Cost Benchmarking Challenges in Higher Education

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Presentation Overview

- Disruption & Higher Education
- Benchmarking and disruption
- Responding to challenges

Questions & Comments
What does disruption in higher education mean in the context of the Delaware Cost Study?

D - data definitions that may only provide limited clarity
I - innovation in multi-disciplinary, interdisciplinary “CIP defying” programs
S - service to students, the institution, to the discipline and to the community
R - rankings with their questionable fundamentals but unquestionable impact
U - utility of the metrics to decision makers
P - Performance funding driving decision making from outside the institution
T - transparency in sources and methods
I - interpretation of metrics in context of national results
O - on-line learning and its variable impact
N - Networks that are dynamic and unpredictable
Continuous Improvement: Why Benchmark?

- The most integrated data system offers only clear insights into your institution (Case Study).
- Highly effective institutions engage in comprehensive benchmarking processes.

- **Internal benchmarking** refers to measuring similar operations, functions, or activities **within** the same unit or organization.

- **External benchmarking** refers to measuring similar operations, functions, or activities **outside** the same unit or organization.
What is the Delaware Cost Study?

• The National Study of Instructional Costs and Productivity (Delaware Cost Study) is a benchmarking project and data sharing consortia among four-year colleges and universities with over 200 institutions participating annually.

• Since 1996, over 660 institutions have participated, and over the past two decades, the Delaware Cost Study has become the “tool of choice” for comparative analysis of faculty teaching loads, direct instructional costs, and separately budgeted scholarly activity, **within academic disciplines**.

• Currently, the Cost Study is used major data and state agencies including:
  – Association of American Universities Data Exchange (AAUDE)
  – Southern Universities Group (SUG)
  – University of North Carolina (UNC) System
  – Pennsylvania State System of Higher Education (PaSSHE)
  – University of Missouri System
  – City University of New York (CUNY) System
Growing the Delaware Cost Study

Institutional Participation, 2006 - 2014
Delaware Cost Study Participation by Carnegie Classification Relative to Carnegie Classification

- **2014 Delaware Cost Study (n=253)**
  - Research: 30.0%
  - Doctoral: 7.9%
  - Master's: 48.6%
  - Baccalaureate: 12.6%
  - Special Focus: 0.9%

- **All-Time Delaware Cost Study (n=638)**
  - Research: 23.5%
  - Doctoral: 7.1%
  - Master's: 48.4%
  - Baccalaureate: 21.0%
  - Special Focus: 0.9%

- **Carnegie Classification (n=1,831)**
  - Research: 44.2%
  - Doctoral: 4.9%
  - Master's: 39.5%
  - Baccalaureate: 11.3%
  - Special Focus: 0.0%
Delaware Cost Study Participation and Carnegie Classification by Institutional Control

- Baccalaureate
- Master's
- Doctoral
- Research Intensive
- Special Focus
Historical Objective of the Delaware Cost Study

Answering the questions:

Who is teaching what to whom and at what cost?

What are the expenditures made for sponsored research and service?
Delaware Cost Study – Strengths and Limitations

• **Strengths**
  – Ideal tool for benchmarking instructional costs, research, and public service expenditures at the academic discipline level
  – Most systematic and rigorous conceptualization based on CIP levels
  – Assists institutional data and unit alignment
  – Assists in identifying cost distortions
  – Ideal for program reviews and accreditation
  – Ideal for establishing new program or department projections
  – Higher Education Consortia is a useful intermediary partner

• **Limitations**
  – Not a “whole cost” benchmarking tool for expenditure or tuition
  – Not a perfect 1:1 Program/Department/Academic Budget Unit match
  – Not a tool for performance funding
A Study of Higher Education Instructional Expenditures: The Delaware Study of Instructional Costs and Productivity

Research and Development Report
Why do institutions participate in the Delaware Cost Study?

• According to the National Center for Education Statistics, 76 – 82 percent of the variation in cost is located at the academic disciplinary level.
Benchmark basis:
“Who is teaching what to whom and at what cost?”

Who – what faculty rank as defined as FTE in HR data

What - Discipline defined by CIP by NCES definitions

To Whom - defined by undergraduate class level, graduate or individual instruction

What Cost – Expense on direct instructional activities: salary, benefits, other expenses in support of instruction
## Data Checklist for the Delaware Cost Study

"Who is teaching what to whom, and at what cost?"

Unit of Analysis: Academic Budget Units as identified by Classification of Instructional Programs (CIP) Code.

