AD ASTRA
INFORMATION SYSTEMS

THE 2015
HIGHER EDUCATION
SCHEDULING
INDEX REPORT

HESI™ REPORT - JULY 2015

AASCU EDITION - DECEMBER 2015

Ad Astra Information Systems

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WHO IS AD ASTRA INFORMATION SYSTEMS™?

Ad Astra's interest in academic space began in the 1950s when the founder's father, John Shaver, was introduced to a Ford Foundation project at Stanford University that cemented the firm's future. Shaver decided to morph his architectural firm from a general design practice to one specializing in higher education facilities. He enthusiastically joined the project and helped shape its contribution to the industry: a framework that quickly became and remains the standard by which space utilization is assessed and facilities master plans are developed.

When Ad Astra launched in 1996, it was known that space management was both critically important and incredibly complex. Measuring space utilization wasn't enough. First, and most obvious, was that measurement didn't improve utilization; it simply confirmed the need to improve. Second, space was only part of the equation. The word "facility" is used because space facilitates something even more important, which is the instruction that happens in that space. Thus, in a broader sense, scheduling must be embraced as a way to allocate not only space, but also faculty; to deliver instruction, and, ideally, to enable students to graduate on time.

Ad Astra has collaborated with more than 800 higher education campuses and many state systems that are passionate about effective steward-ship of instructional resources and improving student outcomes.

AD ASTRA
LAUNCHED IN
1996

HESI™
DATABASE OF
114
COLLEGES & UNIVERSITIES

THE HIGHER EDUCATION SCHEDULING INDEX

This Report reflects national averages derived from Ad Astra Information Systems' Higher Education Scheduling Index or the HESI™ database of 114 colleges and universities. The performance metrics track allocation of faculty and space on these campuses.

These metrics allow institutions to gain clarity concerning their resource allocation and opportunities for improvement. Significantly, the HESI metrics also provide the context for comparing institutional performance to the industry and a sub-set of like institutions.

The HESI suggests a number of opportunities for addressing campus challenges. It also provides a framework to measure and more effectively manage the highly decentralized model of scheduling employed on campuses today.
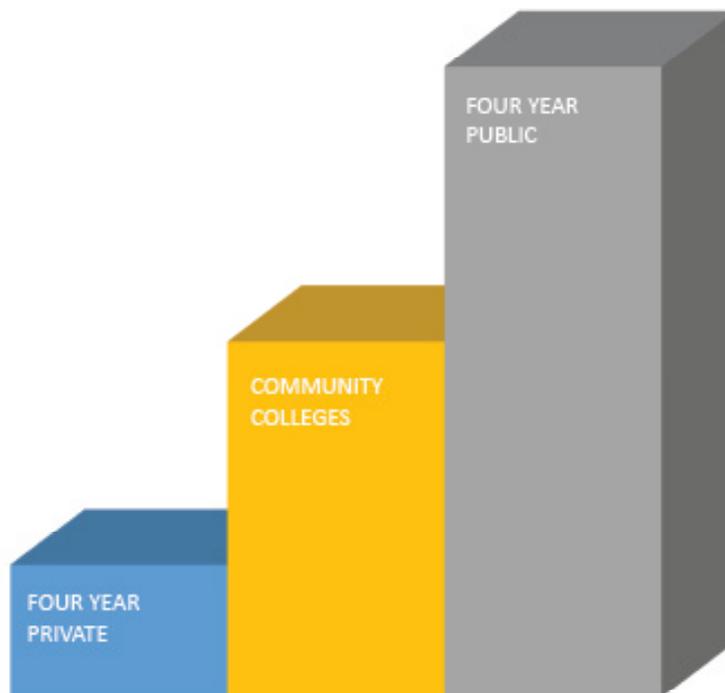
This Report highlights many of the best practices in higher education that can lead to improvements in balancing resource utilization, student success, and academic freedom. The case studies demonstrate and help expand our thinking about what is possible for the industry.

