

Taking Student Success to Scale (TS³) Virtual Convening: Guided Pathways Using Predictive Analytics

March 3, 2016

NASH
National Association
of System Heads



**Taking Student
Success To Scale**



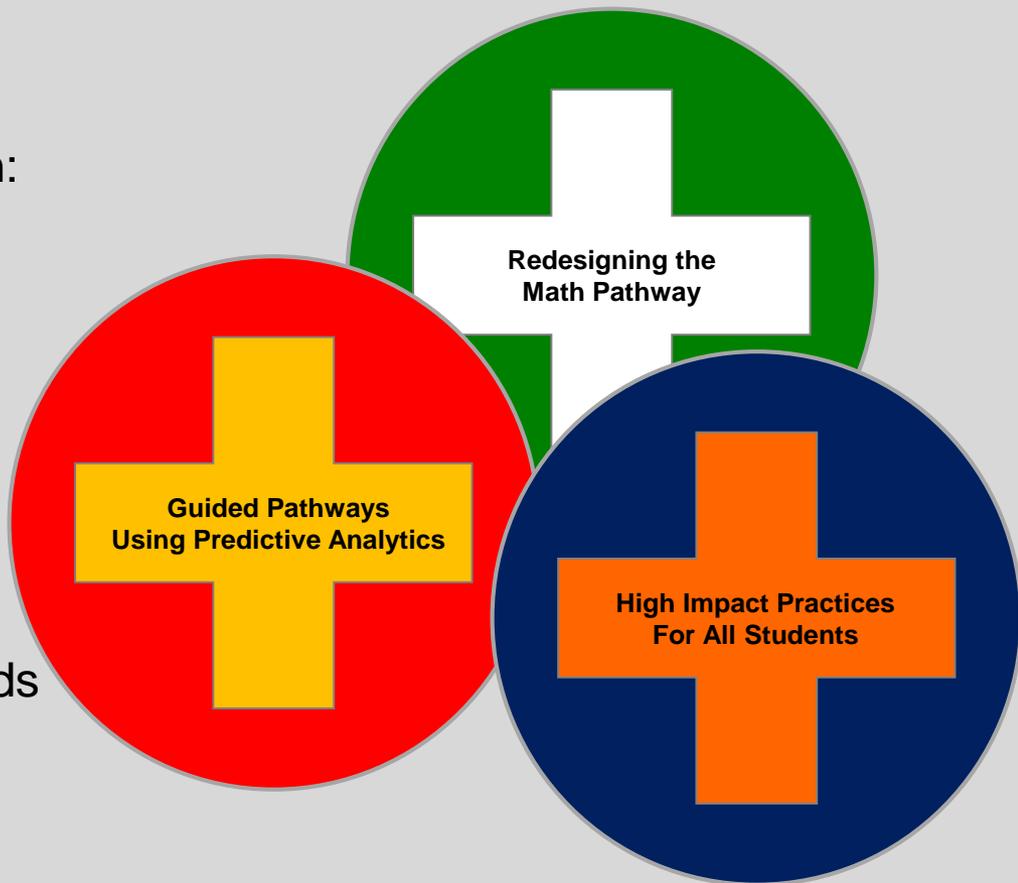
- **Update you on TS³**
- Highlight the efforts to use predictive analytics across the University System of Georgia
- Share out best practices, cautionary tales and content related to predictive analytics

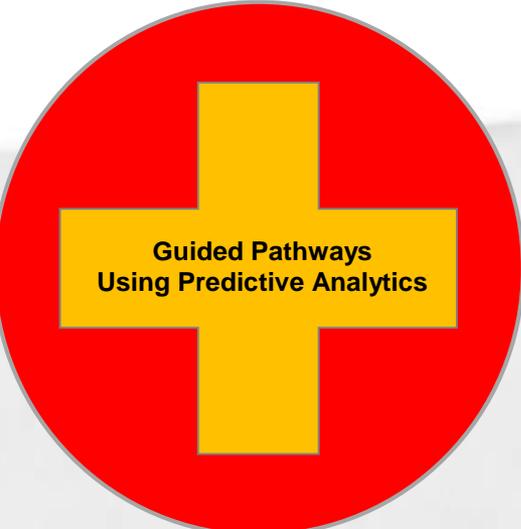
Thanks to your vision and hard work, TS3 now includes 21 systems and over 150 institutions across 17 states



- 1 Make the work problem-specific and user-centered
- 2 Variation in performance is the core problem to address
- 3 See the system that produces the current outcomes
- 4 We cannot improve at scale what we cannot measure
- 5 Anchor practice improvement in disciplined inquiry
- 6 Accelerate improvements through networked communities

- Interventions were chosen based on:
 - Having hard evidence
 - Improving student outcomes
 - Closing equity gaps
- TS³ is designed to:
 - Allow for flexibility in implementation
 - Create common definitions of success and minimum thresholds for adoption and diffusion





**Guided Pathways
Using Predictive Analytics**

What's exciting

- High level of enthusiasm for improving and scaling predictive tools
- Pilots already in progress on many campuses

What are the challenges?

