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# Ad Astra South Summit



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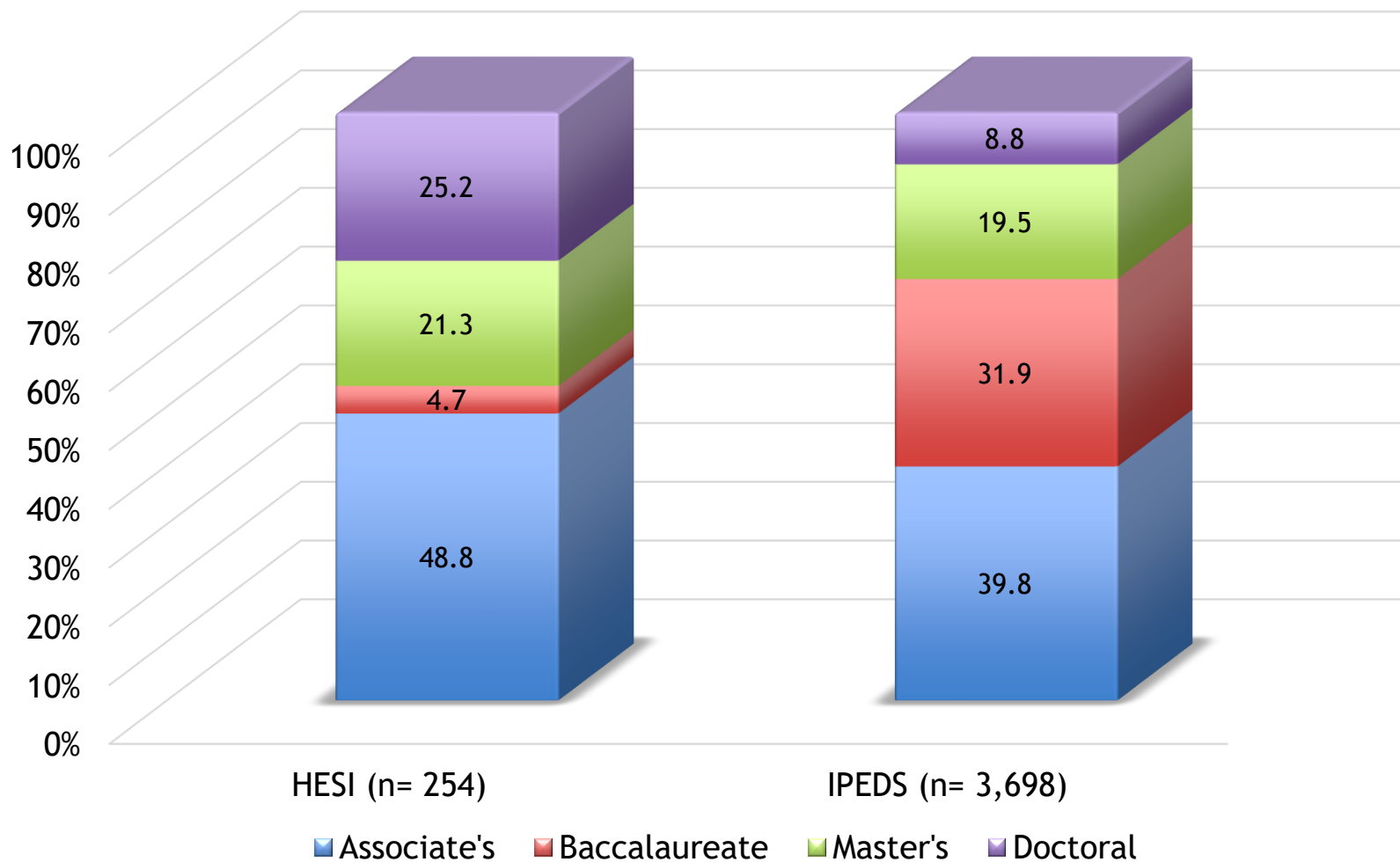
# Presentation Outline

- Space
- Retention
- Time-to-Completion
- Graduation
- College-Career Pathways
- Aligning Your Work to Your Institution

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# Space

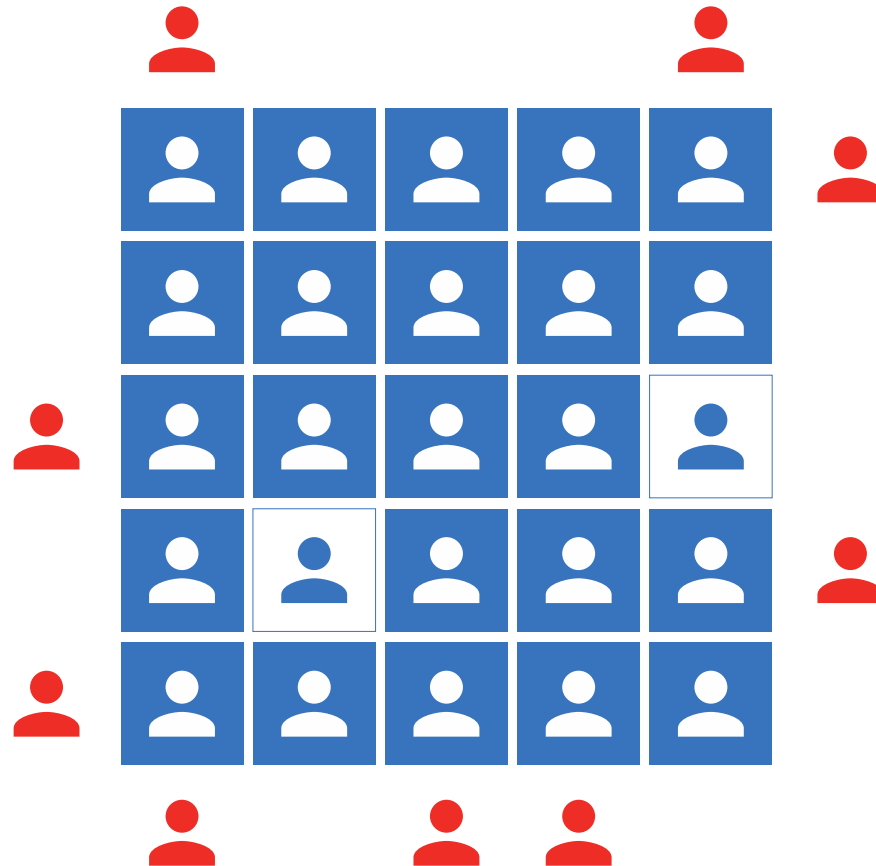
## Higher Education Scheduling Index (HESI) and Integrated Postsecondary Education Data System (IPEDS) Institutional Participation by Carnegie Classification, 2018