Method: Origin of Instructor - Instructional activity stays with the FTE instructor within unit where they are funded ("follow the money").

<table>
<thead>
<tr>
<th>Degree Data</th>
<th>HR Data</th>
<th>Course Data - by Course Section/Component</th>
<th>Finance Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Average of Three Prior Years</td>
<td>- Fall Census Data</td>
<td>- Detailed Analysis for Fall Term</td>
<td>- Fiscal Year data</td>
</tr>
<tr>
<td>Academic Budget Unit ID</td>
<td>Academic Budget Unit ID Funding Instructor</td>
<td>Academic Budget Unit ID</td>
<td>Academic Budget Unit ID</td>
</tr>
<tr>
<td>Completion Term or Date</td>
<td>Date (to be able to match to the Course Data Term)</td>
<td>Term Date</td>
<td>Fiscal Year</td>
</tr>
</tbody>
</table>

### WHO
- Instructor Name/Identification
- Total FTE
- Instructional FTE
- Separately Budgeted FTE
- Tenure Status
- Personnel Classification (Faculty, Director, TA)
- Other Contract type (Supplemental)
- Funding Source (i.e. Account)
- Funding Source Academic Budget Unit ID (if different from regular funding)
- Instructor Status (i.e. Active, Leave with Pay)

### IS TEACHING WHAT TO WHOM
- Instructor of Record Name/Identification
- Workload for Course
- Course Name/Number
- Course Level (Lower UG, Upper UG, Graduate)
- Course Component(s)/Type (Lec/Lab/Indiv Instruction)
- Day/Time of Meeting
- Credit Value of Course
- Number of Students Enrolled

### AND AT WHAT COST?
- Accounting Period
- Funding Source (i.e. Account)
- Direct Instructional Expenditures (Includes Unit Research)
  - Salaries
  - Benefits
  - Other than Personnel Expenditures
- Direct Expenditures for Separately Budgeted Research
- Direct Expenditures for Separately Budgeted Public Service
### A. INSTRUCTIONAL COURSELOAD: FALL SEMESTER, 2001

Please complete the following matrix, displaying student credit hours and organized class sections taught, by type of faculty, and by level of instruction. Be sure to consult definitions before proceeding. Do not input data in shaded cells except for those mentioned in the important note below that pertains to (B) and (C).

| Classification            | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) | (N) | (O) | (P) | (Q) | (R) | (S) | (T) | (U) | (V) | (W) | (X) | (Y) | (Z) | (AA) | (BB) | (CC) | (DD) | (EE) | (FF) | (GG) | (HH) | (II) | (JJ) | (KK) | (LL) | (MM) | (NN) | (OO) | (PP) | (QQ) | (RR) | (SS) | (TT) | (UU) | (VV) | (WW) | (XX) | (YY) | (ZZ) |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Faculty                   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Supplemental Faculty      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Teaching Assistants       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| - Credit Bearing Courses  |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| - Non-Credit Bearing Activity |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| TOTAL                     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

### B. COST DATA: ACADEMIC AND FISCAL YEAR 2001-02

1. In the boxes below, enter the total number of student credit hours that were generated during Academic Year 2001-02 during terms that were supported by the department's instructional budget. (NOTE: Semester calendar institutions will typically report fall and spring student credit hours; quarter calendar institutions will usually report fall, winter, and spring student credit hours.)

   - A. Undergraduate
   - B. Graduate

2. In the boxes below, enter total expenditures for instruction in FY 2001-02

   - A. Salaries
   - B. Benefits
   - C. Other than personnel expenditures
   - D. Total

3. In the box below, enter total expenditures for separately budgeted research activity in FY 2001-02

4. In the box below, enter total expenditures for separately budgeted public service activity in FY 2001-02
# 2015 National Study of Instructional Costs and Productivity (Delaware Cost Study)

Institution: 
Department/Discipline: 
Associated CIP Identifier: 
CIP Verified? 

Please indicate the average number of degrees awarded in this discipline at each degree level over the period from 2011-12 through 2014. If a degree level is not offered, leave as zero. If data are not available, please enter ‘m’ in the boxes.

<table>
<thead>
<tr>
<th>Degree Level</th>
<th>Bachelors</th>
<th>Masters</th>
<th>Doctorate</th>
<th>Professional</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Majors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Place an ‘X’ in the box below if this discipline is non-degree granting.

A. INSTRUCTIONAL COURSELOAD: FALL SEMESTER, 2014

Please complete the following matrix. Be sure to consult definitions before proceeding. Do not input data in shaded cells except for those mentioned in the important note below that pertains to (G) and (J).

