Data, Cognitive Science and Bespoke Education

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Creating Clear Degree Pathways to Success
What Data says about the Pathways
The Graduate Transcript Graph
The Graduate Transcript Graph
The Graduate Transcript Graph

MATH

ENGLISH
10,000 USG Students

2,500 who either completed their first credit bearing math and/or writing class or completed neither during their first academic year.
System-wide Math Completion for students beginning in Developmental Mathematics

ACT Math Subscores
System-wide Math Completion for students beginning in Developmental Mathematics

ACT Math Subscores

10 Standard Deviations
Completion of Gateway Math by ACT Sub-score
Community College Pre-requisite Model vs. Co-requisite Model

Pre-requisite Model AY 2012-13
Co-requisite Model AY 2015-16

<table>
<thead>
<tr>
<th>ACT Math Subscore</th>
<th>Pre-requisite</th>
<th>Co-requisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;14</td>
<td>2.7%</td>
<td>3.8%</td>
</tr>
<tr>
<td>14</td>
<td>39%</td>
<td>33%</td>
</tr>
<tr>
<td>15</td>
<td>46%</td>
<td>6.8%</td>
</tr>
<tr>
<td>16</td>
<td>55%</td>
<td>11.5%</td>
</tr>
<tr>
<td>17</td>
<td>19.7%</td>
<td>63%</td>
</tr>
<tr>
<td>18</td>
<td>25.6%</td>
<td>70%</td>
</tr>
<tr>
<td>No ACT</td>
<td>13.1%</td>
<td>49%</td>
</tr>
<tr>
<td>Total</td>
<td>12.3%</td>
<td>55%</td>
</tr>
</tbody>
</table>
System Comparison of Success in Gateway Math Classes

![Bar chart showing success rates in Gateway Math Classes across different ACT Math Subscores for 2013 Traditional LS, 2015-17 Foundations, and 2015-17 Corequisite Systems.]
System Comparison of Success in Gateway English Classes

ACT Writing Subscore

2013 Traditional LS  2015-17 Foundations  2015-17 Corequisite
USG System-wide Comparison of Success in Gateway Math Classes

African American Students

ACT Math Sub-score

- 2013 Traditional DevEd
- 2015-17 Foundations
- 2015-17 Corequisite
Productive Academic Mindset

Perceived purpose of coursework

Feel connected to their institution and that they belong…

Believe they are capable of learning the material…

Confidence interacting with Faculty and Staff

GRIT and Perseverance
The effect of course enrollments in the first year on graduation rates

1\textsuperscript{st} yr - Did not attempt 9hrs in focus area: 48%

1\textsuperscript{st} yr - Attempted 9hrs in focus area: 67%

1\textsuperscript{st} yr - Earned 9hrs in focus area: 74%
Math Pathways
nexus degrees

- 18 Credit Hours + 42 Hour General Education Core
- Including:
  - 6 Hours of Experiential Learning
  - 12 Hours at 3000+ Level
  - Curriculum designed in partnership with a major industry
    with faculty designing to those specifications
Post-production Film
Cybersecurity in Financial Technology

Block-chain Machine Learning and
Block-chain Data Analysis
USG Momentum Year

Making a purposeful program choice

Creating a productive Academic Mindset

Attempting the first 30 hours of a Clear Pathway

Attempting 9 hours in Academic Focus

Complete initial English and Math
Momentum Summits

Co-Requisite Academies

Key Metrics & Reporting

Analysis & Understanding

Modeling & Planning

Decisive Action
Momentum Summits

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Co-Requisite Academies

Key Metrics & Reporting

Analysis & Understanding

Modeling & Planning

Decisive Action

Advising Summit
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Momentum Metrics

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10,000 USG Students

2,500 who either completed their first credit bearing math and/or writing class or completed neither during their first academic year
English and Math

- 1st yr - Did not pass English or Math: 6%
- 1st yr - Passed English: 37%
- 1st yr - Passed Math: 41%
- 1st yr - Passed both English and Math: 66%
English and Math

6 yr Graduation Rates

- 1st yr - Did not pass English or Math: 4%
- 1st yr - Passed English: 23%
- 1st yr - Passed Math: 19%
- 1st yr - Passed both English and Math: 37%

- 1st yr - Passed English: 19%
- 1st yr - Passed Math: 41%
- 1st yr - Passed both English and Math: 52%

A State College

34% Complete Both
40% Complete Neither
The Graduate Transcript Graph

Catapult Classes

MATH

ENGLISH
ENGL 1101 - English Composition I

Course Grade Distribution

- A: 30%
- B: 25%
- C: 20%
- D: 15%
- F: 10%

Impact on Graduation Rate

- A: 37%
- B: 13%
- C: -12%
- D: -48%
- F: -56%
Impact of Student Enrollment
Impact of Student Enrollment

Impact from Deepening Learning
Impact of Student Enrollment

Impact from Deepening Learning
Productive Academic Mindset

- Perceived purpose of coursework
- Feel connected to their institution and that they belong...
- Believe they are capable of learning the material...
- Confidence interacting with Faculty and Staff
- GRIT and Perseverance
System-wide success rates in Freshman Mathematics Classes

“What I learn in my math classes will be useful in my future.”

ACT Mathematics Subscores

16-19

20-25

26-29

above 30

AGREE

DISAGREE

AGREE

DISAGREE

AGREE

DISAGREE

AGREE

DISAGREE
System-wide success rates in Freshman Mathematics Classes

- “What I learn in Math will be useful in my career”
- “What I learn in Math will not be useful in my career”
- “What I learn in Math will not be useful in my future”
- “What I learn in Math will not be useful to me at all”
System-wide success rates in Freshman Mathematics Classes

- **A**: “What I learn in Math will be useful in my career”
- **B**: “What I learn in Math will not be useful in my career”
- **C**: “What I learn in Math will not be useful in my future”
- **D**: “What I learn in Math will not be useful to me at all”

Success rates:
- 0%
- 10%
- 20%
- 30%
- 40%
System-wide success rates in Freshman Mathematics Classes

- "What I learn in Math will be useful in my career"
- "What I learn in Math will not be useful in my career"
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State University 6-year Graduation Rates based on hours enrolled in First Semester
State University 6-year Graduation Rates based on hours enrolled in First Semester

ACT Score

- 0-6 hours
- 7-11 hours
- 12-14 hours
- 15+ hours

13%
22%
43%
54%
State College 6-year Graduation Rates based on hours enrolled in First Semester

ACT Score

- 0-6 hours
- 7-11 hours
- 12-14
- 15+ hours

- 9%
- 15%
- 26%
- 35%
The IMPACT of moving from 12-14 hours to 15 hours in the first semester

- Research Universities: +2%
- Comprehensive Universities: +9%
- State Universities: +10%
- State Colleges: +6%
The IMPACT of moving from 12-14 hours to 15 hours in the first semester

- Research Universities: +2%
- Comprehensive Universities: +9%
- State Universities: +10%
- State Colleges: +6%

The IMPACT of moving from 24 hours to 30 hours in the first year

- Research Universities: +5%
- Comprehensive Universities: +18%
- State Universities: +18%
- State Colleges: +14%
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