# Overloaded

>95%

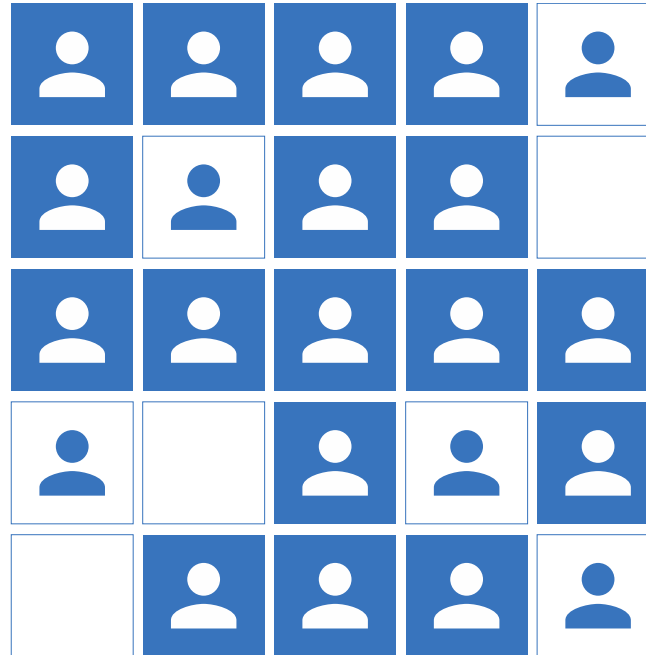
22%



# Balanced

70-95%

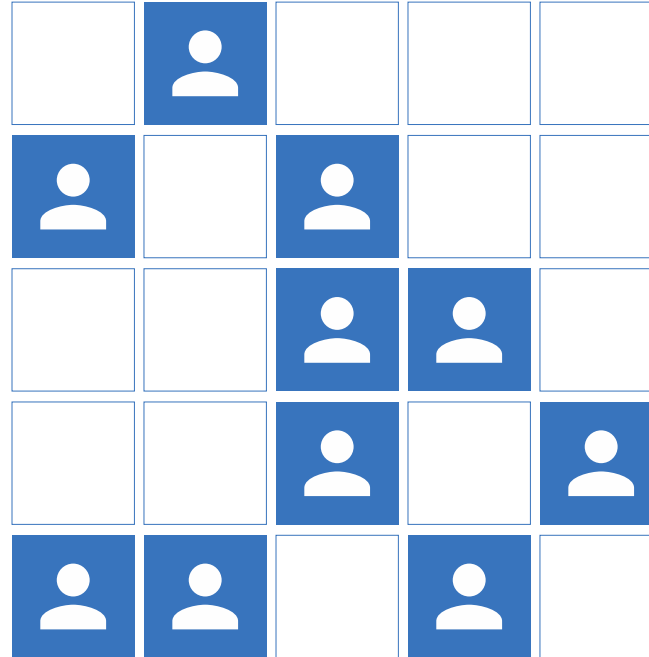
33%



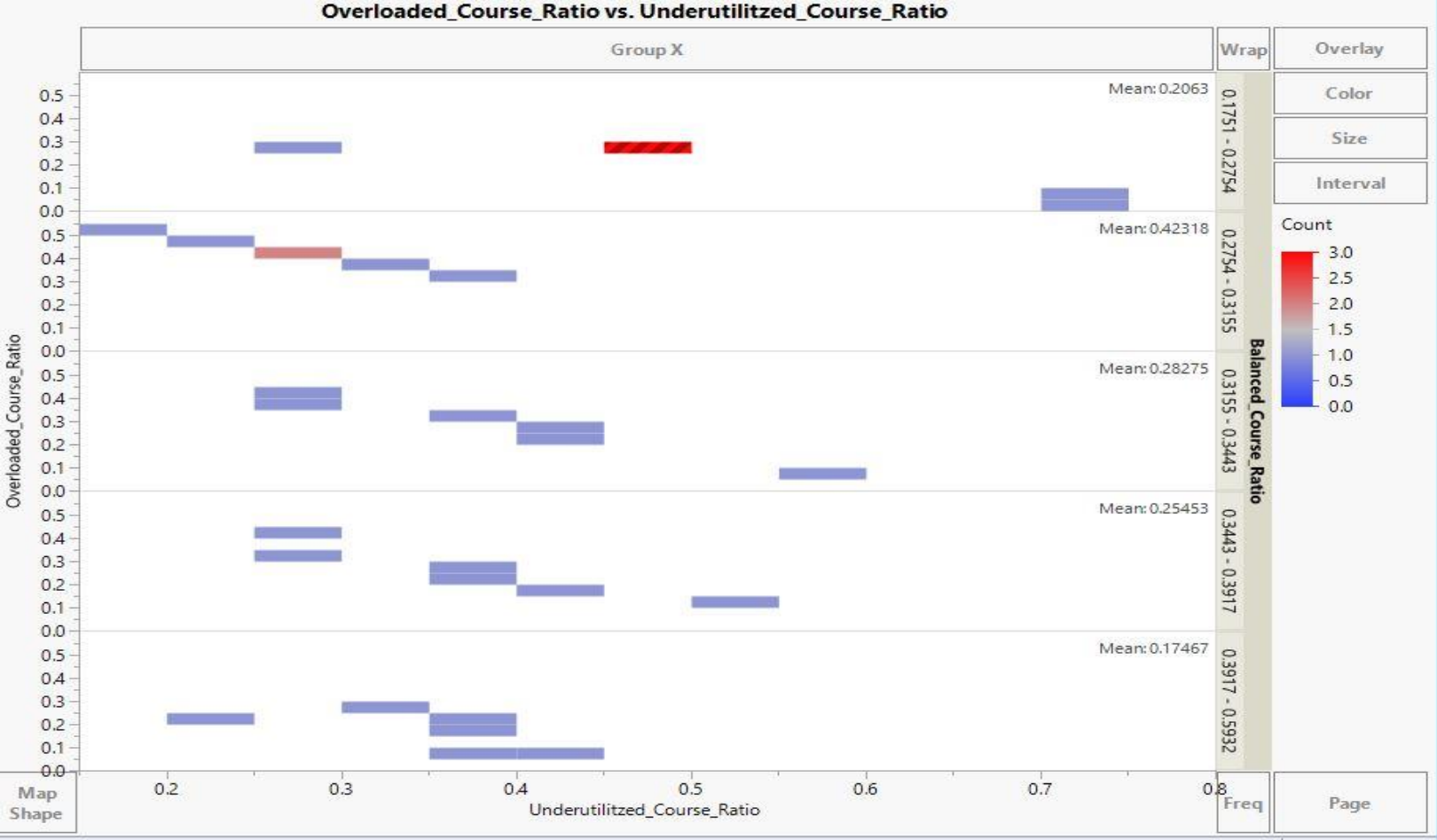
# Underutilized

<70%

45%



# Multivariate Course Utilization - Texas





# Course Scheduling Utilization

Institution	Underutilized	Balanced	Overloaded
National	42.4	32.8	21.1
Texas	36.8	32.3	27.1
A	45.9	22.3	29.7
B	49.2	23.5	27.3
C	48.5	24.1	27.3

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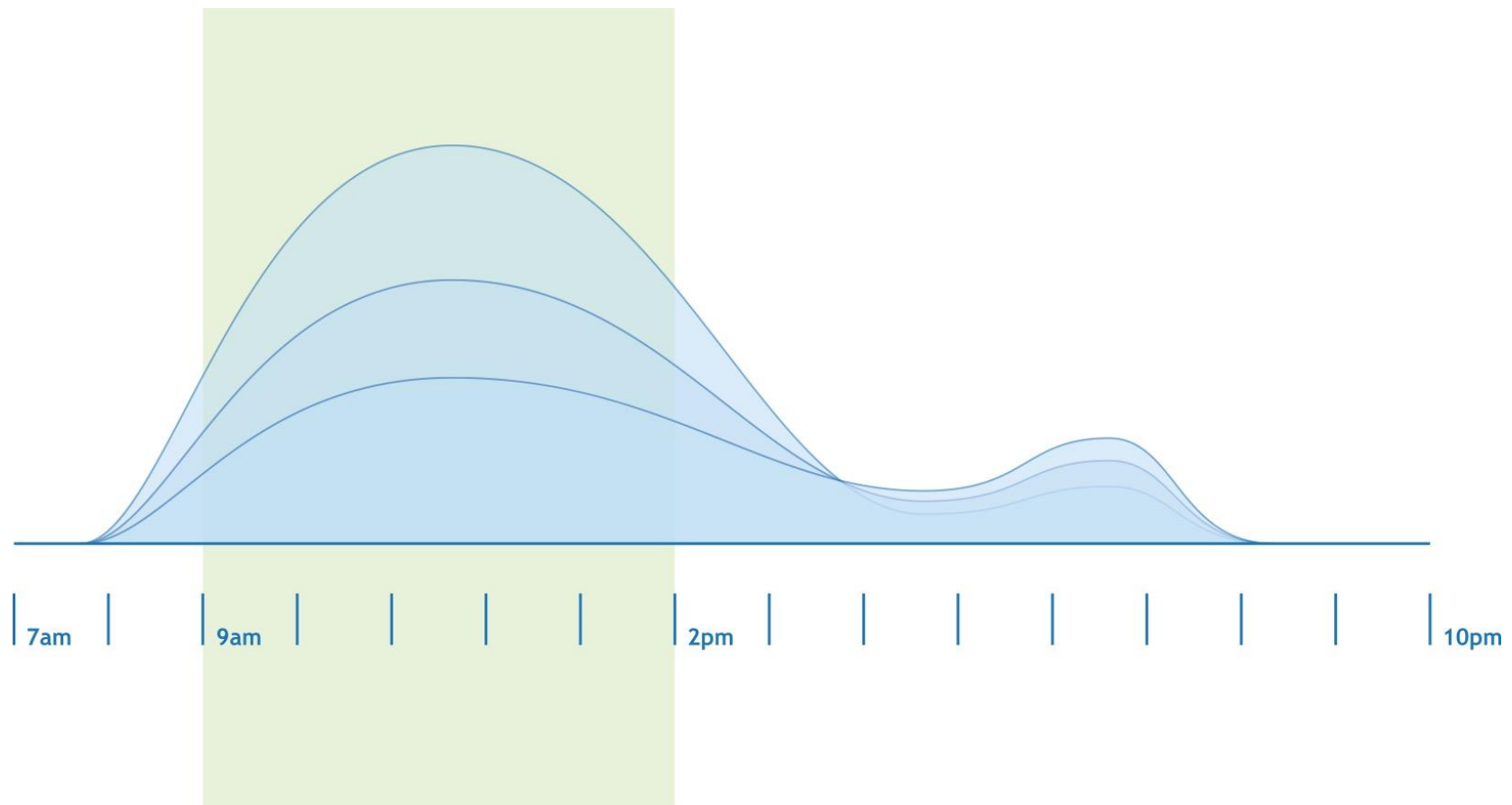
# Implementing Spatial Policy

- Virginia - (SCHEV) Policy audit found average classroom utilization to be 40 hours per week (HPW) and lab space 26 HPW.
- New Mexico - (Legislative Finance Committee) Recommends institutions work with Ad Astra “to maximize use of capital space.”
- Texas - (THECB) Measures Space Usage Efficiency (SUE) based upon facilities demand, utilization rate HPW, and percent fill and awards points based on institutional performance score.