- May be difficult to convince campuses with tight budgets to invest in predictive analytic tools
- Lack of connective tissue to tie tools together

AIM: *“Our aim is to increase from # to #, the number of institutions broadly, effectively and efficiently using predictive analytics to increase the number of credentials awarded and close achievement gaps.”*

Key to this approach is a networked improvement community, which we are using to promote the redesign of math pathways

Sustainable and scalable improvements are typically:

Focused

Guided

Disciplined

Networked



What are the greatest challenges you face in deploying predictive analytics?

What are the greatest challenges you face in deploying predictive analytics?

- A. Cultural and political barriers
- B. A lack of resources
- C. Insufficient professional development
- D. Getting people to use the tools
- E. Data that is of poor or varied quality
- F. Other



- Update you on TS³
- **Highlight the efforts to use predictive analytics across the University System of Georgia**
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Actionable Intelligence: Improving Student Success

VALDOSTA STATE UNIVERSITY

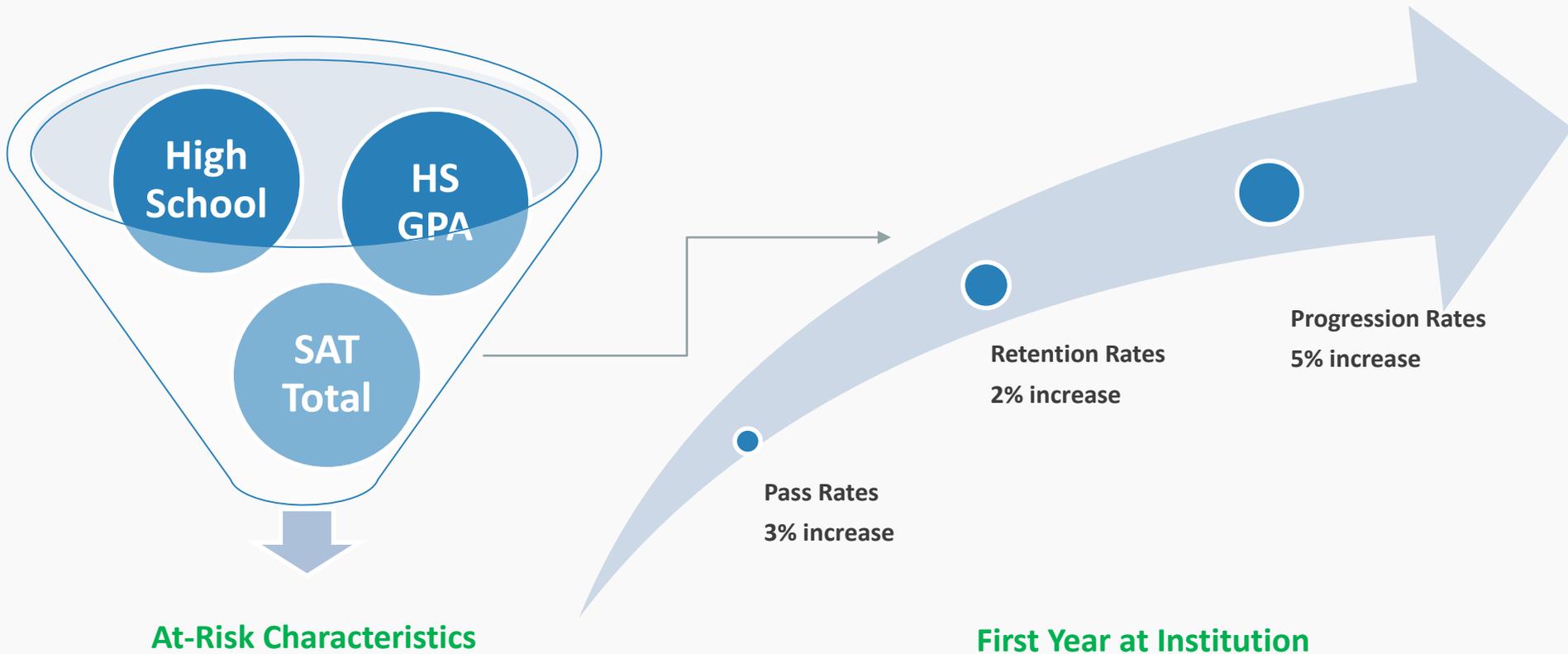
WWW.VALDOSTA.EDU



- Introduction
- Results
- Logical Progression of Solution
 - Faculty Portal
 - Reports & Dashboards
 - Student Portal
 - Big Data Discovery
- Questions & Answers
- Contact

