EAB | Academic Performance Solutions

A First Look at APS Cost Benchmarks

Examining Drivers of Instructional Cost

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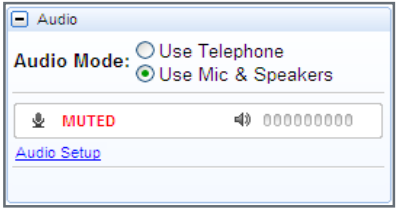

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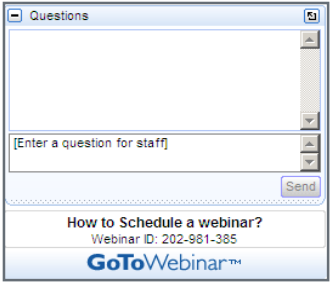

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Today's Speaker

Chetan Rao
Managing Director

Resources and Contact

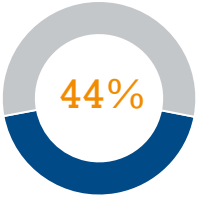
- The *Benchmarking Report on Costs* is available on EAB.com
- Contact the APS team at APS@eab.com

Academic Costs: A Bulk of Institutional Spending

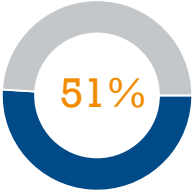
Academic Costs Amount to Nearly Half of Total Institution Expenses

Academic Costs as a Percentage of Total Expenses at Public and Private Institutions[1], 2015

Public Institutions



Private Institutions



A Multitude of Decisions and Decision-Makers

President, Provost, and CBO

Implementing the Strategic Plan

"Do we need to add a new faculty line to Biology?"

"How can we avoid across the board budget cuts?"

College Deans

Managing the Program Portfolio

"Do we have enough student demand to start a Data Science program?"

"Why aren't my students graduating in four years?"

Department Chairs

Making Hundreds of "Micro-Decisions" Every Term

"Do we have enough capacity to grant this course release?"

"Can I increase seats in this lecture without reducing student outcomes?"

1) Chronicle of Higher Education analysis of U.S. Department of Education data on colleges revenue and expenditures in 2015.

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS); Academic Performance Solutions data and analysis.

Yet Barriers to Optimal Resource Allocation Persist

Incomplete, Inaccurate Data

Lack of usable department cost data prevents objectivity and makes it difficult to evaluate the return on investments

Lack of Unit-level Incentives

Successful efficiency efforts are rarely rewarded because many departments that use fewer resources often receive fewer resources in the future

Ad Hoc Allocation Processes

Resource allocation depends more on historical precedent than on rewarding performance or enabling growth in response to student demand

Unclear Reallocation Options

Highly specialized departmental resources cannot easily be repurposed in reaction to rapid changes in student demand

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

1 Introducing the APS Cost Benchmarks

2 Quantifying Drivers of Instructional Cost

3 Leveraging APS to Determine Reallocation Opportunities

Reviewing APS Benchmarking Methodology

Standardized Departments Created for Apples-to-Apples Comparison

Creating the Dataset

- ✓ Developed standardized data dictionary
- ✓ Transformed each member's data into comparable data points

Key Calculations

» **Total Costs**

- Aggregate-level costs
- Often used for budgeting purposes

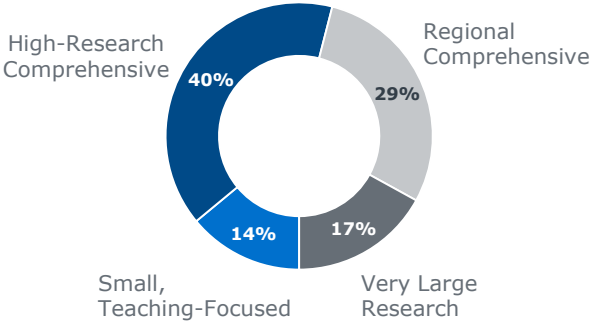
» **Costs per SCH**

- Total costs divided by attempted student credit hours
- Used for benchmarking purposes and to uncover resource utilization efficiencies

APS Benchmarking Collaborative

AY 2015

n=35



Source: Academic Performance Solutions data and analysis.

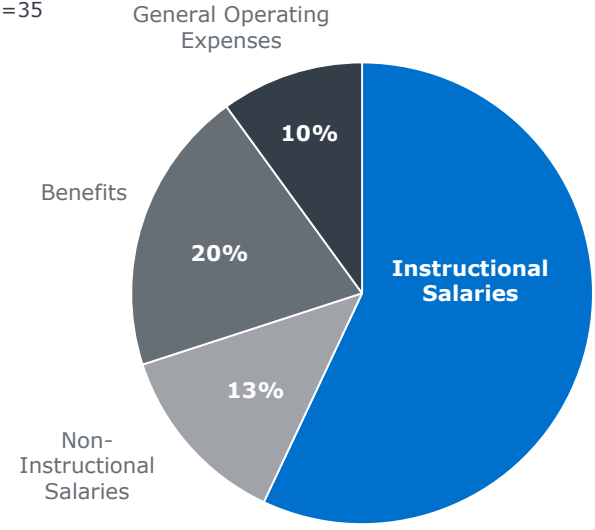
Higher Education's Greatest Investment? Faculty

More Than Half of Costs From Instructor Salaries

Distribution of Departmental Direct Costs by Category, Across the APS Collaborative