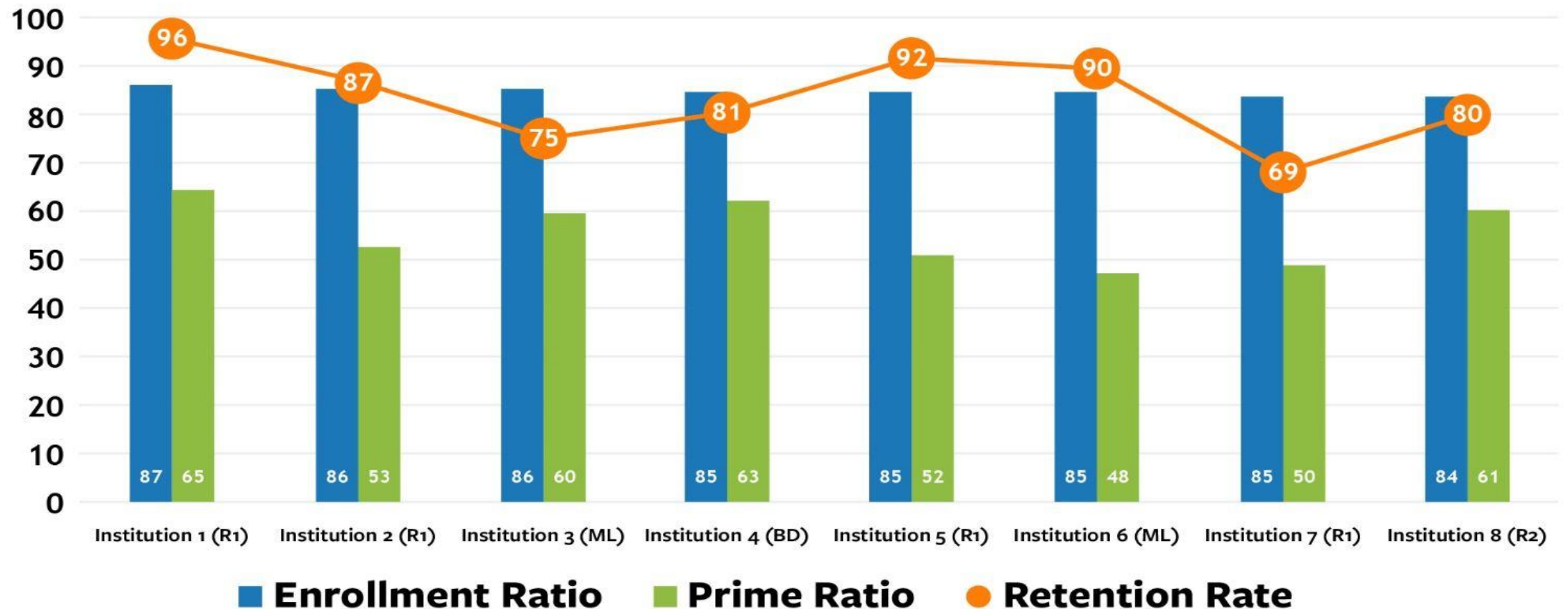
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# Retention

## Prime Time Ratio



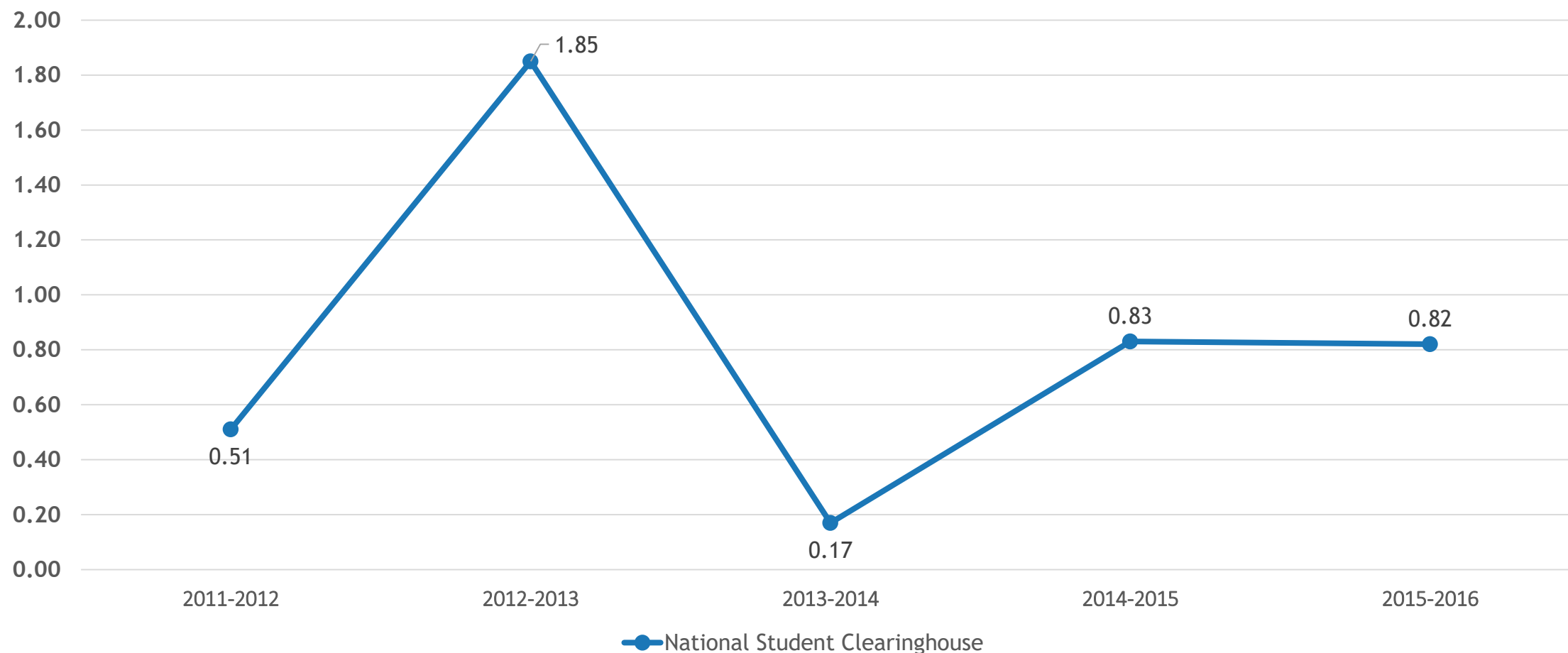
## HESI Enrollment Ratio, Prime Ratio, Retention Rates by Institution, 2013-2014





## Percent Change in Fall-to-Fall Retention, 2011 - 2016

National Student Clearinghouse - Retention Rate, 2011 - 2016





# What helps retain more students?

Selectivity

**+.580**

SAT Math

Course Times

**+.132**

Prime Ratio

Course Utilization

**-.144**

Underutilized Courses

Momentum

**+.184**

Student Credit Hours

# Momentum Year Setup

Momentum Year Settings

Home Calendars Analytics Academics Events Reporting Settings sysadmin ?

Save Save and Close Cancel

### Momentum Year Settings

The following settings will be used by Student Progress Analysis when calculating Momentum Year progress for students.

#### English Gateway Requirement

☒ Select a Course

☐ Select a Course Group

#### Math Gateway Requirement

☒ Select a Course

☐ Select a Course Group

#### Pathway Progress

Pathway Progress Goal (hrs):

Select Course Group:

☒ Use Students' Pathways (if available)