Faculty Portal Results

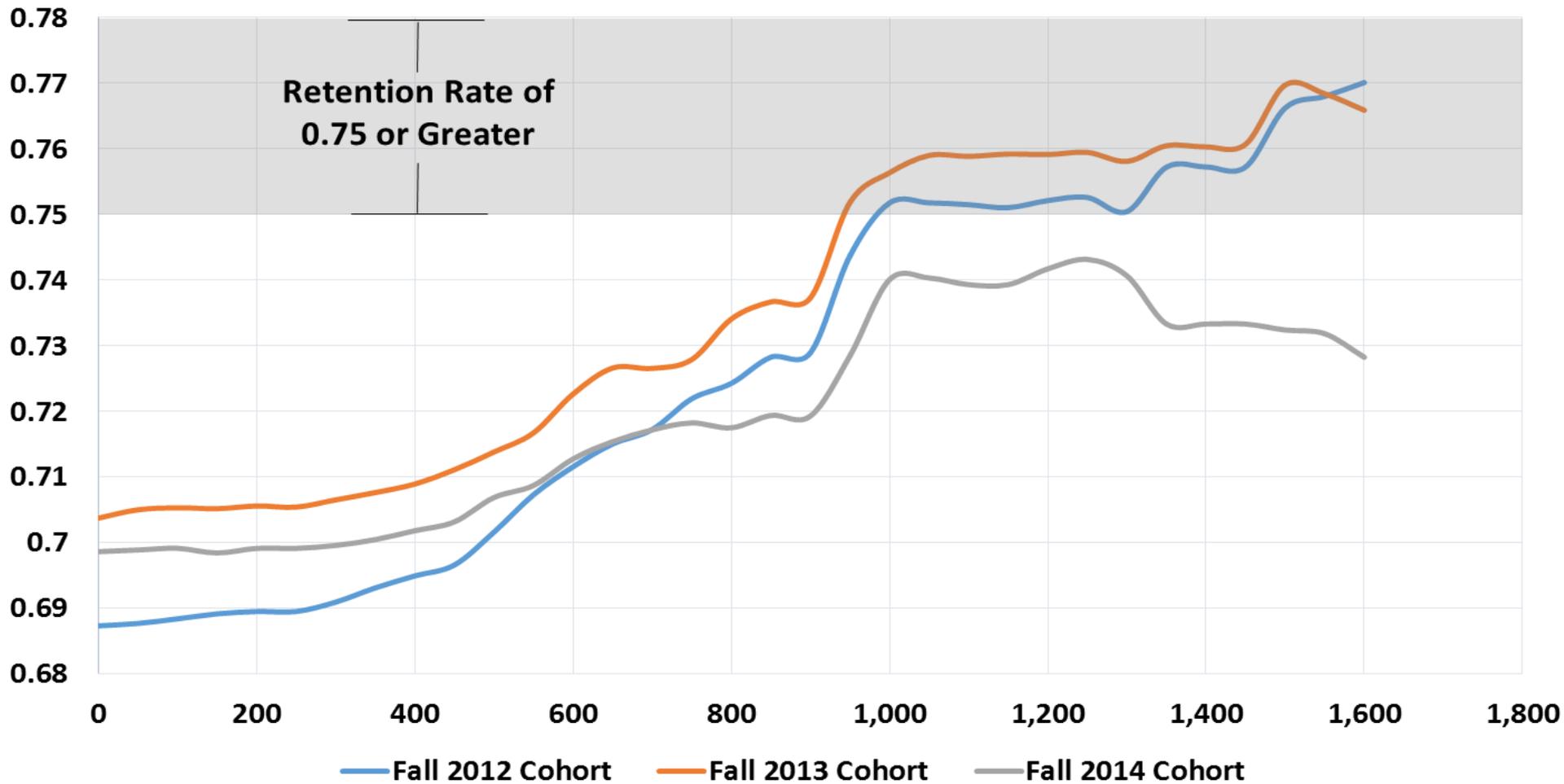
Predictive Analytics At Work



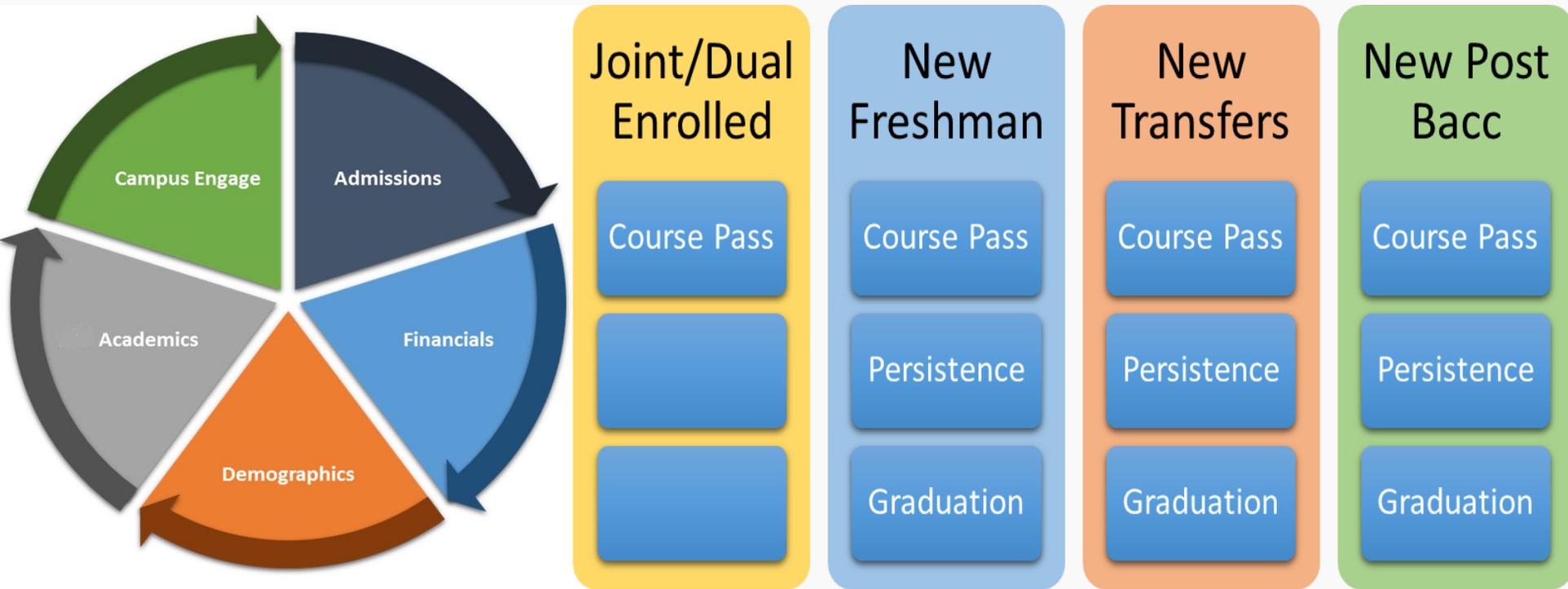
Predictive Metrics and Models



Retention Rates by Portal Usage

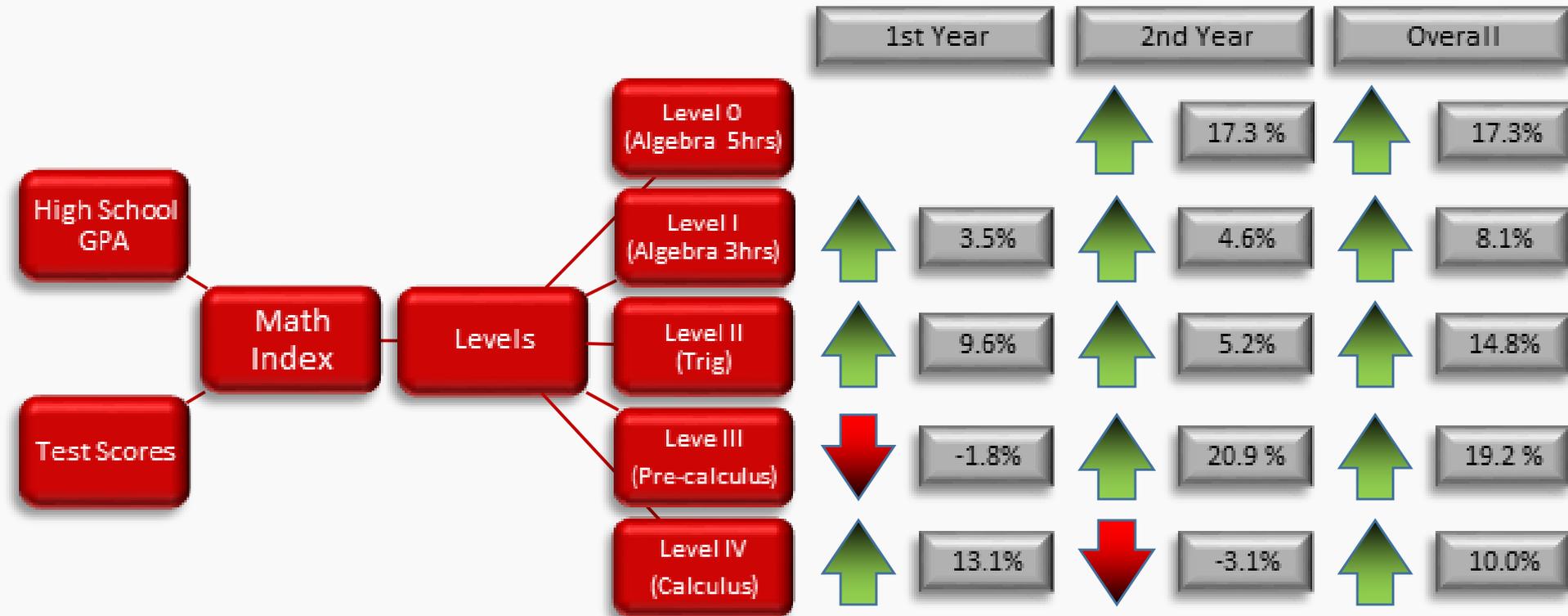


Predictive Metrics and Models



Improving Math Pass Rates Results

Predictive Analytics Integrated with SIS



Predictive Course Model Accuracy

Class Day 1

10

Students

8

Correctly

2

Incorrectly

Class Day 40

10

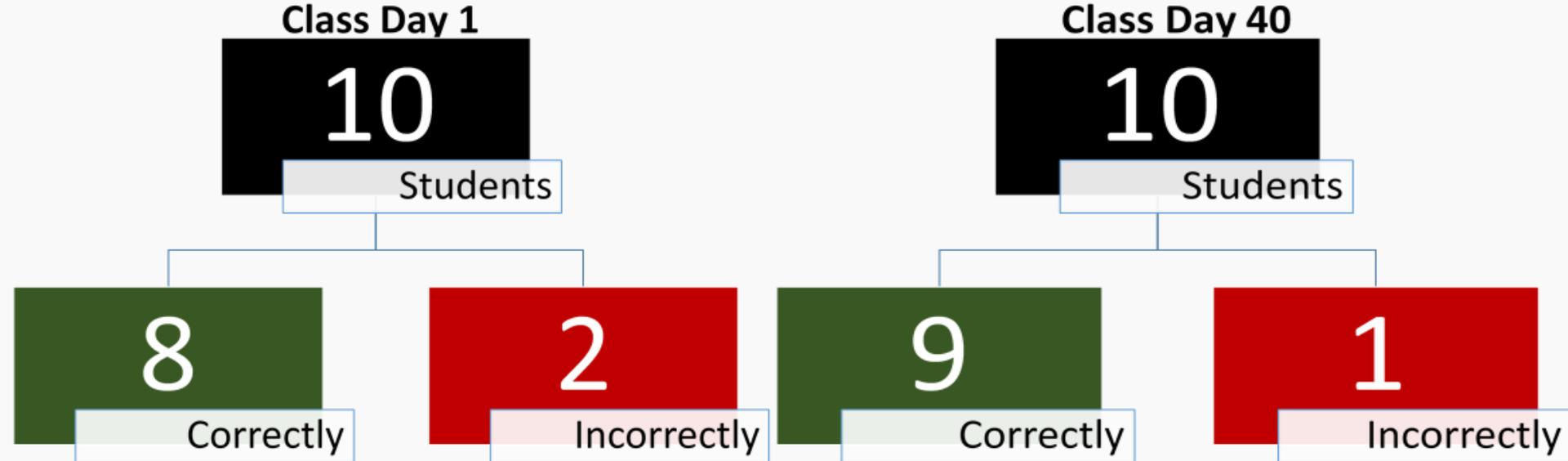
Students

9

Correctly

1

Incorrectly



Outcomes

The Benefits

01 Success Portal

Insight on who your students are and knowledge of their needs allow you to improve their experience and ensure they are equipped with tools for success.

02 Predictive Analytics