AY 2015

n=35



57%

Department-Level Costs Spent on Instructor Salaries

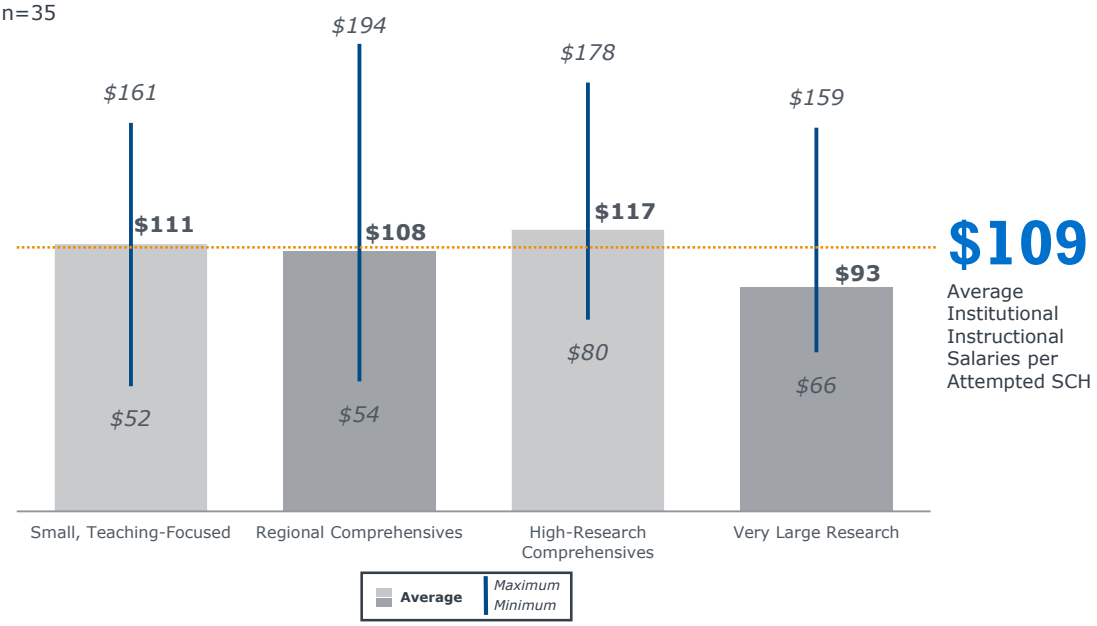
A university's faculty is its greatest asset—and one of its largest investments.

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Instructional Salaries Vary By Cohort

Instructional Salaries Across the APS Collaborative

Average, Minimum, and Maximum Institutional Instructional Salaries per Attempted Student Credit Hours by Cohort[1], AY 2015



$109

Average Institutional Instructional Salaries per Attempted SCH

1) Includes all undergraduate and graduate attempted student credit hours and total instructional salaries.

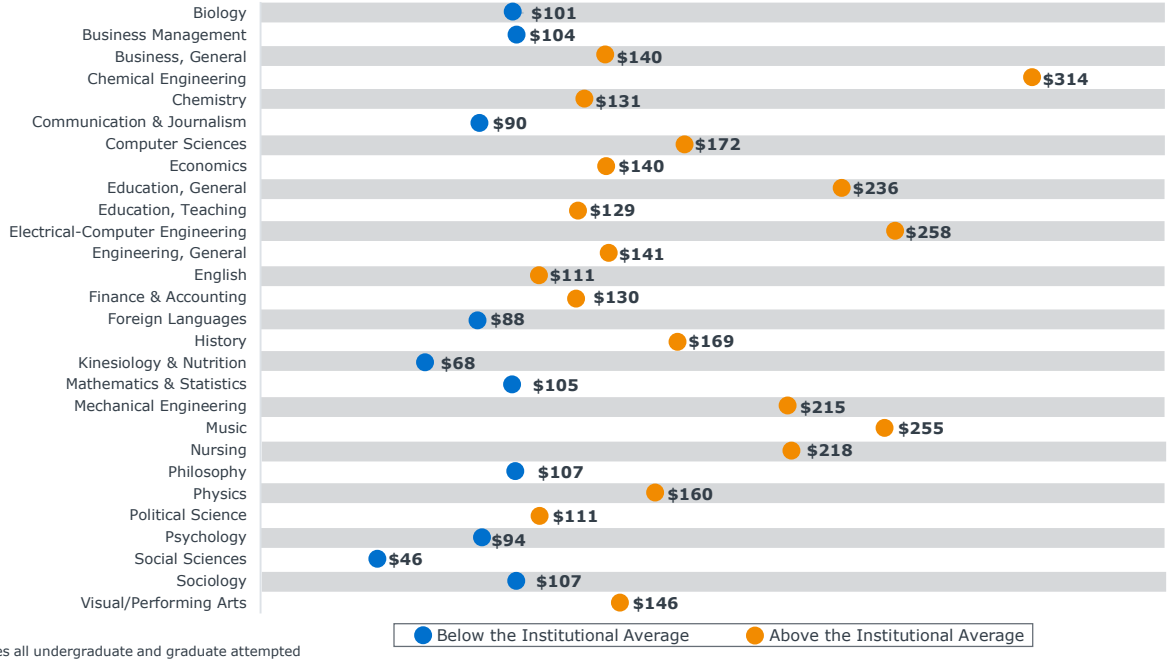
Source: Academic Performance Solutions data and analysis.

Discipline-Level Benchmarks Lend Greater Visibility

Departmental Differences in Instructional Salaries, Sample List

Average Instructional Salaries per Attempted Student Credit Hours[1], AY 2015

n=35



1) Includes all undergraduate and graduate attempted student credit hours and total instructional salaries.