Important note: If you cannot differentiate between "Organized Class" and "Individualized Instruction" student credit hours, assign all credit hours to the appropriate Organized Class column. Similarly, if you cannot differentiate between "Lower Division" and "Upper Division" undergraduate student credit hours, report all those hours under "Total Undergraduate SCH."

<table>
<thead>
<tr>
<th>Classification</th>
<th>Faculty (A)</th>
<th>Instructional (C)</th>
<th>Student Credit Hours (D, E)</th>
<th>Organized Class Sections (L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Faculty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tenured/Tenure Eligible</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>- Other Regular Faculty</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Supplemental Faculty</td>
<td>0.00</td>
<td>NA</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Teaching Assistants:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Credit Bearing Courses</td>
<td>0.00</td>
<td>NA</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>- Non-Credit Bearing Activity</td>
<td>0.00</td>
<td>NA</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td></td>
</tr>
</tbody>
</table>

* OC = Organized Class  NA = Not applicable

In the box to the right, indicate the number of individualized instruction student credit hours from the total that are devoted to supervised doctoral dissertation.

Mark with ‘X’ the box that indicates your academic calendar:

Reminder: Use Fall 2014 semester data as of your official census date.

Please supply the total number of online SCH for the Fall 2014

If your institution does not offer online courses SCH leave the ZERO in the box. If you are unable to supply the online SCH offered at your institution please mark the box “m” for missing.


1. Total student credit hours generated during Academic Year 2014-2015, that were supported by the department/discipline Instructional budget. (NOTE: Semester calendar institutions will typically report fall and spring student credit hours; quarter calendar institutions will report fall, winter, and spring student credit hours.)
What does **disruption** in higher education mean in the context of the Delaware Cost Study?

D - data definitions that may only provide limited clarity
I - innovation in multi-disciplinary, interdisciplinary “CIP defying” programs
S - service to students, the institution, to the discipline and to the community
R – rankings with their questionable fundamentals but unquestionable impact
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P – Performance funding driving decision making from outside the institution
T – transparency in sources and methods
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O – on-line learning and its variable impact
N – Networks that are dynamic and unpredictable
Data Definitions and the Delaware Cost Study

Answering the questions:

What cost differences are there in STEM versus non-STEM disciplines?

What definition of STEM is being used and what disciplines are included or excluded?
Which of the following are STEM disciplines?

- Social psychology
- International Relations
- Philosophy of Science
- Cultural Anthropology
- Urban and Regional Planning
Innovative programs and the Delaware Cost Study
Defining and defending the cyber-landscape
What does the NCES say about cybersecurity?

Detail for CIP Code 52.2101

**Title:** Telecommunications Management.

**Definition:** A program that prepares individuals to apply business skills to design, implement, and manage the voice, video, and data networking systems of organizations. Includes instruction in telecommunications concepts and technologies, network operations and management, wireless communications and mobile computing, cybersecurity, regulation and public policy, business practices and management, and written and oral communications.
Searching for the program using “computer security”

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Command &amp; Control C3, C4I Systems and Operations. A program that focuses on the theory, technology and operational use of information and decision systems in support of battlefield, theatre, and global strategic operations. Includes instruction in applied mathematics and statistics, computer systems, real-time analysis and decision systems, surveillance and navigation systems, information and communications technology, information security, situational awareness, system integration, joint operations and applications to specific command problems and services.</td>
<td>⭐️</td>
<td>29.0204</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer and Information Systems Security/Information Assurance. A program that prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system design; applicable law and regulations; risk assessment and policy analysis; contingency planning; user access issues; investigation techniques; and troubleshooting.</td>
<td>-</td>
<td>11.1003</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Software Technology/Technician. A program that prepares individuals to apply</td>
<td>-</td>
<td>15.1204</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Service and the Delaware Cost Study

Answering the question what type of service and to what constituent group:

Service to the institution? General education requirements; service in behalf of a discipline.

Service to the community? How to measure this in a standard metric?