Provide course instructors and advisors with risk indicators and probabilities of student success. Integrate predictive models into reports, applications, and student information system (Banner or Campus Solutions).

03 Valdosta Math Index (VMI)

Analytical models provides a unique score on the appropriate entry level math course needed by each student. Models are integrated with the student information system to prevent students from registering for a course they are likely to fail.

04 Enterprise Data Warehouse

Comprehensive reporting solution that delivers reports, analytics, and dashboards for administrators, faculty and advisors. Predictive models and performance metrics are integrated to give full insights into academic performance and costs. Financial analytics integrates Oracle PeopleSoft for budget reporting and analysis.

05 Big Data Discovery

The student information system is one of many electronic resources at every institution. Big data discovery allows integrations with all information system for many business cases that include measuring the cost of education, student engagement on campus, learning management engagement, sentiment analysis of unstructured data.

Actionable Student Intelligence

DELIVERS DATA-DRIVEN RESULTS

ASI allows your institution to quickly build and deploy predictive models for student enrollment, retention and graduation.

&

IMPROVES STUDENT SUCCESS

ASI empowers your institution by providing the tools needed to identify at-risk students and increase retention rates.

This scalable and customizable solution provides you with a solid platform to create additional predictive models that support other areas and initiatives specific to your institution of higher education. ASI also easily integrates with popular student information systems, applications and reporting tools.