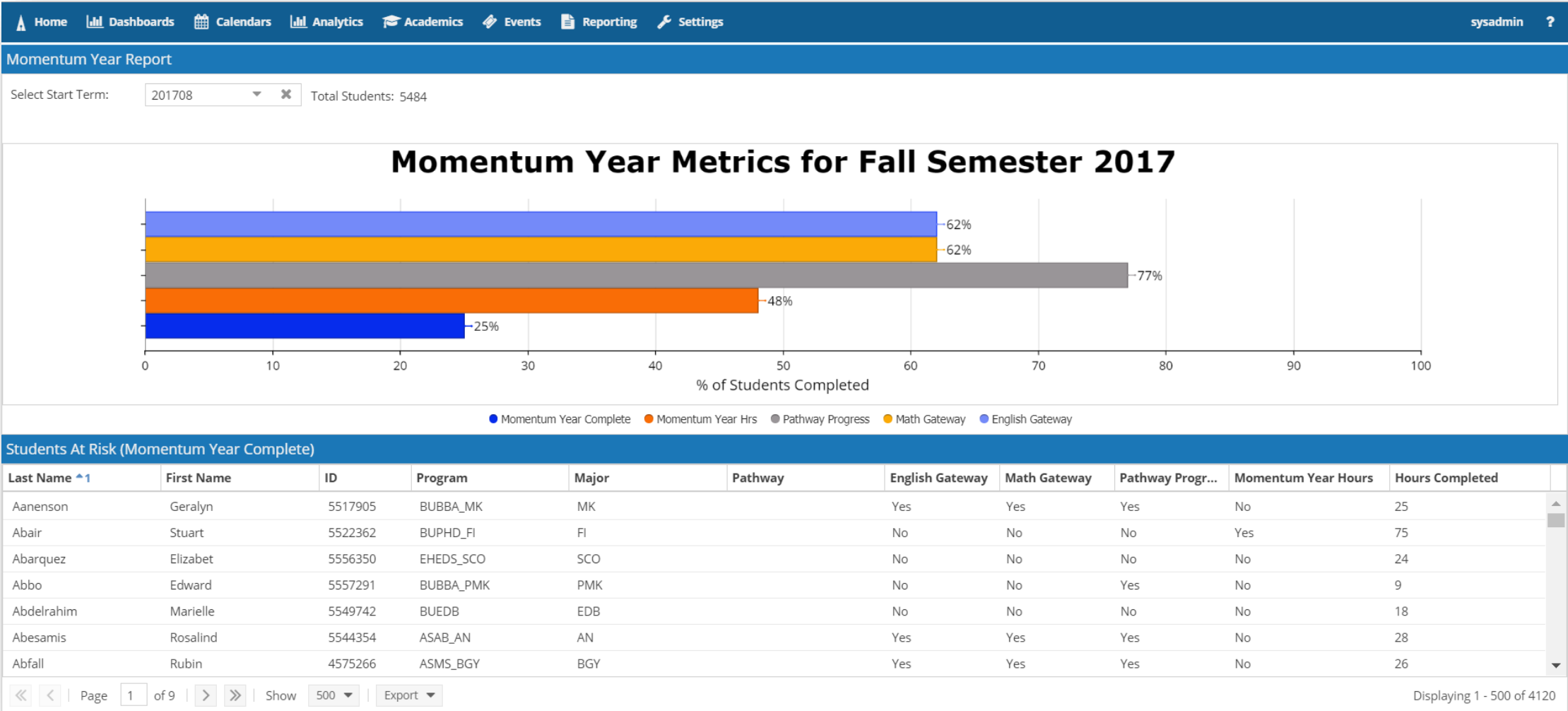
#### Momentum Year Hours

Momentum Year Goal (hrs):

☐ Apply transfer courses toward momentum hours



# Momentum Year Results



# Student Progress Analysis

Student Plan: Brumagen, Winter (276191)

## Profile

Student Name:	Brumagen, Winter	ID:	276191
Program of Study:	U1BS_CHEM:CHEM:CHEB	Campus:	Main
Pathway:	BS Chemical Sciences Biologica	Availability:	
Major:	CHEM - Chemical Sciences	Load:	Full Time 16
Catalog Term:	201730		

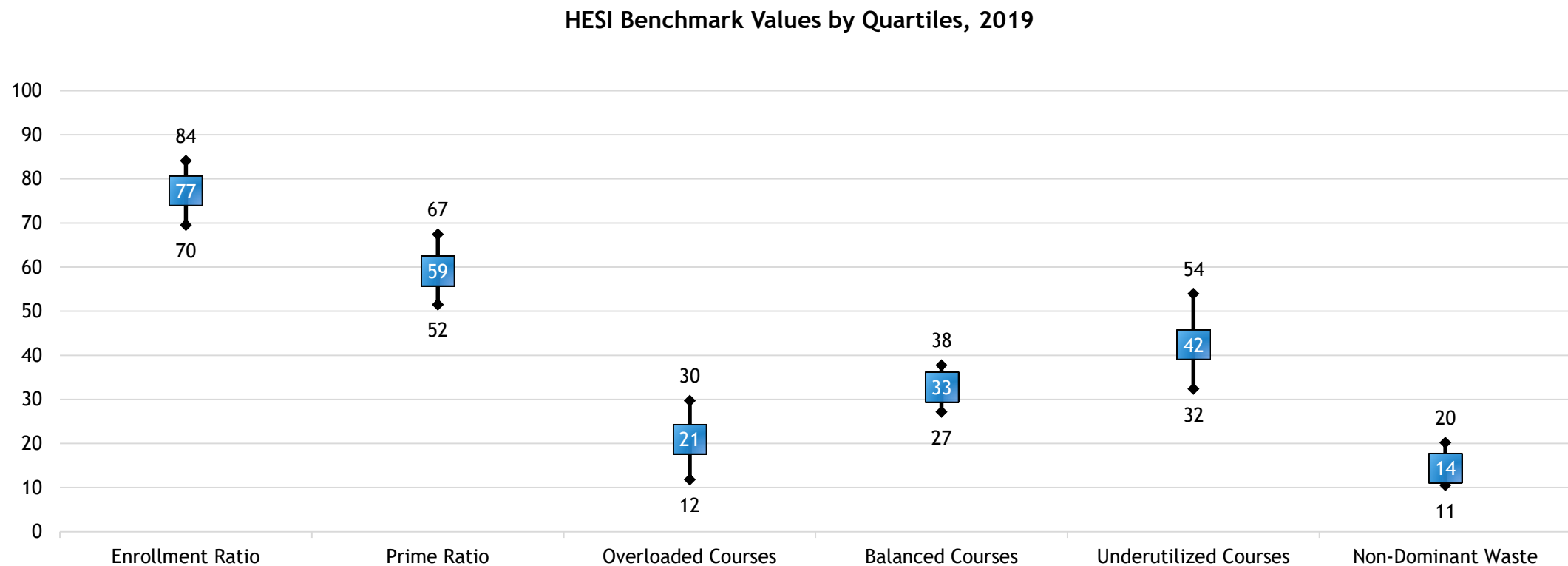
## Plan Summary

Required Credits:	116	Remaining Credits:	98
Completed Credits:	26	Terms Remaining:	6
Applied Credits:	15	Progress Status:	Off Schedule
In Progress Credits:	17		

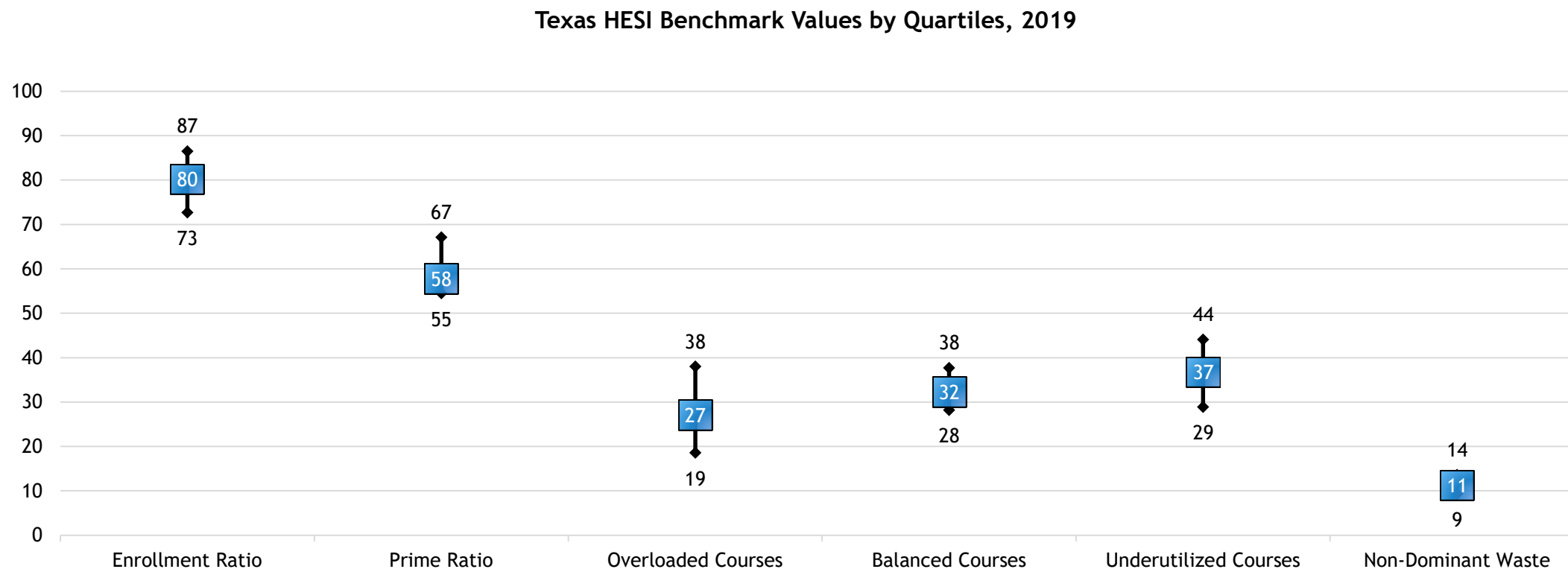
Term	Sequence <span>2</span>	Course	Group	Title	Credits	Type	Status	On Time
Term: 201720								
201720		MATH 005		Preparatory Calculus	4	Unprodu...	Complete...	
201720		WRI 001		Academic Writing	4	Unprodu...	Complete...	
201720	18	USTU 010	WritingElective	Intro to Undergraduate S...	1	Option	Complete...	Early
Term: 201730								
201730		CHEM 001			3	Unprodu...	In Progress	
201730	1	WRI 010			4	Required	In Progress	Late
201730	2	MATH 021			4	Required	In Progress	Late

Close

# HESI Benchmarks Box and Whisker Plot, 2019



# Texas HESI Benchmarks Box and Whisker Plot, 2019



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# Time-to-Completion and Graduation

# Off Grid Waste

	M	T	W	R	F
9:00 AM	WASTE		WASTE		WASTE
10:00 AM					
	WASTE		WASTE		WASTE

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# Waste Matters

Off Grid Scheduling

-.194%

Six-Year Graduation Rate  
(All Four-Year)