Source: Academic Performance Solutions data and analysis.

How Do Your Departments Stack Up?

A Tale of Two Departments

Instructional Salaries per Attempted Student Credit Hours[1] at High-Research Comprehensive Institution, AY 2015

Sociology

$102
Instructional Salaries per Attempted SCH

$28
Lower than Department Benchmark

Political Science

$127
Instructional Salaries per Attempted SCH

$11
Higher than Department Benchmark

What factors are driving the difference between current performance and the benchmark?

1) Includes all undergraduate and graduate attempted student credit hours and total instructional salaries.

Source: Academic Performance Solutions data and analysis.

1 Introducing the APS Cost Benchmarks

2 **Quantifying Drivers of Instructional Cost**

3 Leveraging APS to Determine Reallocation Opportunities

Inflecting Instructional Cost Per SCH

Considering Ease and Impact of Changes Required

Two Levers to Reduce Instructional Salary Costs per SCH

Change instructor salaries

Often fraught process, is influenced by discipline, geography, union presence and political atmosphere

Redeploy instructional resources

Academic leaders have ability to determine action steps on opportunities surfaced

Source: Academic Performance Solutions data and analysis.

Defining Optimal Instructional Capacity…

…To Set Realistic Goals Based on Benchmarks

Maximum Theoretical Capacity

SCH created if…

All students have a **100% completion rate** in every course

+

All sections have a **fill rate of 100%**

+

Tenure/tenure-track faculty teach a minimum of **6 sections** and non-tenure track faculty a minimum of **3 sections**

Optimal Capacity

SCH created if…

All students earn the **75th percentile completion rate**[2] of their institution's cohort in every course

+

All sections have a minimum **fill rate of 85%**

+

Tenured/tenure-track and non-tenured faculty each teach at least the **75th percentile course load**[1] of their institution's cohort

1) 75th percentile faculty course load: High-Research Comprehensives (Tenured/tenured-track: 5; Non-tenure track: 3), Regional Comprehensives (Tenured/tenured-track: 7, Non-tenure track: 5), Small Teaching-Focused (Tenured/tenured-track: 7, Non-tenure track: 4), and Very Large Research (Tenured/tenured-track: 4, Non-tenure track: 3).
2) 75th percentile completion rates: High-Research Comprehensives (93%), Regional Comprehensives (93%), Small Teaching-Focused (97%), and Very Large Research (94%).

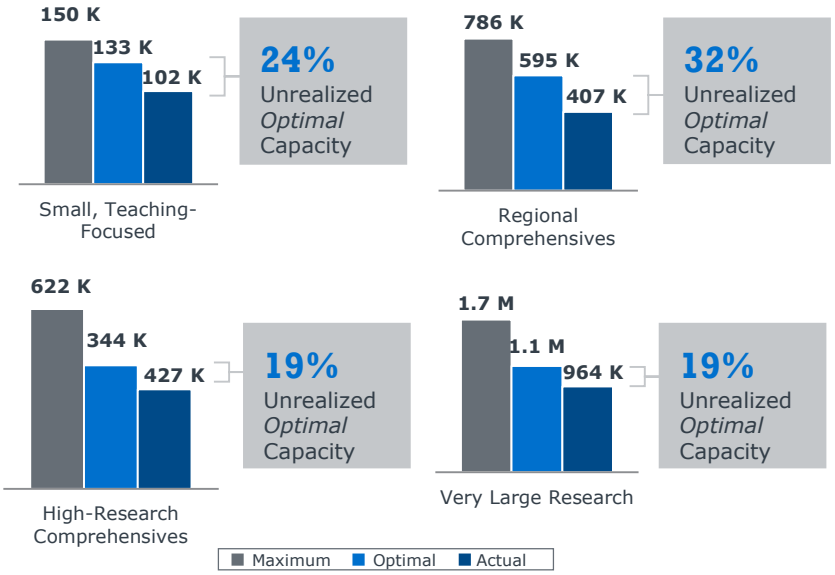
Source: Academic Performance Solutions data and analysis.

Teaching Capacity Left on the Table

Not Realizing Full Instructional Potential

Comparing Actual Credit Hours Produced to Average Maximum Theoretical and Optimal Capacity, by Cohort

Fall 2014 and Spring 2015



APS Collaborative

25%

Unrealized *Optimal* Capacity

$400M

Instructional Salaries That Could Be Reallocated

Source: Academic Performance Solutions data and analysis.

Quantifying the Drivers of Instructional Cost

Three Approaches to Recovering Costs

The Difference Between Optimal and Actual	Three Approaches to Closing the Gap
22% **Unproductive Credits** Credits are lost due to failing grades and student withdrawals from courses	1 Improve course completion rates
25% **Underfilled Sections** Institutions commonly offer more sections than needed to meet student demand	2 Right-size section offerings
52% **Instructional Load** Full-time faculty often teach less than the standard course load	3 Balance faculty course loads

Source: Academic Performance Solutions data and analysis.