METHODOLOGY

Ad Astra gathers facilities, section schedule, student, and faculty data from the benchmarked institutions. These data are then discussed and refined with campus subject matter experts. Schedules are analyzed using patented analytics software and presented in a HESI framework which forms the basis of the findings and a context against which they are interpreted. The analysis results objectively describe the effectiveness of the course and room scheduling processes at colleges and universities and contextualize each finding relative to the industry, using a percentile ranking.

HIGHER EDUCATION SCHEDULING INDEX
114 PEER INSTITUTIONS

HESI TERMINOLOGY AND INDUSTRY INDEX

■ COURSE OFFERINGS

Measure	Description	Average
Enrollment	Average value of the enrollment (census) per section for the term	23
Enrollment Cap	Average value of the maximum enrollment per section for the term	29
Enrollment Ratio	Overall fill rate for course offerings (Enrollment divided by Enrollment Cap)	78%
Balanced Course Ratio	The percentage of unique courses offered that are balanced with student need (Enrollment Ratio between 70% and 95%)	32%
Under-filled Course Ratio	The percentage of courses that are under-filled relative to student need (Enrollment Ratio less than 70%)	43%
Overloaded Course Ratio	The percentage of courses that are over-filled relative to student need (Enrollment Ratio greater than 95%)	26%
Addition Candidates	The percentage of total sections in a schedule that could potentially be added to meet demand	5%
Efficiency Candidates	The percentage of total sections/courses in a schedule that could potentially be removed based on insufficient demand. Efficiency candidates include: • Reduction candidates: sections that could potentially be removed from the schedule without negatively impacting student need. • Elimination candidates: courses that could potentially be removed from the schedule as long as graduation requirements are not compromised.	19%

HESI TERMINOLOGY AND INDUSTRY INDEX

◼ SPACE MANAGEMENT

Measure	Description	Average
Standard Week Hours	The number of hours typically used in a scheduling week	66
Primetime Hours	The number of hours that have significantly concentrated usage within the Standard Week	26
Classroom Utilization Standard Week	The percentage of Standard Week Hours that a typical classroom is in use	48%
Classroom Utilization Primetime	The percentage of hours in Primetime Hours that a typical classroom is in use	62%
Prime Ratio	Percentage of hours scheduled during Primetime Hours (Primetime Room Hours divided by Total Room Hours)	58%
Enrollment Seat Fill	The percentage of classroom seats in use by students at census (Enrollment divided by Room Capacity)	62%
Capacity Seat Fill	The percentage of seats intended for use (based on Enrollment Cap) in a classroom when it is scheduled (Enrollment Capacity diveded by Room Capacity)	79%
Off-Grid Scheduling	Off-Grid Utilization: The percentage of scheduling using Non-Standard meeting patterns (those that are not an On-Grid meeting pattern) during Primetime	40%
Off-Grid Waste	The percentage of capacity wasted by scheduling using Non-Standard meeting patterns (those that are not an On-Grid meeting pattern) during Primetime	15%

43%
OF

COURSES OFFERED
ARE UNDER-FILLED,
NEEDING FEWER
SEATS
AND/OR SECTIONS

HESI INDUSTRY OBSERVATIONS

■ COURSE OFFERINGS METRICS HIGHLIGHTS

1. While overall course fill rates (Enrollment Ratio) are at a respectable level (78%) for the industry, this masks the fact that only 33% are "Balanced" with student demand for seats in those courses.

2. The largest group of courses are Under-filled (43%), leading to 19% of the sections in a typical schedule being unneeded relative to student course demand.

3. Addition Candidates are less than one-third the number of Efficiency (Reduction and Elimination) Candidates in a typical schedule, meaning that most institutions have the capacity today to meet students' course needs without additional faculty resources.

4. Given that over 13% of a typical course offering schedule is not needed (Efficiency Candidates less Addition Candidates), efficient schedules would greatly increase effective classroom capacity for most institutions.