What are the expenditures made for sponsored research and service?
## Benchmarking Unit Activity by Carnegie Classification

<table>
<thead>
<tr>
<th>University College + Discipline</th>
<th>CIP</th>
<th>Degrees Awarded</th>
<th>University Total FTE Faculty</th>
<th>University as Pct of Peer Avg</th>
<th>Peer Avg</th>
<th>FTE Students Taught per FTE Instructional Faculty</th>
<th>INSTRUCTIONAL EXPENDITURES PER FTE STUDENT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AdeS Ethnic, Cultural Minority, Gender, and Group Studies</td>
<td>5.02</td>
<td>BM</td>
<td>22.3</td>
<td>12.6</td>
<td>85%</td>
<td>14.9</td>
<td>$7,113, 98% $7,247, 5,416 $7,771 $8,158</td>
</tr>
<tr>
<td>AdeS Communication and Media Studies</td>
<td>9.01</td>
<td>BM</td>
<td>43.5</td>
<td>15.7</td>
<td>91%</td>
<td>17.2</td>
<td>$4,745, 99% $4,797, 3,891 $5,085 $5,504</td>
</tr>
<tr>
<td>AdeS Linguistic, Comparative, and Related Language Studies and Se</td>
<td>16.01</td>
<td>BMD</td>
<td>72.9</td>
<td>15.1</td>
<td>110%</td>
<td>13.7</td>
<td>$4,994, 82% $5,382 $4,272 $5,181 $7,153</td>
</tr>
<tr>
<td>AdeS Classics and Classical Languages, Literatures, and Linguistici</td>
<td>16.12</td>
<td>BMD</td>
<td>18.9</td>
<td>14.8</td>
<td>86%</td>
<td>17.3</td>
<td>$13,318, 211% $6,314 $3,541 $5,781 $8,574</td>
</tr>
<tr>
<td>AdeS Rhetoric and Composition/Writing Studies</td>
<td>23.01</td>
<td>BMD</td>
<td>105.4</td>
<td>13.1</td>
<td>98%</td>
<td>13.2</td>
<td>$6,526, 108% $6,017 $4,490 $5,703 $7,527</td>
</tr>
<tr>
<td>AdeS Biology, General</td>
<td>26.01</td>
<td>BMD</td>
<td>54.0</td>
<td>20.2</td>
<td>109%</td>
<td>18.6</td>
<td>$5,886, 93% $6,107 $4,792 $5,992 $7,551</td>
</tr>
<tr>
<td>AdeS Mathematics</td>
<td>27.01</td>
<td>BMD</td>
<td>79.2</td>
<td>20.6</td>
<td>102%</td>
<td>20.1</td>
<td>$4,473, 92% $4,872 $3,951 $4,659 $7,584</td>
</tr>
<tr>
<td>AdeS Philosophy</td>
<td>38.01</td>
<td>BMD</td>
<td>29.3</td>
<td>12.7</td>
<td>73%</td>
<td>17.4</td>
<td>$6,475, 122% $5,309 $3,896 $5,244 $6,250</td>
</tr>
<tr>
<td>AdeS Chemistry</td>
<td>40.05</td>
<td>BMD</td>
<td>59.3</td>
<td>18.4</td>
<td>99%</td>
<td>18.7</td>
<td>$6,664, 93% $7,134 $5,948 $7,029 $8,309</td>
</tr>
<tr>
<td>AdeS Geological and Earth Sciences/Geosciences</td>
<td>40.06</td>
<td>BMD</td>
<td>19.7</td>
<td>11.8</td>
<td>90%</td>
<td>13.1</td>
<td>$10,599, 113% $9,389 $6,647 $8,245 $11,755</td>
</tr>
<tr>
<td>AdeS Physics</td>
<td>40.08</td>
<td>BMD</td>
<td>46.5</td>
<td>12.7</td>
<td>93%</td>
<td>13.7</td>
<td>$8,724, 102% $8,558 $6,991 $8,204 $10,994</td>
</tr>
<tr>
<td>AdeS Psychology, General</td>
<td>42.01</td>
<td>BMD</td>
<td>49.6</td>
<td>18.6</td>
<td>88%</td>
<td>21.2</td>
<td>$5,082, 101% $5,008 $3,947 $4,859 $5,770</td>
</tr>
<tr>
<td>AdeS Anthropology</td>
<td>45.02</td>
<td>BM</td>
<td>14.9</td>
<td>15.6</td>
<td>97%</td>
<td>16.1</td>
<td>$5,387, 108% $4,969 $4,159 $5,062 $5,659</td>
</tr>
<tr>
<td>AdeS Geography and Cartography</td>
<td>45.07</td>
<td>BMD</td>
<td>18.0</td>
<td>18.2</td>
<td>111%</td>
<td>16.4</td>
<td>$6,244, 100% $6,216 $4,872 $6,092 $7,883</td>
</tr>
<tr>
<td>AdeS Political Science and Government</td>
<td>45.10</td>
<td>BMD</td>
<td>13.8</td>
<td>18.9</td>
<td>106%</td>
<td>17.9</td>
<td>$5,113, 91% $5,640 $4,022 $3,373 $7,027</td>
</tr>
<tr>
<td>AdeS Sociology</td>
<td>45.11</td>
<td>BMD</td>
<td>18.5</td>
<td>25.0</td>
<td>124%</td>
<td>20.1</td>
<td>$4,815, 106% $4,543 $3,422 $3,938 $5,731</td>
</tr>
<tr>
<td>AdeS History</td>
<td>54.01</td>
<td>BMD</td>
<td>39.5</td>
<td>15.3</td>
<td>90%</td>
<td>17.4</td>
<td>$4,862, 94% $5,167 $4,119 $4,966 $6,111</td>
</tr>
<tr>
<td>University College + Discipline</td>
<td>CIP</td>
<td>Degrees Awarded</td>
<td>University Total FTE Faculty</td>
<td>University as % of Peer Avg</td>
<td>Peer Avg</td>
<td>Peer 25th Percentile</td>