Improving Course Completion

Three Avenues of Discovery Help Pinpoint Improvement Opportunities

1 Courses with High Unproductive Credits

APS analysis shows 35% of unproductive credits occur in only 1% of courses

2 Number of Repeats

Repeats extend time to graduation and increase likelihood of bottlenecks, in addition to using up capacity

3 Section Completion Rate Variability

Courses with high variability in section completion rates by instructor

Outside Influences on Course Completion

Students bring a variety of **previous academic experiences** and skills

Seniors complete at higher rates than first-years, presuming differences in **student level**

Student demographics such as socioeconomic background or status as a first-generation student can influence performance

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Gateway Courses a Likely Suspect

Large Numbers of Credits Lost in Intro-Level Courses

Introductory Courses with High Unproductive Credits

Median Course Completion Rate of Introductory Level Courses and Total Number of Unproductive Credits, AY 2015

n=43

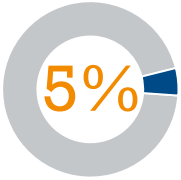
Introductory Level Course	Course Completion Rate	Department Benchmark, Lower Division	% Difference from Department	Number of Unproductive Credits
Intro to Biology	87%	87%	0%	14K
Intro to English	87%	89%	-2%	16K
Calculus I	74%	79%	-5%	22K

Source: Academic Performance Solutions data and analysis.

Repeated Courses Use Up Instructional Resources

A Concentrated Issue Collaborative-Wide

Course Attempts



Percent of course attempts that are repeats

Repeated Courses

85%

of repeats occur in only 5% of courses[1]

Calculus I at Very Large Research Institution

Fall 2014 and Spring 2015

45

Calculus I Sections Offered

1/2

Students Repeat Calculus I

If % Fewer Students Repeated	Then # Fewer Sections Would Be Necessary	Leaving $ Instructional Salaries That Could Be Reallocated[2]
10%	2	$24K
25%	5	$61K

1) APS Collaborative, all cohorts.
2) Reallocated instructional salaries was calculated using National Center for Education Statistics on average faculty salaries at the sample Very Large Research Institution in 2015.

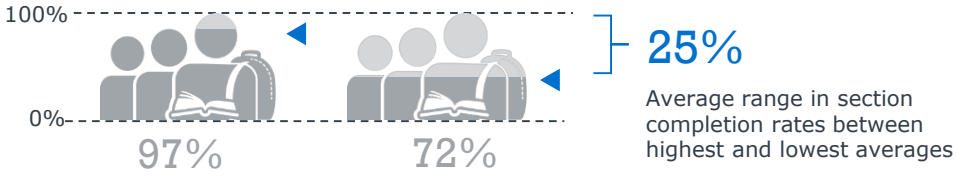
Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Minimizing Section Completion Rate Variability

Range of Section Completion Rate Variability Across the APS Collaborative[1]

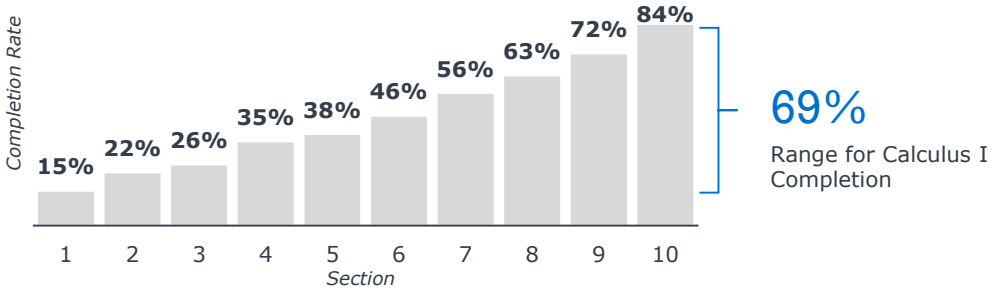
AY 2015

n=191,647 sections



Variation in Calculus I Section Completion Rates

Very Large Research Institution, Fall 2015



1) Methodology: Found the range of completion rate for each course with five or more sections at each school in the collaborative, then took the average in the 2015 academic year.

Source: Academic Performance Solutions data and analysis.

Improving Student Outcomes

UNPRODUCTIVE CREDITS

0101
1100
1111

Analyze the data to…

- ❑ Identify courses with low completion rates and high absolute numbers of unproductive credits
- ❑ Quantify section completion rate variability across low completion courses

Engage faculty to…

- ❑ Determine pedagogical innovations that provide increased support to students

Manage completion rates by…

- ❑ Connecting students to resources
- ❑ Providing instructors with development opportunities

EAB Resources to Support Course Completion

The Course Completion Playbook

APS Benchmarking Data Report on Completion Rates

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Quantifying the Drivers of Instructional Cost

Three Approaches to Recovering Costs

The Difference Between Optimal and Actual

Three Approaches to Closing the Gap

22%

Unproductive Credits

Credits are lost due to failing grades and student withdrawals from courses

→ 1 Improve course completion rates

25%

Underfilled Sections

Institutions commonly offer more sections than needed to meet student demand

→ 2 Right-size section offerings

52%

Instructional Load

Faculty often teach less than the optimal course load

→ 3 Balance faculty course loads

Source: Academic Performance Solutions data and analysis.

Examining Sections Offered

Two Opportunities to Align Supply With Demand

1 Multi-Section Courses

Identifying low-fill rate multi-section courses where some of the sections offered could be collapsed

2 Single Section Courses

Diagnosing the necessity of offering the same single section course during both the fall and spring terms

Source: Academic Performance Solutions data and analysis.