OFF-GRID **SCHEDULING** ACCOUNTS FOR

15%

OF PRIMETIME CLASSROOM WASTE
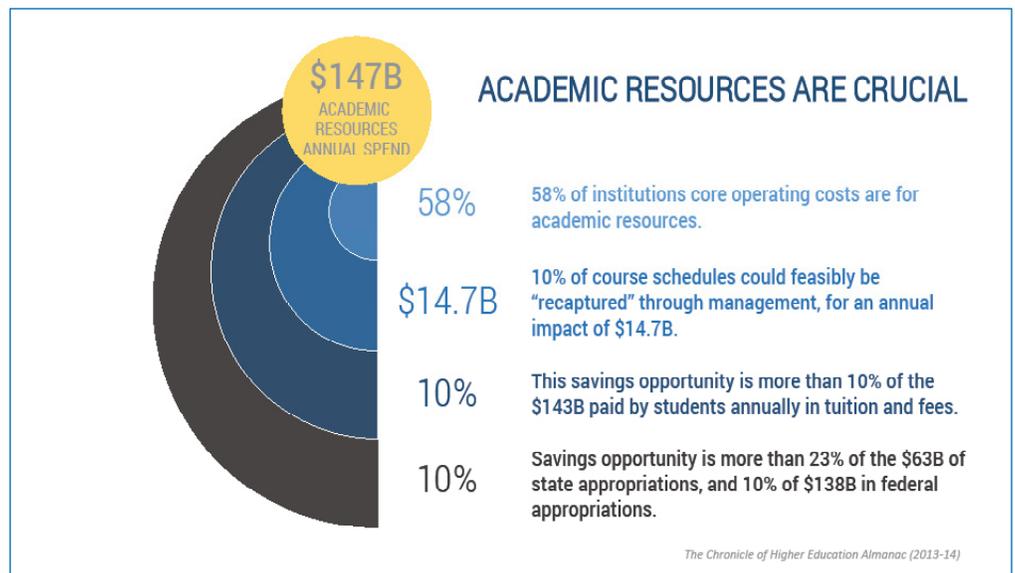
■ SPACE MANAGEMENT METRICS HIGHLIGHTS

1. Most institutions feel and express that they are "out of space," even though a typical classroom is in use less than half of the Standard Week Hours and is only 62% full when in use.

2. A typical campus wastes over 15% of its classroom capacity due to Off-Grid Scheduling during Primetime. With careful management, most campuses can reduce this number to less than 10%, creating over 5% "free" classroom capacity (e.g., a campus with 100 classrooms effectively loses 15 classrooms of capacity, but could reduce this to 10 or fewer).

3. While the industry widely compares classroom utilization statistics, there is a large variance in the number of Standard Week Hours on the various campuses measured (from 43 to 96).

4. Primetime Hours, with concentrated usage, are less than half of Standard Week Hours on a typical campus.

CHALLENGES

Student success and finances are the two biggest concerns in higher education today. An argument could be made that the most important opportunity to address these concerns is effective allocation of faculty and space.

According to *The Chronicle of Higher Education Almanac (2013-14)*, institutions spend roughly 58% of the core operating budget on faculty and academic space. That's approximately $147 billion spent annually as an industry. Capital expenditures for new space and renovation are not even included in this amount because they are not on the income and expense statement.

Ad Astra's extensive research and experience in the industry have demonstrated that strategic scheduling can provide solutions for each of these challenges.

ACADEMIC RESOURCES ARE CRUCIAL

$147B
ACADEMIC RESOURCES ANNUAL SPEND

58% — 58% of institutions core operating costs are for academic resources.

$14.7B — 10% of course schedules could feasibly be "recaptured" through management, for an annual impact of $14.7B.

10% — This savings opportunity is more than 10% of the $143B paid by students annually in tuition and fees.

10% — Savings opportunity is more than 23% of the $63B of state appropriations, and 10% of $138B in federal appropriations.