Off Grid Waste

-.189%

Six-Year Graduation Rate  
(All Four-Year)

Off Grid Scheduling

-.387%

Six-Year Graduation Rate  
(Carnegie: Master's)



- **Location:** Lexington, Kentucky
- **Founded:** 1865
- **Control:** Four-year Public
- **Carnegie Basic:** Doctoral: Highest Research Activity (R1)
- **Enrollment:** 30,473 Students
- **Student/Faculty Ratio:** 17:1



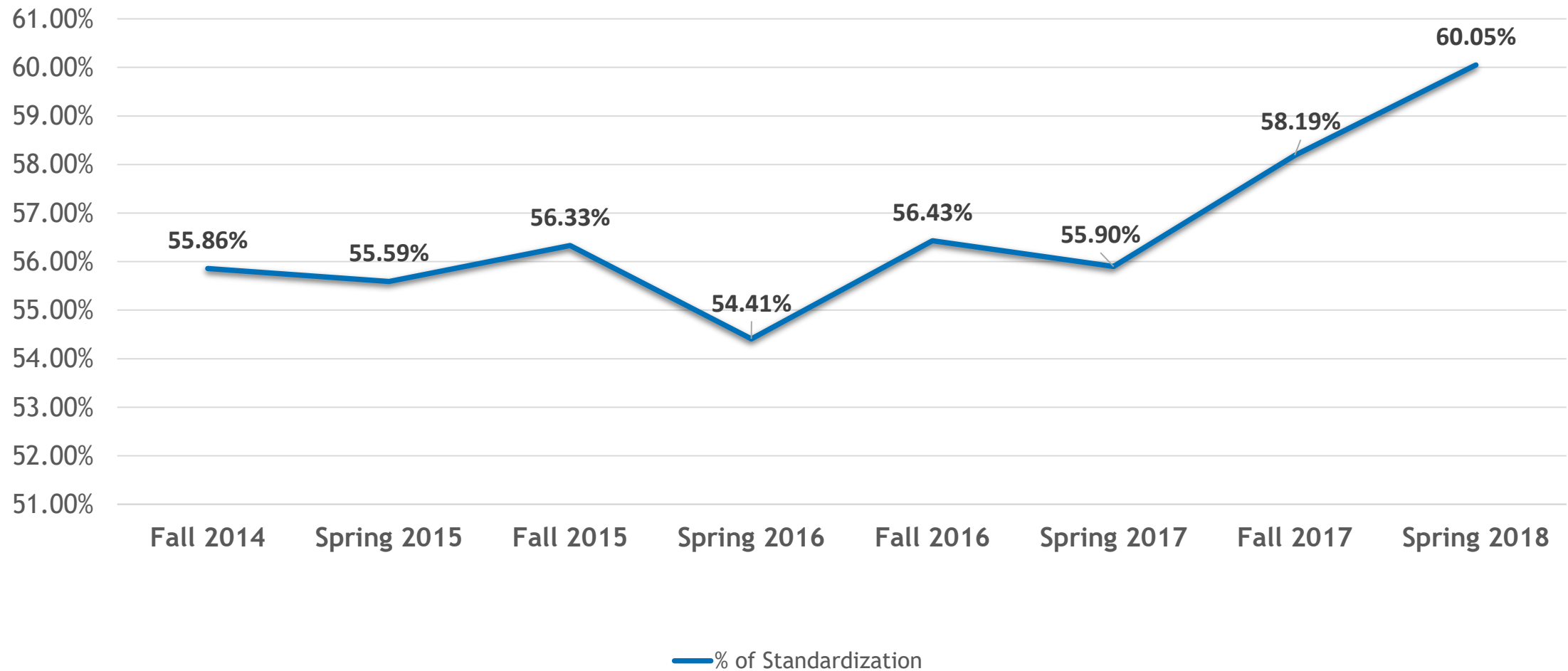


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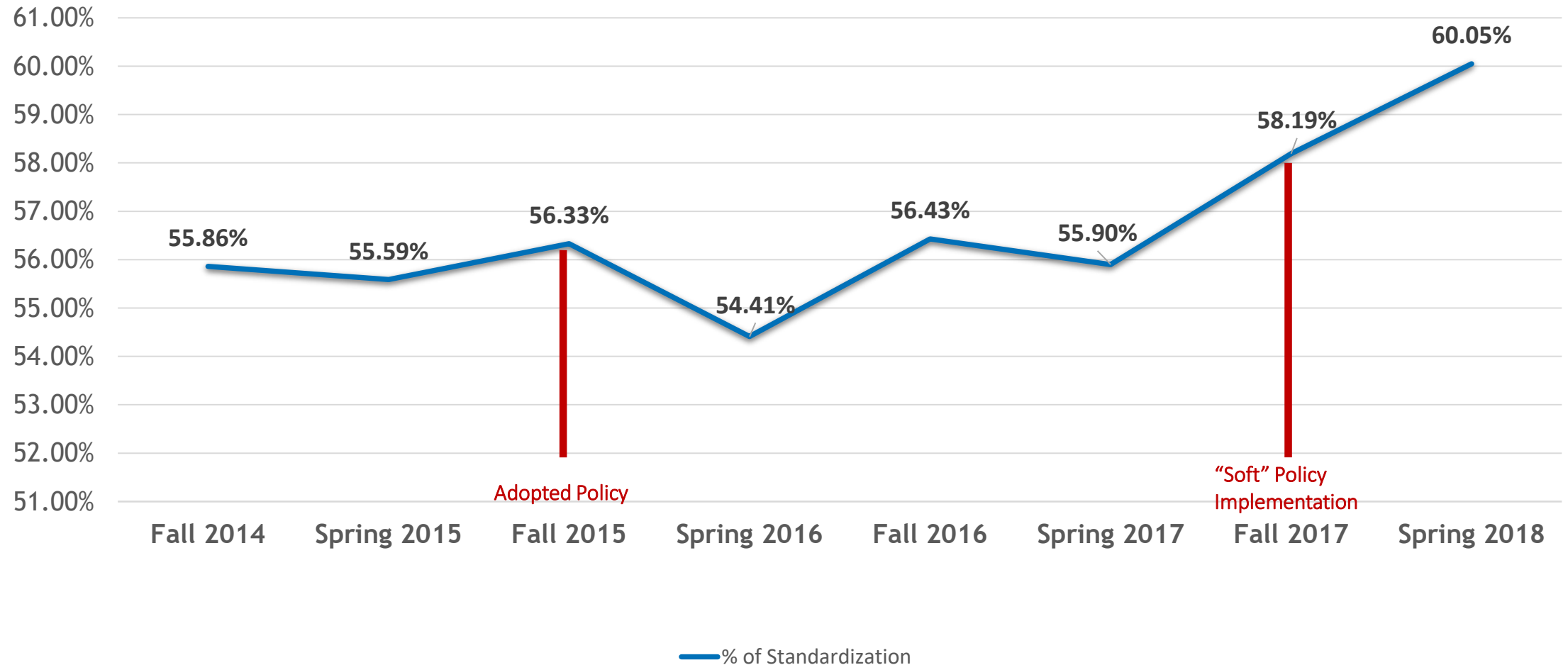
# Institutional Policymaking to Create Change

- Engaged faculty, chairs, deans, enrollment management, registrars, and faculty committee to create rule for standardized meeting patterns.
- Created definition of *standardized meeting pattern* and *specified meeting times*.
- Created prioritization hierarchy for conflict meeting pattern resolution:
  1. High Enrollment in Course (v. Low-Enrolled)
  2. Undergraduate (v. Graduate)
  3. Required (v. Elective)
  4. Lower Level (v. Upper Level)