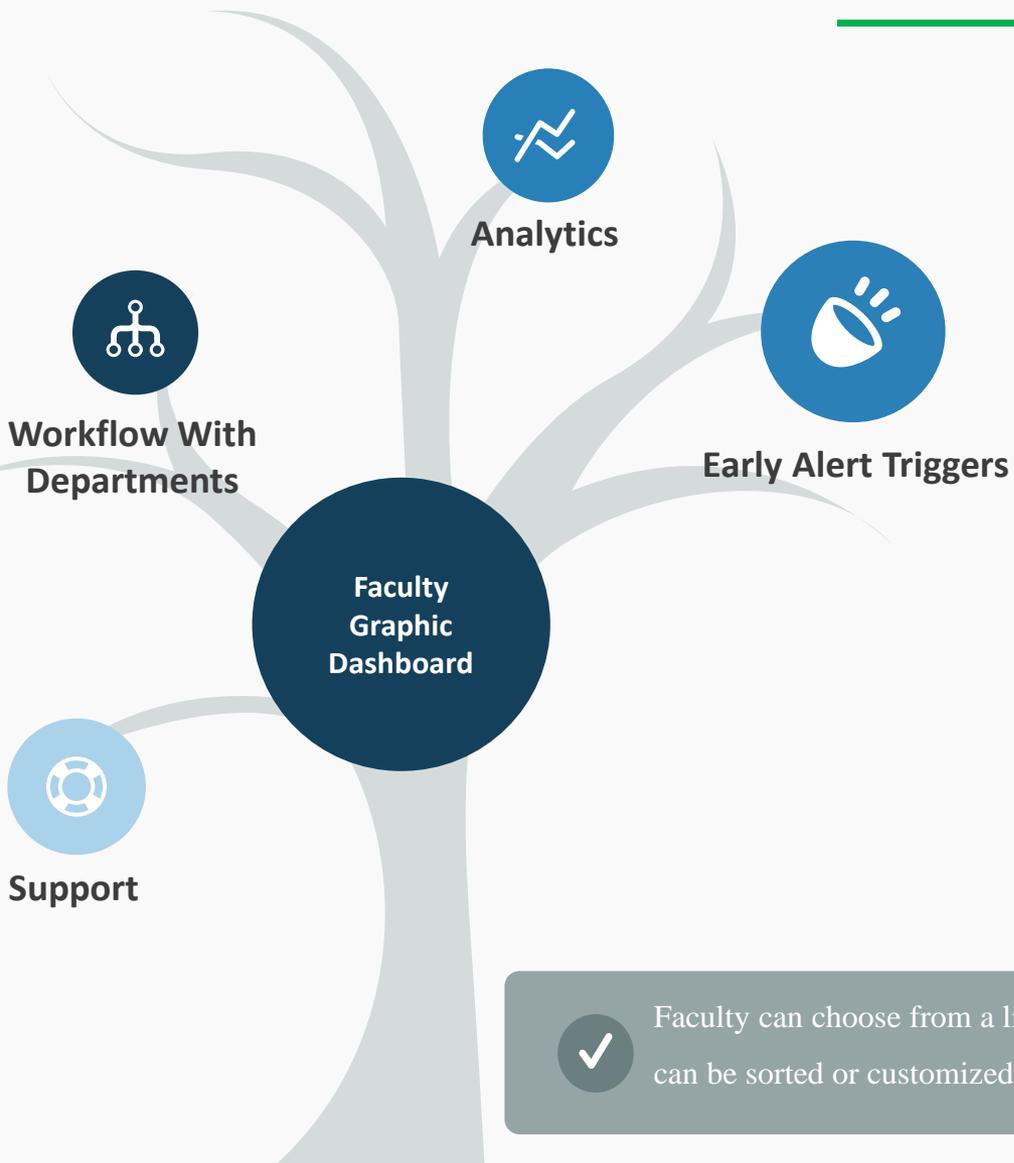
RAPID DEPLOYMENT | EASE OF USE | METRICS

Logical Progression



We strongly suggest this order of progression when utilizing the Oracle solutions for maximized results. Once the faculty portal is adopted by faculty, the students should be introduced to the student portal and encouraged to utilize as a single sign-on service for popular student support resources. Student portals are personalized with resources based on information provided by faculty in their respective portals. Data discovery provides a wide array of options for developing rubrics and determining measurable markers for success.

Faculty Portal



FEATURES

- **Customizable Dashboard** that is interactive, identifies the number of at-risk students in courses and prioritizes students based on their at-risk indicators.
- **Student Profiles** that provide important information about students as well as likelihood of success.
- **Early Alert Triggers** through a flagging system that allows faculty to alert advisors, student success personnel, housing personnel, etc. when needed.
- **Student Support and Resource Workflow** that shows when students utilize advising and student success services – integrating with the student portal to ensure students are receiving tools needed for success on their dashboards.



Faculty can choose from a list of views for personalizing their graphic dashboards. Dashboards can be sorted or customized and typically prioritize students based on their risk indicators.