The Chronicle of Higher Education Almanac (2013-14)

OPPORTUNITIES

Why is scheduling an opportunity and a critical tool for addressing these challenges? Scheduling is the process that either allows or prevents student access to the courses they need to make progress toward program completion. It is also the process that allocates the most expensive and valuable resources on a campus. Ad Astra has guided many institutions in using these opportunities to make significant improvements and positive outcomes.

The most obvious opportunity is to align the schedule of courses with students' needs. Only 32% of the courses taught on a typical college or university campus are "balanced" with student need. The biggest group of courses – 43% – is "under-filled," a problem that needlessly drives up cost for the student, threatens the financial sustainability of some campuses and wastes instructional capacity to support enrollments. The remaining courses are "overloaded," a problem so impactful that it perennially rates as the #1 student challenge in the student satisfaction survey conducted each year by Ruffalo Noel Levitz.

UNDER-FILLED COURSES

43%

BALANCED COURSES

32%

OVERLOADED COURSES

26%
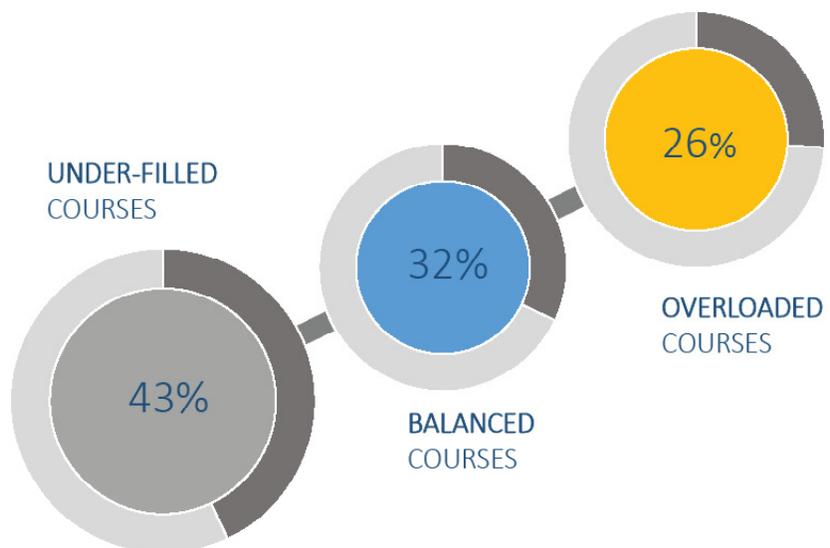
19%

OF ALL COURSES MAY NOT BE NEEDED DUE TO **INSUFFICIENT** DEMAND

Additional opportunities can be realized when institutions consider a different approach to allocating academic space. This approach focuses on maximizing the capacity of existing space instead of campaigning to fund construction of more space. It embraces the reality that capacity is elastic and addresses practices that limit that capacity. Consider the following from the HESI data:

- a typical classroom is in use 48% of the Standard Week and is only 62% filled; therefore the overall utilization is approximately 30%
- 40% of all courses are scheduled Off-Grid, contributing to poor utilization of space and 15% wasted capacity
- 19% of all courses are not needed (Efficiency Candidates) and are occupying valuable resources

An integrated approach to using data to inform scheduling of both courses and space frees the industry from the common misconception of limited capacity.

Ad Astra believes the following to be true: very few campuses are actually out of space, and new space is a luxury that many can't afford. This premise is illustrated by the innovative institutions highlighted in the following case studies.

CASE STUDIES, INTERVENTIONS AND OUTCOMES

Scheduling opportunities are being explored on many campuses. However, institutional leaders on most campuses are not aggressively mobilized to create student-friendly and resource-friendly schedules. The key is to embrace the priority that mission statements espouse: to serve students. On most campuses, the process of allocating faculty and academic space is much more faculty-centered than student-centered.