<td>Peer 50th Percentile</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>------</td>
<td>-----------------</td>
<td>------------------------------</td>
<td>-----------------------------</td>
<td>---------</td>
<td>----------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>A&amp;5 Ethnic, Cultural Minority, Gender, and Group Studies</td>
<td>5.02</td>
<td>BM</td>
<td>22.3 $</td>
<td>-</td>
<td>0%</td>
<td>$2,782</td>
<td>$90</td>
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<tr>
<td>A&amp;5 Communication and Media Studies</td>
<td>9.01</td>
<td>BM</td>
<td>43.5 $1,996</td>
<td>17%</td>
<td>$12,036</td>
<td>$1,996</td>
<td>$5,725</td>
</tr>
<tr>
<td>A&amp;5 Linguistic, Comparative, and Related Language Studies and Se</td>
<td>16.01</td>
<td>BMD</td>
<td>72.3 $561</td>
<td>7%</td>
<td>$7,602</td>
<td>$228</td>
<td>$1,034</td>
</tr>
<tr>
<td>A&amp;5 Classics and Classical Languages, Literatures, and Linguisti</td>
<td>16.12</td>
<td>BMD</td>
<td>18.9 $142,168</td>
<td>65.99%</td>
<td>$2,174</td>
<td>$128</td>
<td>$1,429</td>
</tr>
<tr>
<td>A&amp;5 Rhetoric and Composition/Writing Studies</td>
<td>23.01</td>
<td>BMD</td>
<td>105.4 $47</td>
<td>2%</td>
<td>$2,695</td>
<td>$627</td>
<td>$1,534</td>
</tr>
<tr>
<td>A&amp;5 Biology, General</td>
<td>26.01</td>
<td>BMD</td>
<td>54.0 $78,301</td>
<td>49%</td>
<td>$158,441</td>
<td>$89,247</td>
<td>$152,983</td>
</tr>
<tr>
<td>A&amp;5 Mathematics</td>
<td>27.01</td>
<td>BMD</td>
<td>79.2 $13,161</td>
<td>33%</td>
<td>$40,359</td>
<td>$16,838</td>
<td>$41,027</td>
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<tr>
<td>A&amp;5 Philosophy</td>
<td>38.01</td>
<td>BMD</td>
<td>23.3 $</td>
<td>0%</td>
<td>$1,588</td>
<td>$19</td>
<td>$357</td>
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<tr>
<td>A&amp;5 Chemistry</td>
<td>40.05</td>
<td>BMD</td>
<td>59.5 $183,946</td>
<td>74%</td>
<td>$249,016</td>
<td>$162,548</td>
<td>$252,387</td>
</tr>
<tr>
<td>A&amp;5 Geological and Earth Sciences/Geosciences</td>
<td>40.06</td>
<td>BMD</td>
<td>19.7 $67,170</td>
<td>40%</td>
<td>$167,126</td>
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<td>$151,718</td>
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<tr>
<td>A&amp;5 Physics</td>
<td>40.08</td>
<td>BMD</td>
<td>46.5 $90,094</td>
<td>36%</td>
<td>$255,708</td>
<td>$143,083</td>
<td>$246,230</td>
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<tr>
<td>A&amp;5 Psychology, General</td>
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<td>49.6 $80,018</td>
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<td>$109,702</td>
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<tr>
<td>A&amp;5 Anthropology</td>
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<td>$32,351</td>
<td>$5,451</td>
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<tr>
<td>A&amp;5 Geography and Cartography</td>
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<td>18.0 $102,742</td>
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<td>$88,755</td>
<td>$40,565</td>
<td>$92,921</td>
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<tr>
<td>A&amp;5 Political Science and Government</td>
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<td>$8,944</td>
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<tr>
<td>A&amp;5 Sociology</td>
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<td>$18,115</td>
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<tr>
<td>A&amp;5 History</td>
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<td>BMD</td>
<td>39.5 $</td>
<td>0%</td>
<td>$3,491</td>
<td>$889</td>
<td>$2,851</td>
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</table>
Rankings and the Delaware Cost Study

Answering the questions:

How do we compare to our current and aspirational peers?