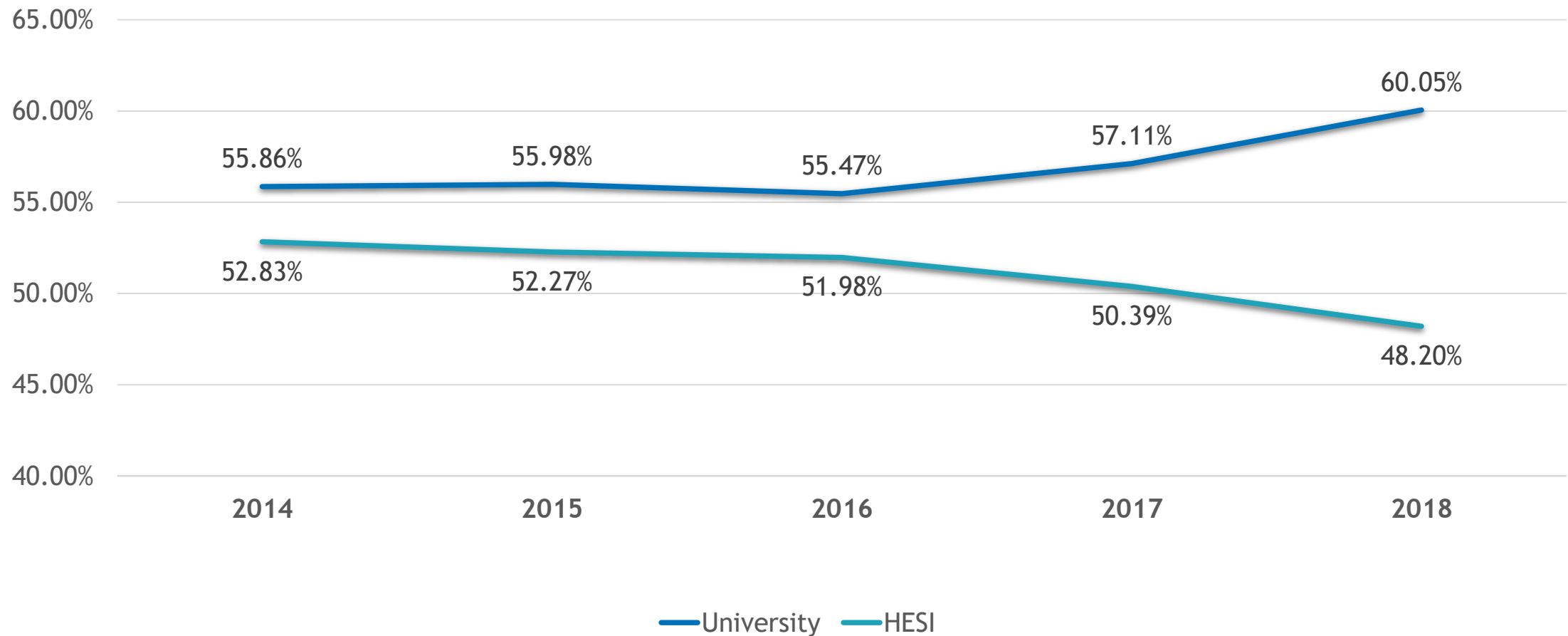
## Percent of Courses on Standard Meeting Pattern



## Percent of Courses on Standard Meeting Pattern



## Percent of Courses on Standard Meeting Pattern: University relative to HESI Research 1 Peers

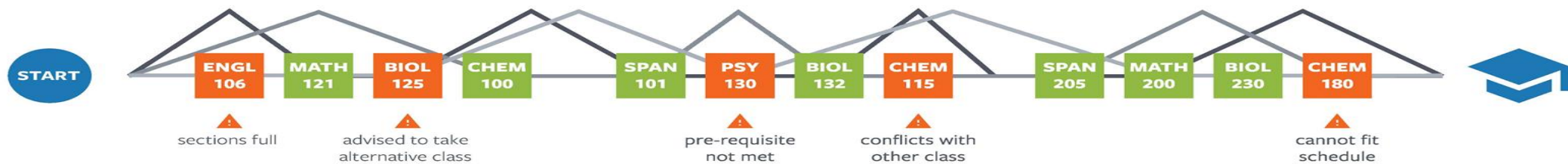


# Pathway Progress

Example: On Path Student



Example: Off Path Student



# Thomas Nelson Community College



- **Location:** Hampton, Virginia
- **Founded:** 1968
- **Control:** Two-Year Public
- **Carnegie Basic:** Associate's: Mixed Transfer/Career & Technical-Mixed Traditional/Non-Traditional
- **Enrollment:** 8,286 Students
- **Student/Faculty Ratio:** 21:1



# Thomas Nelson Community College

Degree Velocity

47.07%

Time To Degree (Years)

4.25

Total Velocity

58.45%

Credits Per Year

17.54

Productive Credits Per Year

14.12

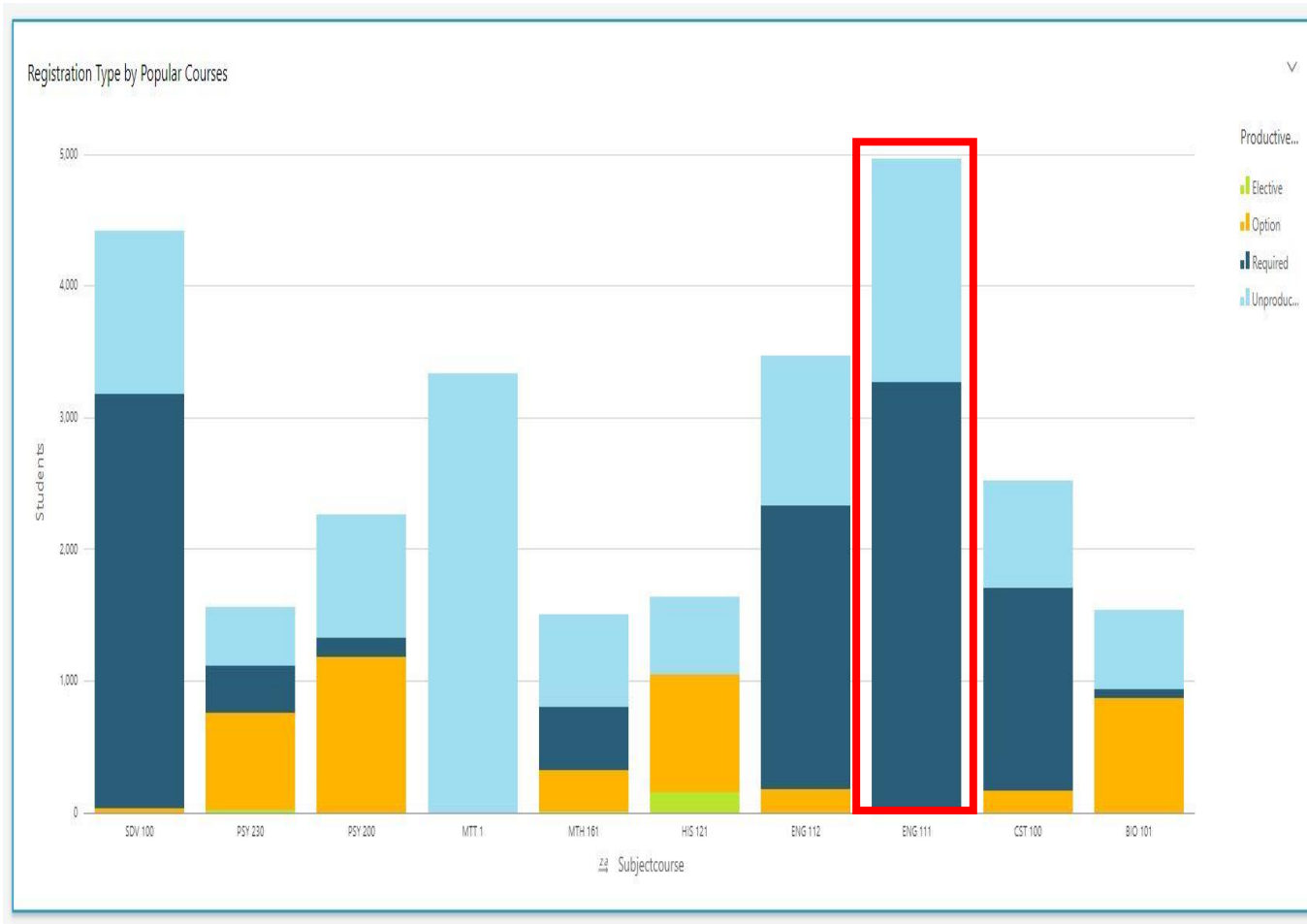
Productive Ratio

80.53%

Credits To Complete

74.51

# Credit Activity by Course



- **English 111 - College Composition I** generated a total of 4,957 potential credit hours.
- However, 1,693 (34 percent) were not applied.
- Reducing unproductive credits is one of the best ways to improve time-to-completion.



# Comparing Institutional and Select G3 Pathways

Metric	Thomas Nelson	Nursing	HVAC	Cybersecurity Enterprise	Cybersecurity Local Network
Degree Velocity	47.07%	35.75%	39.72%	33.77%	36.66%
Time-to-Degree (Years)	4.25	5.59	5.04	5.92	5.46
Average Credits Per Year	17.54	20.55	17.92	14.13	11.00
Productive Credits Per Year	14.12	10.73	11.92	10.13	11.00
Average Credits to Complete	74.51	114.99	90.21	83.67	60.00

# Strategic Scheduling Team



- SST consists of 6-10 “change agent” members
- Provost/VP of Academics Office
- Representatives from Academic Units (Dean, Department Chair)
- Central Scheduling/Registrar
- IT, Facilities, Business Office, IR

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# Strategic Scheduling Team

- TNCC utilized a Strategic Scheduling Team (SST) to better assure the academic schedule is **effective, efficient**, and most importantly, **optimally serving our students**.
- The team analyzed comprehensive data points around our academic schedule and provide insights, progress and recommendations to all academic leadership involved with developing the schedule.