The case studies below provide examples from actual institutions that have partnered with Ad Astra and brought about change on their campuses. Significant outcomes are highlighted in blue. A combination of strong leadership, statistical analysis, goal setting, and data-informed scheduling policy have led these progressive institutions to success.

■ COMMUNITY COLLEGE A

Working with Ad Astra, Community College A has right-sized the academic schedule and aligned academic resources to best support their students. Even through an enrollment decline, the college has increased the average fall student credit hour loads from 7.71 to 8.18 – a 6% increase. This has resulted in:

- Improved velocity to completion: the average time-to-completion reduced by .2 years
- Increased tuition yield: $72.19 per student, or $1.3M of additional tuition is generated per term

COMMUNITY COLLEGE A:

6%

INCREASE
IN AVERAGE
STUDENT CREDIT
HOUR LOAD=

$1.3M
ADDITIONAL TUITION

In addition, Community College A strategically added and removed sections from the Fall Schedule and the subsequent Spring Schedule to respond to enrollment changes each term. These changes resulted in a decrease in instructional cost of approximately $2 million dollars for the academic year. At the same time, Community College A kept Seat Fill in a financially sustainable range.

COMMUNITY COLLEGE B:

FULL-TIME **FACULTY** DELIVERED

72%

OF COURSES

■ COMMUNITY COLLEGE B

Exploding enrollment, decreased state funding, and a national emphasis on completion led Community College B to examine the entire institution, including a careful study of the academic scheduling model. Community College B turned to the Ad Astra HESI metrics to analyze scheduling patterns and compared them to student needs and enrollment growth projections.

By aligning faculty with student course needs, the institution reduced dependency on adjunct instructors, enabling full-time faculty to deliver 72% of the student credit hours. This is well above the average industry benchmark of about 50%. The data also highlighted Under-filled sections which could be removed from the schedule, reducing energy costs and adjunct faculty expenses. The estimated savings over the past few years is $3.4 million.

Throughout this analysis, the major consideration of Community College B has been student success. The campus student/teacher ratio remained at 20:1. A 48% increase in credit hours per student contributed to improved tuition yield and increased velocity to completion.

■ **UNIVERSITY A**

Working with Ad Astra, University A has aligned its course offerings with student need, allowing for improved student access. The initial analysis showed that University A had extremely high enrollment ratios, resulting in a hyper-efficient schedule with the unintended side effect of bottlenecks in courses required for many students. Armed with the HESI data, support was gained to add faculty, and course offerings, and to develop an annual schedule that has improved the planning process for students and faculty. In a short time, University A has eliminated student registration bottlenecks. This improvement in course access has generated a 5% average increase in student credit hour loads, improving velocity to completion by 5%.

■ **UNIVERSITY B**

A multi-university system consolidation presented many capacity and course scheduling challenges for University B, which were coupled with opportunities for process and cultural changes. University B included in its analysis the impact of curriculum changes and guided pathways on course demand for general education and program requirements. The university leadership turned to the HESI metrics and patented course demand forecasting offered in Ad Astra's Platinum Analytics™ to begin the analysis. The top priority at University B was addressing obstacles to degree completion. This included course access, time slot conflicts and the sequencing of course offerings.

As a result of this analysis, 2,500 seats in high-demand courses were added to the schedule and 750 seats were removed from under-enrolled course sections. By ensuring that faculty resources were aligned with high-demand courses, initial results show improvement in student velocity to degree completion.

UNIVERSITY B:

ADDED
2,500
SEATS
TO MEET DEMAND
AND REMOVED
750
SEATS
IN LOW DEMAND
SECTIONS

WHAT'S NEXT FOR THE HESI?