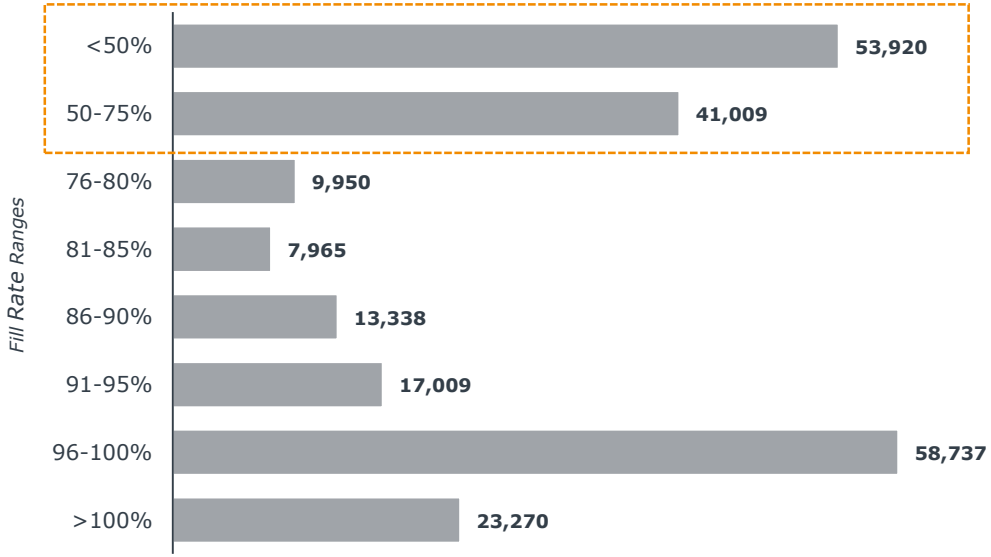
How Full Are Our Courses?

Empty Seats Leave Instructional Resources on the Table

Distribution of Sections[1] by Fill Rate (Ranges)

Fall 2014 and Spring 2015

n=191,647 sections



42%

Sections with fill rate of 75% or less

1) Individual Instruction course types were excluded.

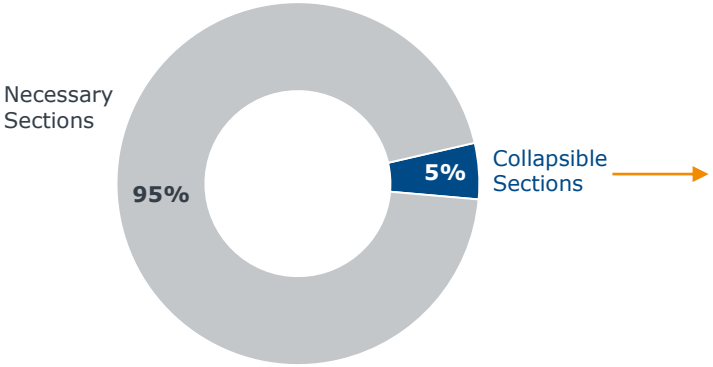
Source: Academic Performance Solutions data and analysis.

Multi-Section Courses Can Often Be Consolidated

Pinpointing Opportunities in Lower Division, Undergraduate Courses

Collapsible Section Opportunities in Undergraduate Courses[1], Collaborative-Wide

Based on an 85% Target Fill Rate, AY 2015



Lower Division Courses Have Largest Opportunity

53%

Collapsible Sections Are Within *Lower Division* Courses

Consolidation Not Always Right Answer

⚠ Some institutions may intentionally offer more sections than needed – perhaps at different times of day or days of the week – to mitigate student progress barriers. Be sure to consider these factors before attempting to consolidate sections.

1) Individualized Instruction course types were excluded.

Source: Academic Performance Solutions data and analysis.

Potential Savings from Section Consolidation

Lower Division Reallocation[1] Opportunities if 25%, 50%, or 75% of Possible Sections[2] Collapsed, Average by Cohort

Based on 85% Target Fill Rate, AY 2015

Small Teaching-Focused

3% Collapsible Sections

25%	50%	75%
$57 K	$115 K	$173 K

High-Research Comprehensive

25%	50%	75%
$278 K	$556 K	$834 K

5% Collapsible Sections

Regional Comprehensive

5% Collapsible Sections

25%	50%	75%
$225 K	$450 K	$676 K

Very-Large Research

25%	50%	75%
$307 K	$618 K	$925 K

4% Collapsible Sections

1) Reallocated instructional salaries was calculated using National Center for Education Statistics on average faculty salaries in 2015.
2) Individualized Instruction course types were excluded.

Source: U.S. Department of Education, National Center for Education Statistics; Academic Performance Solutions data and analysis.

Finding the Opportunities

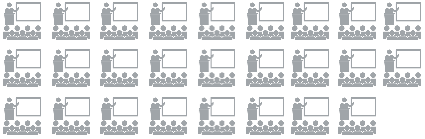
Case in Brief: Identifying Multi-Section Consolidation Opportunities at High-Research Comprehensive

Intermediate Spanish Course Assuming 85% Target Fill Rate, AY 2015

Excess Course Capacity in Intermediate Spanish

26
Sections Offered

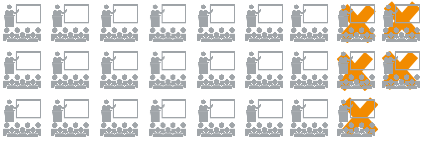
65%
Fill Rate Across Sections



Potential Consolidation and Savings Opportunities

5
Collapsible Sections

81%
Average Fill Rate After Consolidation



$31 K
Instructional Salaries That Could Be Reallocated

Number of collapsible sections multiplied by average instructional salary per section at sample institution[1]

1) Reallocated instructional salaries was calculated using National Center for Education Statistics on average faculty salaries at sample High-Research Comprehensive institution in 2015.

Source: U.S. Department of Education, National Center for Education Statistics; Academic Performance Solutions data and analysis.