What do the national norms illuminate about the student experience in a program?
Benchmarking Instructional Activity – Psychology

Undergraduate Student Credit Hour Share by Faculty Rank relative to Carnegie Classification

- T/TT Faculty
- Regular Faculty
- Supplemental Faculty
- Teaching Assistant
- Carnegie T/TT
- Carnegie ORF
- Carnegie Supplemental
- Carnegie TA
Utility of the results of the Delaware Cost Study

Answering the questions:

What variability in cost can be expected from year to year across categories of disciplines?

What are the likely impacts on cost cutting measures?
Delaware Cost Study Data Uses

- Academic/Accreditation Program Review
- Faculty Hiring/Disparity
- Chair Key Performance Indicators
- Deans Dashboard
- Senior Budgeting/President/Provost Planning/Projections
- Identifying Cost Distortions in Budgeting Formulas
- Developing New Programs/Departments Grants and Research Expenditure Benchmarking
- External Audit/System Review Tool
- Student/Faculty Recruitment/Retention Tool
- General Unit and Institutional Improvement
Advanced Modeling Techniques Utilizing Delaware Cost Study Data

- An Ordinary Least Squares (OLS) Regression model allows for the researcher to predict DIE/FTE Student for RVH Physics. (Weighting for Percent Undergraduate Degree)

- Findings indicate for every one percent increase in personnel cost as a percentage of total departmental expenditure is associated with a $142.84 decrease in DIE/FTE Student (p=.01).

- For every one dollar increase in research expenditure per T/TT FTE faculty is associated with a $0.007 increase in DIE/FTE Student (p=.03).
Advanced Modeling Techniques Utilizing Delaware Cost Study Data

- Monte Carlo methods allow for the simulation of estimated future costs. When simulating the DIE/FTE Student 1,000,000 times, a 90 percent confidence interval can be estimated.

- For RVH Physics, the average DIE/FTE Student is $9,340.

- For RVH Physics departments, there is a 5% chance a department’s DIE/FTE Student cost will be above $12,450. For RVH Physics, there is a 5% chance a department’s DIE/FTE Student cost will be below $6,680.

- Monte Carlo sensitivity analyses allow for the researcher to manipulate variables to influence projections.
Politics and the impact of the Delaware Cost Study

Answering the questions:

Are faculty meeting legislated productivity standards measured by student credit hours and organized class sections taught?

What are the comparative expenditures made for instructional activity, sponsored research and service relative to national norms?
How Many Student Credit Hours by Discipline, Course Level and Type are Required to Generate the Need for One Instruction Full-Time Equivalent Person?
## Assessing Student Credit Hour Production and Direct Instructional Expenditure

<table>
<thead>
<tr>
<th>Student Credit Hours per FTE Faculty as Percentage of Carnegie Classification</th>
<th>Low</th>
<th>Moderate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td>Theater</td>
<td>Physics, Chemical Engineering</td>
</tr>
<tr>
<td>Moderate</td>
<td>Criminal Justice, Political Science</td>
<td>Biology, Music</td>
<td>Chemistry</td>
</tr>
<tr>
<td>High</td>
<td>Communication, English, History, Psychology, Sociology</td>
<td>Mathematics</td>
<td></td>
</tr>
</tbody>
</table>
Transparency and the Delaware Cost Study

Answering the questions:

How does our program compare with respect to the cost of others in our institution and with similar programs at other comparable institutions?

What are the normative expectations for expenditures made for sponsored research and service?
Academic Program Review - National Carnegie Comparison

- Undergraduate Student Credit Hours Taught per FTE T/TT Faculty (SCH taught only by T/TT Faculty)
- Total Student Credit Hours Taught per FTE T/TT Faculty (SCH taught only by T/TT Faculty)
- Total Class Sections Taught (Excluding Labs) per FTE T/TT Faculty (Class Sections taught only by T/TT Faculty)
- Total Student Credit Hours Taught per FTE Faculty (All Categories) (SCH taught by All Faculty Categories)
- Direct Instructional Expenditures per Student Credit Hour
- Separately Budgeted Research and Service Expenditures per FTE T/TT Faculty

The Delaware Study of Instructional Costs and Productivity August 2013
Interpretation of the Delaware Cost Study results

Answering the questions:

Who is teaching what to whom and at what cost?