Research will expand to focus on the credentials students pursue and the correlation between student-friendly schedules and improved student outcomes. Specifically, Ad Astra's analytics algorithms will examine factors that may contribute to program completion delays, including but not limited to the following:

- Students' uncertainty about which courses to take (which may point to an advising and/or pathways solution)
- Students' inability to get the courses they need when they need them (which may point to a scheduling solution)

Ad Astra is enthusiastic about researching and uncovering opportunities for the industry to improve student and institutional success. As new institutions are added to the HESI, the findings and this Report will periodically be updated.

HOW DO AASCU MEMBERS MEASURE UP?

This special edition of the 2015 Higher Education Scheduling Index (HESI™) Report was designed to specifically highlight metrics related to AASCU member institutions. When the main report was published in Summer 2015, the HESI was comprised of 114 colleges and universities in North America. The HESI grows more robust each month. When this addendum was produced in December 2015, the HESI was comprised of 131 schools. Of these 131, 36 schools (27% of the HESI database) are AASCU members.

The HESI metrics provide key context for comparing institutional performance to the industry as whole, as well as different sub-sets of "like" institutions or academic organizations. Ultimately, the HESI is intended to inform academic operational decisions, as well as to assist institutions in advancing student success efforts.

Please review the HESI averages compared to AASCU member institution averages on the following pages.

For more information about Ad Astra's Higher Education Scheduling Index, and how strategic scheduling can make a difference, please contact: Sarah Collins, Chief Client Experience Officer, at (913) 652-4120 or scollins@aais.com.

CONTINUED >>

COURSE OFFERINGS

AASCU MEMBERS, ON AVERAGE

34%

OVERLOADED
COURSE RATIO

Measure	Description	AASCU Average	HESI Average
Enrollment	Average value of the enrollment (census) per section for the term	26	23
Enrollment Capacity	Average value of the maximum enrollment per section for the term, also called Enrollment Cap	32	29
Enrollment Ratio	Overall fill rate for course offerings (Enrollment divided by Enrollment Capacity)	83%	79%
Balanced Course Ratio	The percentage of unique courses offered that are balanced with student need (Enrollment Ratio between 70% and 95%)	31%	32%
Under-filled Course Ratio	The percentage of courses that are under-filled relative to student need (Enrollment Ratio less than 70%)	34%	40%
Overload-ed Course Ratio	The percentage of courses that are over-filled relative to student need (Enrollment Ratio greater than 95%)	34%	26%
Addition Candidates	The percentage of total sections in a schedule that could potentially be added to meet demand	6%	5%
Efficiency Candidates	The percentage of total sections/courses in a schedule that could potentially be removed based on insufficient demand. Efficiency candidates include: • Reduction Candidates: sections that could potentially be removed from the schedule without negatively impacting student need • Elimination Candidates: courses that could potentially be removed from the schedule as long as graduation requirements are not compromised	8%	9%

■ SPACE MANAGEMENT

Measure	Description	AASCU Average	HESI Average
Standard Week Hours	The number of hours typically used in a scheduling week	65	65
Primetime Hours	The number of hours that have significantly concentrated usage within the Standard Week	27	26
Classroom Utilization Standard Week	The percentage of Standard Week Hours that a typical classroom is in use	50%	47%
Classroom Utilization Primetime	The percentage of hours in Primetime Hours that a typical classroom is in use	71%	69%
Prime Ratio	Percentage of hours scheduled during Primetime Hours (Primetime Room Hours divided by Total Room Hours)	60%	59%
Enrollment Seat Fill	The percentage of classroom seats in use by students at census (Enrollment divided by Room Capacity)	64%	62%
Capacity Seat Fill	The percentage of seats intended for use (based on Enrollment Capacity) in a classroom when it is scheduled (Enrollment Capacity divided by Room Capacity)	77%	81%
Off-Grid Scheduling	The percentage of scheduling using Non-Standard meeting patterns (those that are not an On-Grid/Standard meeting pattern) during Primetime	36%	41%
Off-Grid Waste	The percentage of capacity wasted by scheduling using Non-Standard meeting patterns (those that are not in an On-Grid/Standard meeting pattern) during Primetime	15%	16%

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