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# College-Career Pathways



95%

of Chief Academic Officers rate their institution as very/somewhat effective at preparing students for work

11%

of business leaders strongly agree that graduating students have the skills their businesses need

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# Kennesaw State University

- Location: Kennesaw, Georgia
- Founded: 1963
- Control: Four-Year Public
- Carnegie Basic: Doctoral: High Research Activity (R2)
- Enrollment: 35,846 Students
- Student/Faculty Ratio: 21:1



KENNESAW STATE  
UNIVERSITY

# Kennesaw State University Dashboard

Degree Velocity

72.73%

Time To Degree (Years)

5.50

Total Velocity

80.49%

Credits Per Year

24.15

Productive Credits Per Year

21.82

Productive Ratio

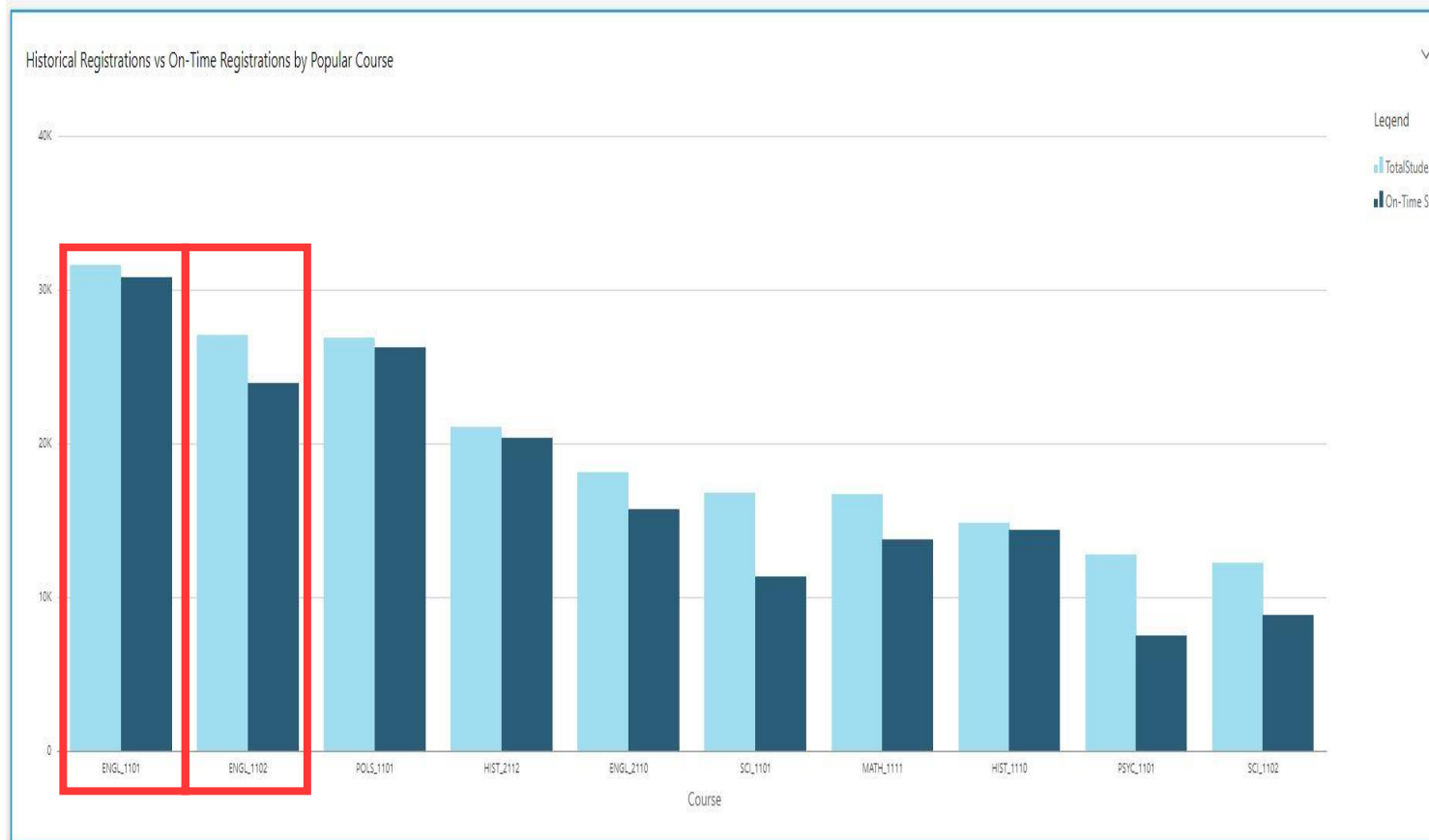
90.35%

Credits To Complete

132.82



# General Education Constraints Negatively Affect On-Time Graduation

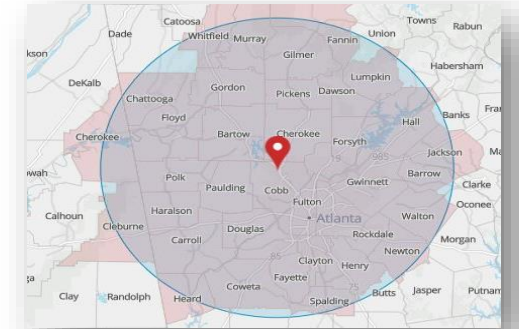


- English 1101 - Composition I (99% Enrollment Ratio) is a General Education requirement, but only 30,707 credit hours (49%) are taken by students on-time.
- English 1102 - Composition II (97% Enrollment Ratio) has English 1101 as a pre-requisite, and only 23,895 (47%) are taken by students on-time.
- The English 1101 and 1102 delay is a compounding problem that negatively affects other General Education and program requirements.



# Kennesaw State University

- Kennesaw State University was among the first data science and analytics programs in the world, and the first to be female led.
- Focusing on applied statistical skills and working directly with non-academic organizations led to an innovative curriculum that outperformed other programs in employment outcomes.
- Do specific certifications change labor market outcomes?



# Atlanta (GA) - Top Hard Skills Without and With Skill Filters

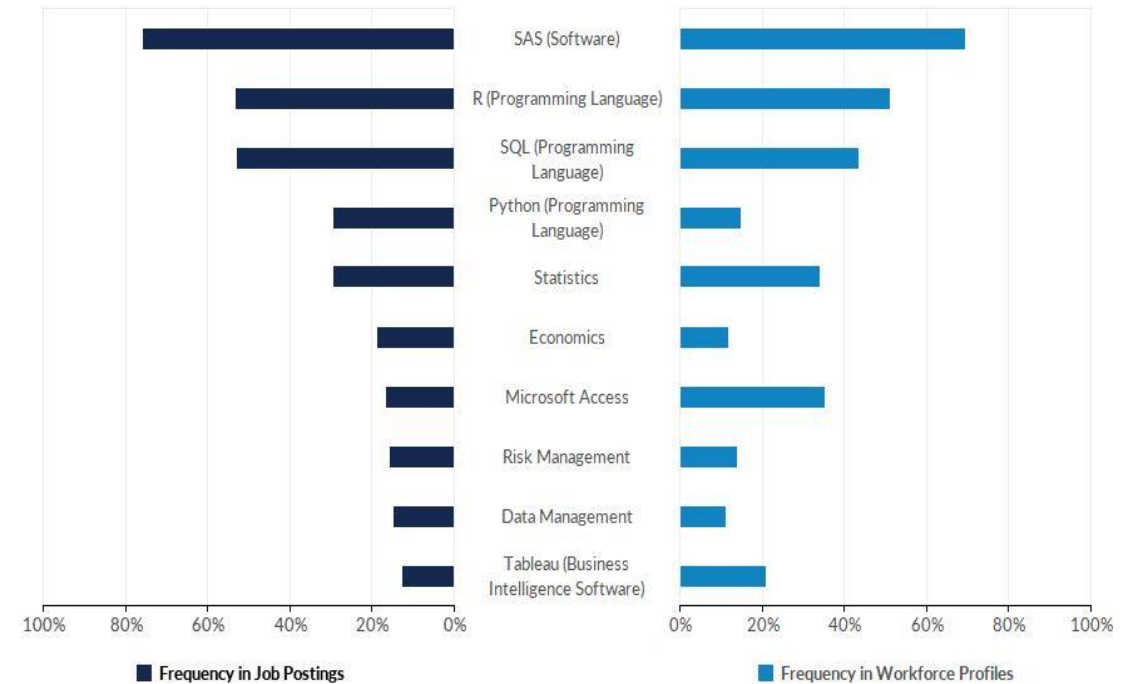
## Without R and SAS Filter

Top Hard Skills



## With R and SAS Filter

Top Hard Skills



# Atlanta (GA) Job Postings - Applied Statistics and Finance

## Without R and SAS Filter

Top Companies Posting

Company	Total/Unique (Feb 2018 - Feb 2019)	Posting Intensity	Median Posting Duration
Anthem, Inc.	3,477 / 776	4 : 1	24 days
Middle Georgia Employer Committee	1,917 / 716	3 : 1	39 days
The Home Depot Inc	3,914 / 566	7 : 1	42 days
Deloitte LLP	5,585 / 473	12 : 1	41 days
International Business Machines Corporation	1,500 / 315	5 : 1	52 days
SunTrust Banks, Inc.	1,904 / 292	7 : 1	50 days
Fiserv, Inc.	1,160 / 269	4 : 1	32 days
Comcast Corporation	2,962 / 252	12 : 1	7 days
Emory University	942 / 237	4 : 1	57 days
Robert Half International Inc.	1,907 / 227	8 : 1	38 days
RANDSTAD HOLDING nv	1,753 / 195	9 : 1	34 days
ACCENTURE, INC.	1,226 / 193	6 : 1	42 days
Virtual Vocations	256 / 190	1 : 1	9 days
CAP GEMINI	1,524 / 184	8 : 1	48 days
U.S. Bancorp	966 / 156	6 : 1	32 days
Kforce Inc.	1,008 / 143	7 : 1	22 days
Oracle Corporation	666 / 141	5 : 1	53 days
Cox Enterprises, Inc.	1,277 / 138	9 : 1	30 days
NCR Corporation	455 / 133	3 : 1	37 days
Delta Air Lines	996 / 132	8 : 1	30 days