ASI Visual Course Roster Interactive Report

 Student Class = 'Sophomore' ×
  At-Risk ×

Send Email	Student Photo	Student ID	Name	DegreeWorks	Enter Notes	Overall Hours Earned	Gender	Student Class	GPA	Degree	Major 	At Risk Reading	At Risk Math
<input type="checkbox"/>		870000000	John Doe	DegreeWorks	Enter Notes	31.3	M	Sophomore		BBA	Accounting	No	No
<input type="checkbox"/>		870000000	John Doe	DegreeWorks	Enter Notes	30	F	Sophomore	2.9	BSED	Amer Sign Lang/Engl Intrep-Coe	No	No
<input type="checkbox"/>		870000000	John Doe	DegreeWorks	Enter Notes	30	F	Sophomore		BSED	Amer Sign Lang/Engl Intrep-Coe	No	No
<input type="checkbox"/>		870000000	John Doe	DegreeWorks	Enter Notes	31	F	Sophomore	3.25	BSED	Amer Sign Lang/Engl Intrep-Coe	No	Yes
<input type="checkbox"/>		870000000	John Doe	DegreeWorks	Enter Notes	56	F	Sophomore		BSED	Amer Sign Lang/Engl Intrep-Coe	No	No
<input type="checkbox"/>			John	DegreeWorks	Enter Notes						Amer Sign Lang/Engl		

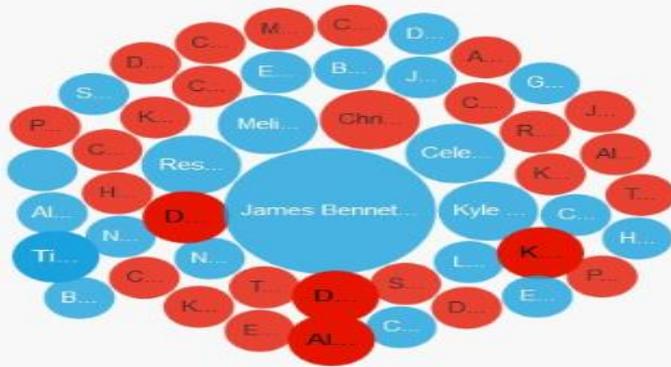
ASI Advisor/Faculty Dashboards

Welcome Cailyn Johnson

Credit Hours 660	Eligible to Register 550	NOT Eligible to Register 106
Course Enrollment 174	Registered for Next Term 252	Flagged At-Risk 27

Course

● At-Risk
 ● Not At-Risk
 ● Course Progress
 ● Attendance



Displays up to 50 students at a time.



Results will only display if any students in the selected course have been flagged at-risk for course progress attendance.

View My Class Schedule

View Class	Class	Location	Monday	Tuesday	Wednesday	Thursday	Friday
View	BIOL 1100 A	Pine Hall 107		11:00-11:50		11:00-11:50	11:00-11:50
View	BIOL 1100 B	Pound Hall 235		12:00-12:50		12:00-12:50	
View	BIOL 1100 C	West Hall 123	09:00-09:50		09:00-09:50		



Report View

ASI Visual Course Roster Flip Cards



Sierra Arnold
Student ID
Sophomore
At-Risk



Mindi Bennett
Student ID
Freshman
At-Risk



Joseph Briceno
Student ID
Freshman
At-Risk



Joshua Bullock
Student ID
Freshman
At-Risk



Stephen Dowling
Student ID
Sophomore
Not At-Risk



Nil
Student ID
Freshman
Not At-Risk



Flagging Single Student

Send Email	Student Photo	Student ID	Student Name	Set Multiple Flags	Set At-Risk Flags	At Risk General	At Risk Math	At Risk Reading	Student Class
	<div data-bbox="465 225 1439 264">Student Information ✕</div> <div data-bbox="490 311 1089 354">Student ID - Jacqueline Armstrong</div> <div data-bbox="494 408 757 694">  </div> <div data-bbox="799 411 1327 592"> <p>Student Class: Freshman At-Risk General: Yes At-Risk Math: No At-Risk Reading: No Advisor: Your Advisor Here Previous Course Attempts: 0</p> </div> <div data-bbox="494 753 1418 816"> <div data-bbox="494 753 1418 816">Previous Flags in this Course</div> <div data-bbox="504 836 1398 965"> <p>C Cailyn Johnson · 11/11/2015 Student has NOT been contacted testing setting flags again for biol 1100 a (Course Progress - Inactive : High Risk)...</p> </div> <div data-bbox="504 985 1398 1085"> <p>C Cailyn Johnson · 11/23/2015 Student has NOT been contacted test (Course Progress - Current : Low Risk)...</p> </div> <div data-bbox="600 1110 658 1136">1 - 2</div> </div> <div data-bbox="494 1182 1418 1428"> <div data-bbox="494 1182 1418 1428">Set At-Risk Flags</div> <div data-bbox="517 1265 1354 1336"> <p>Flag Type <input type="text" value="- Select Flag Type -"/></p> </div> <div data-bbox="517 1365 1354 1428"> <p>At Risk Status <input type="text" value="Level 0: No Risk"/></p> </div> </div>						No	No	Sophomore
						No	No	Freshman	
						No	No	Freshman	
						No	No	Freshman	
						No	No	Senior	
						Yes	Yes	Freshman	