A Look at Low Enrollment Single Section Courses

One Third of Single Section Courses are Underfilled

Low-Fill Single Section Courses Often Necessary

Despite low enrollment, some single courses may:

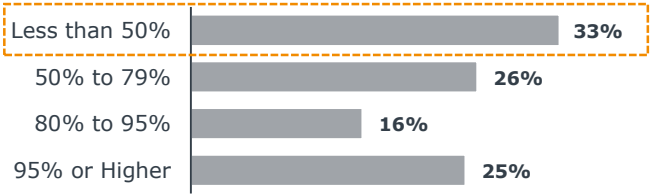
- Satisfy important **major requirements**
- Be an important **pre-requisite** for other courses

…Yet Should Be Frequently Monitored

One third of courses in the APS Collaborative are single section courses, another one third of which are underfilled

Distribution of Single Section Courses[1] by Fill Rate Ranges

Fall 2014 and Spring 2015



1) Individual Instruction course types were excluded.

Source: Academic Performance Solutions data and analysis.

Finding Opportunities in Single Section Courses

Low Fill Rates Persist in Single Section Courses Taught in Both Terms

Reallocation Opportunities by Offering Low Fill Rate Single Section Courses Annually, Instead of by Term[1]

Fall 2014 and Spring 2015

APS Cohort	Average Number of Courses with a Single Section Offered in Fall and Spring	% of Fall and Spring Single Section Courses with Fill Rates Below 50%	Average Instructional Salaries That Can Be Reallocated[2]
Small, Teaching Focused	118	31%	$339 K
Regional Comprehensives	197	19%	$348 K
High-Research Comprehensive	285	27%	$735 K
Very Large Research	337	26%	$810 K

1) Individual Instruction course types were excluded.
2) Reallocated instructional salaries was calculated using National Center for Education Statistics on average faculty salaries in 2015.

Source: U.S. Department of Education, National Center for Education Statistics; Academic Performance Solutions data and analysis.

Taking Action on Course Offerings

Next Steps to Maximize Course Enrollment Capacity

MULTI-SECTION COURSES

Analyze the data to…

- ❑ Identify the multi-section courses with course fill rates under 85%

Engage your faculty to…

- ❑ Determine the necessity of all course sections

Manage multi-section offerings by…

- ❑ Collapsing small or under-utilized sections
- ❑ Redirecting consolidated resources to bottleneck courses

SINGLE SECTION COURSES

Analyze the data to…

- ❑ Identify single section courses with low fill rates that are offered in both the fall and spring

Engage your faculty to…

- ❑ Identify scheduling needs of single section courses

Manage single section courses by…

- ❑ Minimizing low fill rate single section courses across terms
- ❑ Redirecting consolidated resources to bottleneck courses

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Quantifying the Drivers of Instructional Cost

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The Difference Between Optimal and Actual

Three Approaches to Closing the Gap

22%

Unproductive Credits

Credits are lost due to failing grades and student withdrawals from courses

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25%

Underfilled Sections

Institutions commonly offer more sections than needed to meet student demand

→ 2 Right-size section offerings

52%

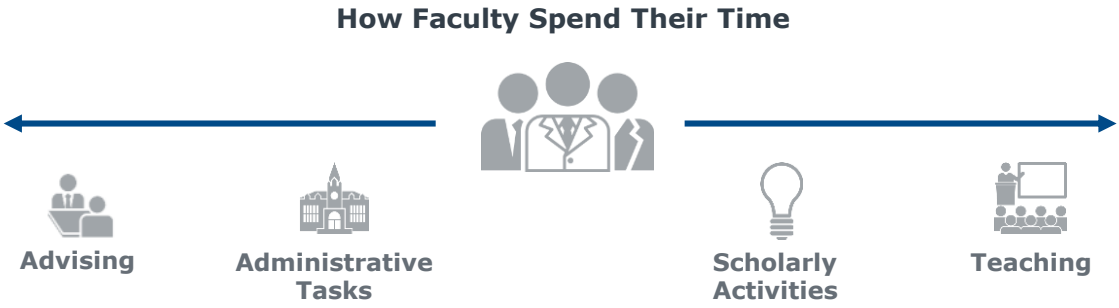
Instructional Load

Faculty often teach less than the optimal course load

→ 3 Balance faculty course loads

Source: Academic Performance Solutions data and analysis.

Faculty Time: A Precious, Limited Resource



"Standard" Is Subjective

⚠ Departmental **goals**, **mission**, and student **demand** should be used to determine a standard workload.

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Is There Even An Optimal Course Load?

Assessing Faculty Course Loads[1]

Median and 75th Percentile Course Load of Tenured and Tenure-Track Faculty by Cohort, Fall 2014 and Spring 2015

Small, Teaching-Focused

6	7
Median Course Load	75th Percentile Course Load

Regional Comprehensive

6	7
Median Course Load	75th Percentile Course Load

High-Research Comprehensive

4	5
Median Course Load	75th Percentile Course Load

Very Large Research

3	4
Median Course Load	75th Percentile Course Load

1) Individual Instruction course types were excluded.

Source: Academic Performance Solutions data and analysis.

Small Changes in Faculty Course Load Cut Costs

Double-Clicking on a High Cost Department

How Much Could a High Cost History Department at a Very Large Research Institution Recover by Increasing Median Course Load?

Collaborative-Wide Benchmarks for History Department

$169
Instructional Salaries per Attempted SCH

3
Median Course Load for Tenure and Tenure Track Faculty

	Instructional Salaries per Attempted SCH	Potential Δ in $/SCH	Distance from History Benchmark
Current Median Course Load[1] for Tenure and Tenure Track is 2	**$242**		**+$73**
If They Increase Median Course Load to 2.5…	**$227**	**$15**	**+$58**
If They Increase Median Course Load to 3…	**$219**	**$23**	**+$50**

1) Individual Instruction course types were excluded.
2) Change in instructional salary costs by reducing the number of courses taught by adjunct staff was calculated using average faculty salaries from the National Center for Education.