What are the expenditures made for sponsored research and service?
Normalized Research Expenditure vs. Normalized Instructional Productivity
Carnegie Classification: Research Universities (NSICP – Delaware Study)
On-line Learning and the Delaware Cost Study

Answering the questions:

What have we been missing in answering “Who is teaching what to whom and at what cost”?

What is the impact of digital learning on the effectiveness and cost of instruction?
Background: While the number of students taking distance courses has grown by the millions over the past decade, it has not come without considerable concerns. Faculty acceptance has lagged, concerns about student retention linger, and leaders continue to worry that online courses require more faculty effort than face-to-face instruction.

Evidence: Chief academic officers report no major improvements for any of these areas of concern.
February 2015

GRADE LEVEL

TRACKING ONLINE EDUCATION IN THE UNITED STATES

Only 28.0% of chief academic officers say that their faculty members accept the “value and legitimacy of online education,” a rate substantially the same as it was in 2003.

Most academic leaders (68.3%) continue to believe that “Students need more discipline to succeed in an online course than in a face-to-face course.”

Increasing numbers of academic leaders think that retaining students is a greater problem for online courses than for face-to-face courses (44.6% in 2014 versus 40.6% in 2013, 28.4% in 2009, and 27.2% in 2004).

Additional effort required to deliver an online course represents a barrier for online instruction for 78.0% of academic leaders.
Networks and the Delaware Cost Study

Answering the questions:

What are the important social networks that are driving change in higher education?

What is the evidence that administrative decisions are in-tune with social realities?
Advanced Modeling Techniques Utilizing Cost Study Peer Ratio Tool

- Physics is a discipline with relatively high costs and high variability, even among comparable Research Very High (RVH) institutions.

- Conducting RVH cluster analyses with Cost Study data enables the researcher to explore the relationship between key variables related to Direct Instructional Expenditure (DIE)/Full-Time Equivalent (FTE) Student.

- High research expenditures is associated with lower personnel costs as a percentage of total expenditure as units are spending more on other than personnel costs.
Peer Ratio Access – Institutional Login

- Once you have logged institutionally, click on “Peer Analysis” and then “Peer Ratio Data.”
Peer Ratio Access – Institutional Login

- Once you have selected “Peer Ratio Data,” select ten or more institutions, the results will be generated in a manner that can be viewed and/or downloaded into Microsoft Excel. Additional instruction are on the right of the page.
Disruption and the Delaware Cost Study

Answering the questions:

How do we facilitate good decision-making when the major constant to expect is change?

What short-term decisions are prudent in the context of their long-term consequences?
What does disruption in higher education mean in the context of the Delaware Cost Study?

D - data definitions that may only provide limited clarity
I - innovation in multi-disciplinary, interdisciplinary “CIP” defying programs
S - service to students, the institution, to the discipline and to the community
R - rankings with their questionable fundamentals but unquestionable impact
U - utility of the metrics to decision makers
P - Performance funding driving decision making from outside the institution
T - transparency in sources and methods
I - interpretation of metrics in context of national results
O - on-line learning and its variable impact
N - Networks that are dynamic and unpredictable
Future Directions: Higher Education Consortia

- Over the past two years, the Higher Education Consortia has worked with four-year colleges, universities, and systems to facilitate unit and institutional improvement on a limited basis.

- Data Alignment

- Statistical Solutions (OLS, HLM, SEM, Survival – time to event)

- Academic Program Review

- Internal and External Benchmarking

- Special Projects
Addressing Your Questions and Comments

• What questions do you have at this time?
Delaware Cost Study Data enhancement questionnaire: Please circle the number that corresponds to your opinion. 1 = Strongly disagree 5 = Strongly agree

1. My institution regularly participates in the Delaware Cost Study
   1  2  3  4  5

2. I have a good understanding of all productivity and cost metrics in the study
   1  2  3  4  5

3. My institution would benefit from information about on-line student credit productivity currently unavailable in the study
   1  2  3  4  5

