Outreach**

**Strategic Planning**
- Partnerships

**Societal and Economic Impact**

**Sustainability**

**Evaluation plan**

**Communications**

**Themed/focused Research**

**Broaden Participation Diversity**

**EPSCoR**
Key Learning:

INTEGRATE!

(I^3)
Integration

Institutions

Interdisciplinary

Innovation
I¹ - Institutions
The Delaware Partnership

- University of Delaware
  - The State’s Research University – founded 1743
  - Land Grant, Sea Grant & Space Grant Institution
  - 18,000 Undergraduates, 3,000 Graduate Students 9.7% UGs, 6% Grad

- Delaware State University
  - HBCU Institution – founded 1890
  - 3,300 Undergraduates, 250 Graduate Students
  - Minority Enrollment 72% UGs, 42% Grad Students

- Delaware Technical & Community College
  - Community College of the Year in ‘99 – founded 1966
  - ~30,000 Students (25% Minorities)

- Wesley College
  - Private Liberal Arts College – founded 1873
  - 1,800 Undergraduates (30% Minorities)
Programs that Promote Integration

Programs:
- Workshops
- Research seed grants
- Student internships
- Outreach
- Federal grants
  - REU
  - Bridges
  - Observatories

Benefits:
- Greater diversity
  - Ethnicity
  - Thought
- Broader participation
- Leveraged resources
- Stronger sponsor buy-in
  - State level
  - Federal level
Key Questions

What Institutions Are Critical to Achieving Your Mission?

What Creates the Win/Win??
Community Colleges as an Asset

Nationally:

- 1,195 institutions
- ~11.5 Million students
  - 6.5M credit/5M noncredit
  - Average age~29
- ~35% Minorities
  - 13% Black; 15% Hispanic
- ~39% first Generation

Delaware:

- 4 Campuses Statewide
- ~30,000 students
  - ~50% credit/noncredit
  - ~27% Minorities
    - 22% Black; 5% Hispanic
  - ~61% STEM related
  - ~39% to continue education
Two Year College Statistics

Students Enrolled in Higher Education
(US Census Bureau's 2007 Current Population Survey)

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>2 Yr Colleges</th>
</tr>
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<tbody>
<tr>
<td>Total</td>
<td>17,956,000</td>
<td>4,811,000 (27%)</td>
</tr>
<tr>
<td>Full time</td>
<td>12,656,000</td>
<td>2,986,000 (24%)</td>
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<tr>
<td>Part time</td>
<td>5,300,000</td>
<td>1,825,000 (34%)</td>
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Our Two Year Colleges are a Key Ingredient in Educating our 21st Century Workforce
Community College Features

- Bridge Programs to Four Year Institutions
  - A growing trend

- Strong Direct Connections to K-12

- Experts in Rapid Delivery of Training
  - A key new for emerging “green” technologies
Research Experiences for Undergraduates (REU)

- A great DE RII related inter-institutional partnership
- Led by DSU, participation from WC and DTCC
- Catalyzed Research Symposium (over 70 student participants)
Critical Zone Observatory Grant Partners
I² – Interdisciplinary Research and Education
DE Focused on the Biogeochemical Processes of the Critical Zone
Beyond just the Science

Global Climate Change:

Sea Level Rise in DE
We Do Certain Pieces Well!

**The Ethics of Climate Change**
**Intergenerational Justice**
**And the Global Challenge**

*October 30-31, 2009*
*Clayton Hall*
*University of Delaware*

**Contact:**
climatejustice@dri.udel.edu

Deadline for submissions: June 15, 2009

**Featured Speakers:**
John Broome, Oxford University
Kristin Shrader-Frechette, Notre Dame University
Robert L. Nadeau, Professor of English, George Mason University

**Sponsors:**
American Philosophical Association, Science, Ethics & Public Policy Program, Class of 1958 Ethics Endowment, Department of Philosophy, College of Arts and Sciences, and NSF-EPSCoR
Puzzle has Many Pieces

Science (e.g.)
- sensing/monitoring
- ecosystem health
- hydrodynamics
- etc....

+ Social Dynamics,
Ethics,
Human Health,
Economics,

A Holistic Framework for Decision Making
(many organizations involved)
Dear Colleague Letter:

Environment, Society and the Economy (ESE) (NSF 10-03)

A partnership among the Directorate for Social, Behavioral and Economic Sciences (SBE) and Directorate for Geosciences (GEO)
I^3 - Innovation
The Challenge:

Bridging the Gap

Discovery Research

Integrate:
- Science
- Policy
- Ethics
- Economics
- Regulatory Implications

Communicate with Key Stakeholders:
- DNREC
- Industry
- Non Profits
- Academia
- Public

New Opportunities & Solutions
Assisting Faculty in Business Development

Patents, Business Development Plans, New Businesses
Facilitate Translational Research

Translational Research

- Existing Organizations
  - Agriculture
  - Medical
  - Quasi-Gov’t Agencies

- New Capabilities
  - components of New Centers/Institutes

Basic Research

New Business Opportunities

Knowledge Application
Sustainability

- S&E without Borders requires a “Community”!!
- EPSCoR Provides the Catalyst
- Institutional Infrastructure Essential for Success

Official Launch 10/23/2009
Each jurisdiction has successes and challenges!!

What are yours???