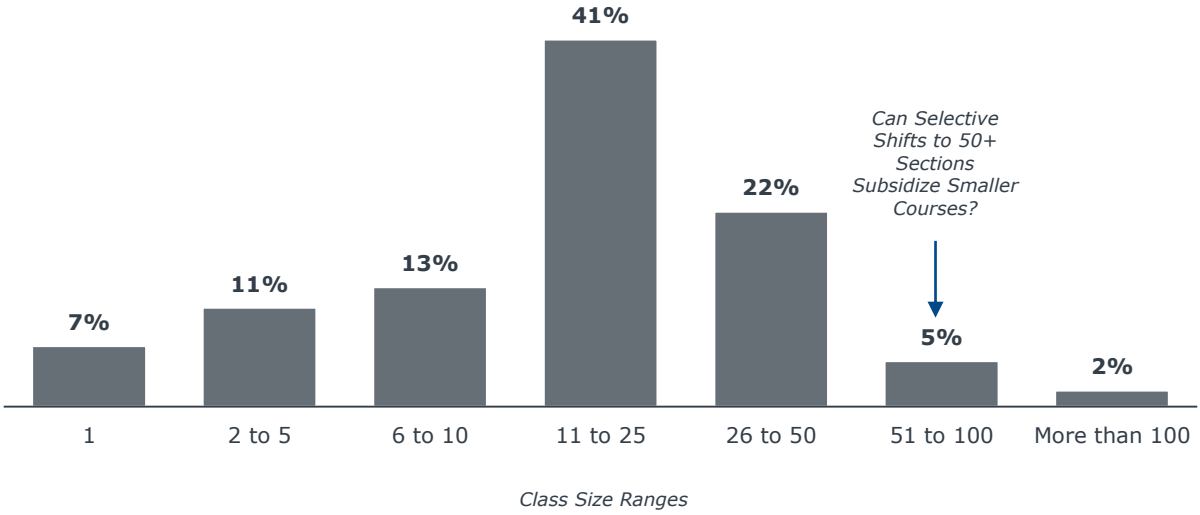
Source: U.S. Department of Education, National Center for Education Statistics; Academic Performance Solutions data and analysis.

Maximizing Faculty Resources with Class Size

Distribution of Sections[1] by Class Size Across the Collaborative

AY 2015

n=191,647 sections



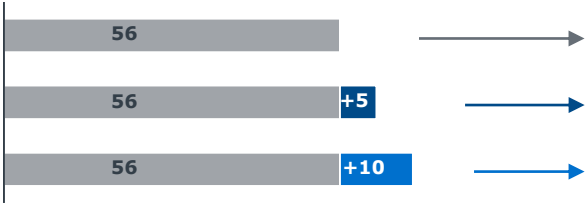
1) Individualized Instruction course types were excluded.

Source: Academic Performance Solutions data and analysis.

Modest Changes Have Measurable Results

Average Maximum Capacity for Introductory Biology Lecture

Regional Comprehensive Institution, Fall 2014 and Spring 2015



Small Changes in Max Caps Yield Multiple Benefits

Sections	Fill Rate	Instructional Salaries That Could Be Reallocated[1]
22	76%	-
19	80%	$28 K
16	86%	$56 K

Case in Brief: Shaping Class Size at Eastern Kentucky University

1 College dean explored **class size as a lever** to address high instructional costs.

2 Identified **no differences in outcomes** across sections with **20 vs 22 vs 25** students.

3 **Increased maximum capacity** for college composition sections from 22 to 25 students.

60 +
College sections consolidated

$200 K
Savings reallocated to other academic priorities

1) Reallocated instructional salaries was calculated using average faculty salaries from the National Center for Education for the Sample Regional Comprehensive Institution.

Source: U.S. Department of Education, National Center for Education Statistics; Academic Performance Solutions data and analysis.

Aligning Faculty Effort with Goals

COURSE LOAD

Analyze the data to…

- ❑ Identify the high-cost departments, then evaluate the course load of faculty within those departments

Engage your faculty to…

- ❑ Assess administrative course releases for necessity
- ❑ Evaluate research course releases for impact

Manage course load by…

- ❑ Communicating how changes will sustain and enhance the mission, such as increasing research capacity for targeted areas or adding sections to reduce bottlenecks

CLASS SIZE

Analyze the data to…

- ❑ Quantify the distribution of class size
- ❑ Examine the course enrollments and maximum capacity of courses with fill rates above 90%

Engage your faculty to…

- ❑ Identify courses that could be increased without decreasing quality

Manage class size by…

- ❑ Increasing maximum class capacity
- ❑ Focusing on growth efforts to increase enrollment