4. My institution would benefit from information at the 6-digit CIP level
   1  2  3  4  5

5. My institution would benefit from information about all degrees awarded beyond first major
   1  2  3  4  5

6. My institution would utilize advanced modeling consultation from the Higher Education Consortia
   1  2  3  4  5

7. My institution would support unit record level data sharing within the Higher Education Consortia with appropriate confidentiality safeguards
   1  2  3  4  5

8. My institution would support unit record level data sharing scholarship outside the Higher Education Consortia with appropriate confidentiality safeguards
   1  2  3  4  5

Comments:
Moving Forward: Implementation and Support

- Online Data Collection Walkthrough
- Web Portal Access for Data Submission
- Relational Database Historical Data
- Personal Support/Consultation
- First Year Conference Call
- Prospective Conferences/Workshops (NEAIR, SCUP)
What academic level is being taught... (as a percent of instruction)?

### Table 2A

Percent student credit hours (SCH) and organized class (OC) sections by course level within faculty category, Fall 2024

**Faculty category: Tenured & tenure-track faculty**

<table>
<thead>
<tr>
<th>CIP</th>
<th>Discipline</th>
<th>Degrees awarded</th>
<th>% UG degree</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>04.03</td>
<td>City/Urban, Community and Regional Planning</td>
<td>MD</td>
<td>0</td>
<td>14.57</td>
<td>9.57</td>
<td>0</td>
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<td>3</td>
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<td>75</td>
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<td>16.98</td>
<td>15</td>
<td>53</td>
<td>73</td>
<td>27</td>
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<td>52</td>
<td>48</td>
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<td>48</td>
<td>48</td>
<td>54</td>
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<td>0</td>
<td>24</td>
<td>24</td>
<td>76</td>
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<td>0</td>
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<td>79</td>
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<td>0</td>
<td>0</td>
<td>100</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>91</td>
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</table>
Who is teaching what to whom... (as a percent of instruction)?

2025 National Study of Instructional Costs and Productivity
Institutional Report for NEAIR University

Table 1A
Percent student credit hours (SCH) and organized class (OC) sections by faculty category within course level, Fall 2024
Faculty category: Tenured & tenure-track faculty

Column definitions:
1: Total instructional FTE faculty
2: Instructional FTE faculty for category
3: % Lower div SCH from organized classes
4: % Upper div SCH from organized classes
5: % Total undergraduate SCH (OC + Indiv. Instruction)
6: % Total graduate SCH (OC + Indiv. Instruction)
7: % Lab/Discussion sections
8: % Lower div lecture sections
9: % Upper div lecture sections
10: % Total undergraduate lecture sections
11: % Graduate lecture sections

<table>
<thead>
<tr>
<th>CIP</th>
<th>Discipline</th>
<th>Degrees awarded</th>
<th>% UG degree</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<td>0</td>
<td>0</td>
<td>73</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>68</td>
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How many student credit hours and FTE students...?

<table>
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<tr>
<th>CIP Description</th>
<th>Degrees awarded</th>
<th>% UG degree</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
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<td>425</td>
<td>5.4</td>
<td>6.0</td>
<td>47.2</td>
</tr>
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</table>
What level of expenditure for instruction, research and service...?
• *Cluster analysis* is a series of statistical techniques designed to identify how similar (or different) some observations are from one another.

• Cluster analysis is a data classification technique rather than a test for statistical significance.

• The next-nearest-neighbor is a cluster analysis approach designed to assess how close data points are to a specific point based upon majority. If k=3, red triangle. If k=5, blue square.
Getting the Most from Delaware Cost Study Data
Regression: Best Fit Lines

• A regression is a best-fit line that lies closer to the data points than any other possible line according to a least squares standard statistical measure of closeness.

• Ordinary Least Squares (OLS) regression is a statistical improvement bivariate statistical analyses because they allow the researcher to “control for” or “separate” certain aspects of independent variables on a dependent variable.

• Regression analysis is like a mosaic of real life experiences that allow complicated patterns of interaction to be disentangled on a statistical level.
Take Away: The Delaware Cost Study is a resource.

- The Delaware Cost Study is a useful tool for providing comparative analysis of faculty teaching loads, direct instructional costs, and separately budgeted scholarly activity, all within academic disciplines.

- Delaware Cost Study is useful for data alignment, system integration, unit improvement, and institutional effectiveness.

- A failure to monitor these variables may lead to expenditure distortion in planning and budget models (ABB, RCM, PBB, ZBB).

- Cost Study data (courses taught, research and public service expenditures) may be useful for Academic Program Reviews (APR).

- Cost Study data may be useful for proposing, planning and developing new departmental programs.