## With R and SAS Filter

Top Companies Posting

Company	Total/Unique (Feb 2018 - Feb 2019)	Posting Intensity	Median Posting Duration
Bank of America Corporation	1,107 / 67	17 : 1	89 days
Anthem, Inc.	240 / 43	6 : 1	24 days
Unitedhealth Group Incorporated	97 / 22	4 : 1	41 days
Middle Georgia Employer Committee	29 / 19	2 : 1	32 days
Emory University	101 / 18	6 : 1	90 days
Fiserv, Inc.	83 / 17	5 : 1	36 days
Delta Air Lines	125 / 16	8 : 1	19 days
Aetna Inc.	93 / 15	6 : 1	45 days
International Business Machines Corporation	59 / 15	4 : 1	92 days
Synchrony Financial	220 / 14	16 : 1	67 days
Newell Brands Inc.	65 / 13	5 : 1	94 days
IQVIA	72 / 12	6 : 1	55 days
The Coca-Cola Company	52 / 12	4 : 1	38 days
U.S. Bancorp	64 / 11	6 : 1	32 days
SunTrust Banks, Inc.	43 / 10	4 : 1	41 days
Ihrc, Incorporated	40 / 9	4 : 1	57 days
Lexisnexis	50 / 9	6 : 1	54 days
Costar Group, Inc.	82 / 8	10 : 1	71 days

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# Oakland University

- **Location:** Rochester Hills, Michigan
- **Founded:** 1957
- **Control:** Four-Year Public
- **Carnegie Basic:** Doctoral: High Research Activity (R2)
- **Enrollment:** 19,333 Students
- **Student/Faculty Ratio:** 20:1



# Oakland University - Course Scheduling Metrics

Metric	Oakland University	Management Information Systems
Enrollment Ratio	59%	66%
Overloaded	16%	21%
Balanced	24%	28%
Underutilized	58%	51%
Undefined	2%	0%

# Oakland University - MIS - Detroit Market Share

## Program Overview

Management Information Systems, General

[Add to My Reports](#)[Export](#)

### Program Overview



	Completions (2017)	% Completions	Institutions (2017)	% Institutions
All Programs	158	100%	6	100%
Distance Offered Programs	54	34%	1	17%
Non-Distance Offered Programs	104	66%	4	67%

Institution	Completions (2017)	Growth % YOY (2017)	Market Share (2017)
University of Michigan-Dearborn	59	55.3%	37.3%
Wayne State University	54	80.0%	34.2%
Oakland University	27	-20.6%	17.1%
University of Detroit Mercy	14	27.3%	8.9%
Madonna University	4	100.0%	2.5%

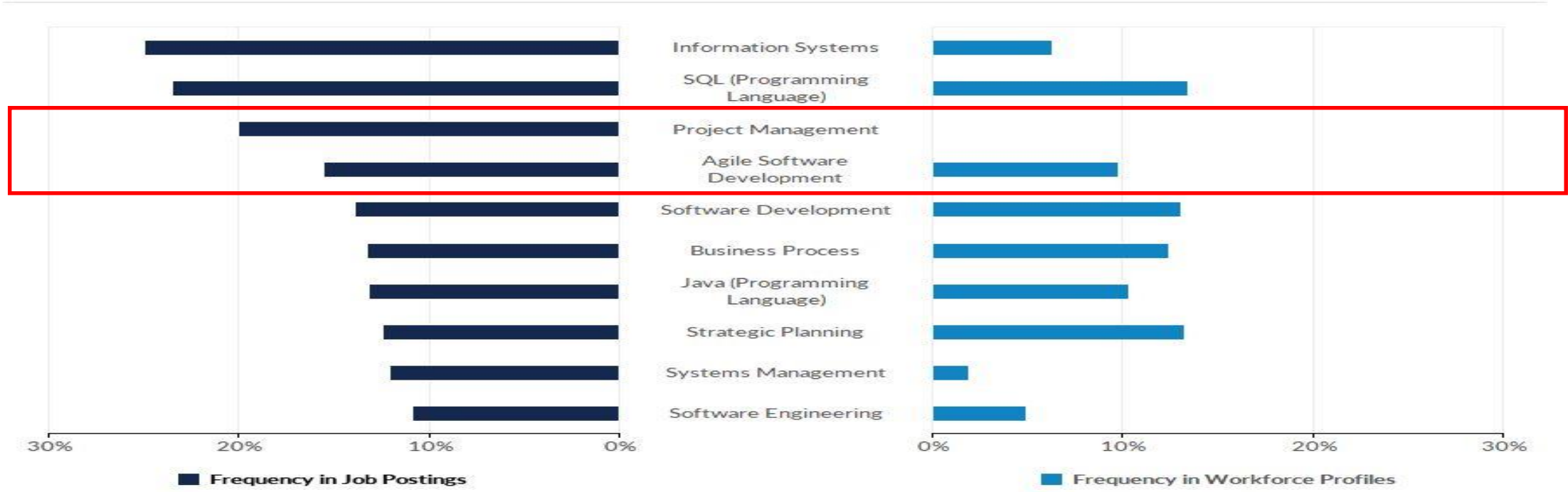
- Sensitizing faculty and department chairs to market share can lead to greater stakeholder engagement and strategic conversations.
- Focusing on the end product (degrees) can lead to CIP code alignment and an increased focus on how to graduate more students faster.
- Degree competition between students can also incentivize faculty, chairs, and deans to real-world challenges of their students.

# Addressing the Detroit (MI) Skills Gap - MIS Analytics Hiring

The following provides insight into the supply and demand of relevant skills by comparing the frequency of skills present in job postings against skills present in today's workforce. Along with Emsi's job posting analytics, this comparison leverages Emsi's dataset of more than 100M online resumé and profiles. All resumé and profiles used in these comparisons have been updated within the last three years.

*\*The skills associated with workforce profiles represent workers of all education and experience levels.*

## Top Hard Skills





# Building Academic-Commercial Connections

Top Companies Posting

Company	Total/Unique (Feb 2018 - Feb 2019)	Posting Intensity	Median Posting Duration
Oracle Corporation	925 / 181	5 : 1	43 days
Deloitte LLP	861 / 143	6 : 1	67 days
ACCENTURE, INC.	451 / 113	4 : 1	50 days
Renature, Inc.	1,465 / 107	14 : 1	12 days
Anthem, Inc.	394 / 88	4 : 1	27 days
Ally Financial Inc.	161 / 37	4 : 1	39 days
Ford Motor Company	158 / 34	5 : 1	57 days
Henry Ford Health System	141 / 34	4 : 1	61 days
CAP GEMINI	95 / 29	3 : 1	33 days
Siemens AG	184 / 29	6 : 1	49 days
FCA US LLC	223 / 28	8 : 1	65 days
General Motors Company	188 / 28	7 : 1	32 days
Msx International, Inc.	130 / 26	5 : 1	28 days
Ciber, Inc.	232 / 25	9 : 1	32 days
Cybercoders, Inc.	148 / 25	6 : 1	27 days
Comerica Incorporated	152 / 23	7 : 1	47 days
Virtual Vocations	27 / 23	1 : 1	7 days
Ernst & Young LLP	156 / 22	7 : 1	35 days
Pricewaterhousecoopers LLP	295 / 21	14 : 1	63 days
Avanade Inc.	368 / 20	18 : 1	59 days

- Chrysler (FCA USA) was having such difficulty hiring students in the Detroit region (6:1; 65 Days), they turned to Deloitte, who fared worse (6:1; 67 Days).
- Working directly with faculty can help Chrysler and Oakland University better align academic-commercial connections.
- Academic and commercial interests have a better understanding of how to align skills and continue learning across the lifespan (FCA mentoring).



# Resources and Ways to Stay Engaged



- [Free SAS for Faculty, Students, and Learners](#)



- [Bending the Curve and Customized Research Solutions](#)



- [Astra Academy](#)



- [Attend Aspire Conference - October 13 - 16 - Kansas City, MO](#)

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## Steps You Can Take at Your Institution

### Process

1. Integrate course scheduling into strategic planning initiatives.
2. Create metrics and use data to align to planning initiatives.
3. Engage diverse stakeholders.
4. Remain accountable for progress.
5. Focus on continuous improvement.

### Example: First-Year Retention

1. Align with first-year retention.
2. Provide 15-hour productive accessibility to all full-time first-year students and align with demographic profile.
3. Engage provost, deans, faculty, enrollment management, advisors.
4. Measure first-year retention rate (and subgroups).
5. Build on first-year improvement and focus on second-year experience.

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## Steps You Can Take at Your Institution

- What information does your (*superior*) need to move forward with this initiative?
- Year: Graduate More Students Faster
- Month: Reduce Off-Grid Waste
- Week: Build Standardized Meeting Patterns

# Addressing Your Questions and Comments