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

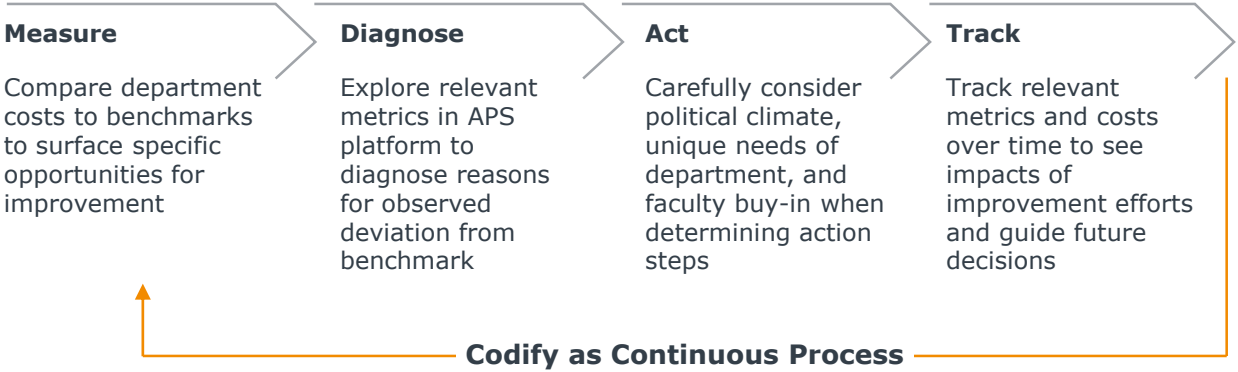
1 Introducing the APS Cost Benchmarks

2 Quantifying Drivers of Instructional Cost

3 **Leveraging APS to Determine Reallocation Opportunities**

Framework for Leveraging Benchmarks Effectively

Apples-to-Apples Comparisons Surface Opportunities for Improvement



Supported by APS Platform | **Supported by EAB Research** | **Supported by APS Platform**

Source: Academic Performance Solutions data and analysis.

Compare Department Costs to Benchmarks

Use APS Benchmarking Data Report on Cost to Facilitate Comparisons

Case in Brief: Psychology Department at Dumbarton University[1]

Psychology

Dumbarton's Psychology Department[2]	Cohort[3] Psychology Benchmark	Δ from Benchmark
$183 Instructional Salaries per Attempted SCH	**$108** Instructional Salaries per Attempted SCH	**$75** Higher than Department Benchmark for Cohort
Found on Costs Tab of APS Platform	Found in APS Benchmarking Data Report	

What factors are driving the difference between current performance and the benchmark?

1) Pseudonym for sample High-Research Comprehensive institution.
2) Includes all undergraduate and graduate attempted student credit hours and total expenses in the 2015 academic year.
3) High-Research Comprehensive institution cohort benchmark.

Source: Academic Performance Solutions data and analysis.

Explore Possible Cost Drivers

Two Identifiable Opportunities for Action

1
Unproductive Credits

88%

Course Completion Rate

Lower Division completion rate the same as High-Research Comprehensive cohort benchmark for Psychology

2
Underfilled Sections

80%

Median Section Fill Rate

Section fill rates only 5% below optimal level of 85%

1%

Collapsible Sections

Very few multi-section consolidation opportunities

29%

Single Section Courses With Low Fill Rate

Almost one-third of single section courses have fill rates of 50% or lower

3
Instructional Load

25

Median Class Size

Median class size only one lower than cohort benchmark

3

Median Course Load

Tenured and tenure-track faculty teaching one less course than benchmark

1) High-Research Comprehensive institution cohort benchmark

Source: Academic Performance Solutions data and analysis.

Tailor Solution to Department Circumstances

Customize Possible Drivers from APS Metrics to Your Department

29%

Single Section Courses With Low Fill Rate

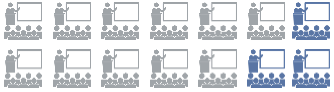
Almost one-third of single section courses have fill rates of 50% or lower

3

Median Course Load

Tenured and tenure-track faculty teaching one less course than benchmark

Reduce Frequency



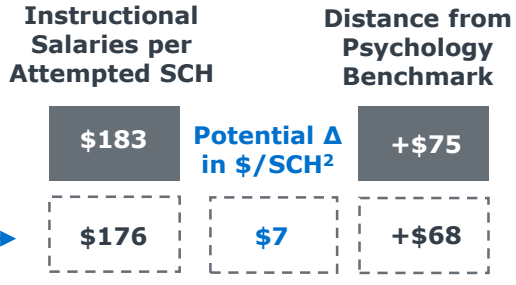
3

Single section courses that could be reduced to once a year while still meeting demand (out of 14)

$28K

Instructional salaries that could be reallocated[1]

Increase Median Course Load



1) Reallocated instructional salaries was calculated using average faculty salaries from the National Center for Education for the High-Research Comprehensive Institution.
2) Change in instructional salary costs by reducing the number of courses taught by adjunct staff was calculated using average faculty salaries from the National Center for Education.

Source: U.S. Department of Education, National Center for Education Statistics. Academic Performance Solutions data and analysis.

Evaluate Improvement Efforts

Additional Options for Managing Instructional Cost Drivers Incrementally

Quick Changes

- Consolidate sections
- Offer single section courses strategically
- Reallocate resources to remove bottlenecks, and invest in new programs and courses

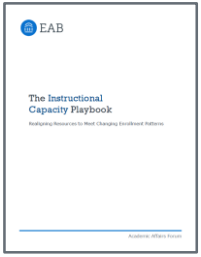
Near-Term Solutions

- Identify departmental goals and mission
- Offer small courses intentionally
- Standardize faculty workloads

Long-Term Strategy

- Track costs and improvements over time through APS
- Match departmental resources with student demand
- Encourage deans and department chairs to engage in data-informed decision making

EAB Resources to Support Process



The Instructional Capacity Playbook

APS Benchmarking Data Report on Costs

Your Dedicated Consultant is available to support and guide you through this process

Source: Academic Affairs Forum research and analysis; Academic Performance Solutions data and analysis.

Questions?