Flagging Multiple Students

- Home
- Course
- Advisor
- Enter Notes
- Resources

ACCT 2101 A - Principles of Accounting I

Set At-Risk Flags

Flag Type

At Risk Status

Comments

[Submit Flag](#) [Return To Course](#)

Setting flags for the following students:



Brandon Abbott

Student ID
Freshman
Not At-Risk



Eliazette Anderson

Student ID
Freshman
Not At-Risk



Theo Attaway

Student ID
Sophomore
Not At-Risk

Gatera Baker

Course Attempts: 0
Academic Standing: Good Standing
Major: BBA-Management
Gender: Male

ASI Visual Course Roster Interactive Report

Early Alerts (Report View)

Active Flags **415**

Students Contacted **99**

Average Response Time **8 Day(s)**

Early Alert Report

Search Go Actions

- Flag Type
- High Risk
- Moderate Risk
- Low Risk

Flag Type : ATTENDANCE

Update	Student Photo	Student ID	Student Name	Course	Days Since Flag Set
<input type="checkbox"/>		870XXXXXX	Butler, Lizandro	MATH 1111 C - High Risk	14 days
<input type="checkbox"/>		870XXXXXX	Childs, Shaquira	CHEM 2310 A - High Risk	4 days
<input type="checkbox"/>		870XXXXXX	Cooper, Brad	SPAN 1002 G - High Risk	19 days

Contacted Report

Search Go Actions

- Flag Type
- High Risk
- Moderate Risk
- Low Risk

Flag Type : ATTENDANCE

Update	Student Photo	Student ID	Student Name	Course	Response Time
<input type="checkbox"/>		870XXXXXX	Adams, Catherine	PERS 2799 B - High Risk	20 days
<input type="checkbox"/>		870XXXXXX	Berggreen, Courtney	HIST 2112 A - High Risk	3 days
<input type="checkbox"/>		870XXXXXX	Hart, Jessica	ART 1020 B - High Risk	1 day

Faculty Portal

The Benefits

01 Know Your Students

Insight on who your students are and knowledge of their needs allow you to improve their experience and ensure they are equipped with tools for success.

02 Improve Experience

Students who see their faculty and staff working together to ensure their success have higher satisfaction and a better learning experience.

03 Enhance Communication

The messaging and flagging tools allow faculty to correspond early and often with student support offices, which encourage healthy, productive communication among various groups.

04 Intervene Early

Timely attention to issues that hinder success allow faculty to intervene early enough in the course cycle to address and improve student performance.

05 Retain Your Students

With proper attention to students' needs, faculty and student support staff are more likely to intervene and prevent failure – thus contributing to success in the classroom and, ultimately, graduation.

Reports and Dashboards

Enterprise Data Warehouse



FEATURES

- **Predictive Analytics** provide early alerts and metrics to help improve student outcomes.
- **Enrollment Reports** provide information and operational reports for all stakeholders. In addition to enrollment trends for executive administrators, reports are also delivered for student success managers, advisors, department heads, student support services, and faculty.
- **Student Profiles and Analytics** for monitoring retention, progression, and graduation rates.
- **Retention and Graduation** reporting and analytics.

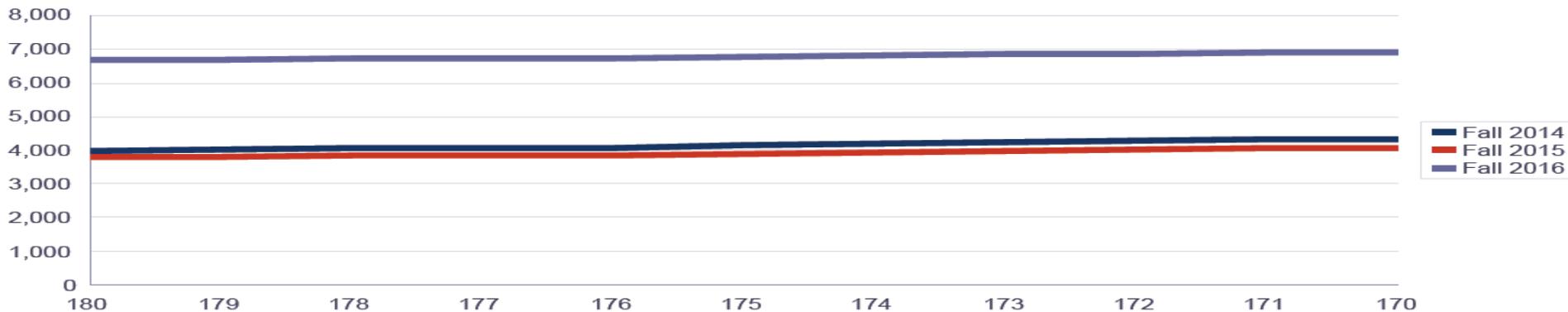
Admissions Day-to-Day Trends

Student Level: US

As of 170 days till the start of term:

Term	Date	Applied Students	Applied Percent Change	Accepted Students	Accepted Percent Change
Fall 2014	Mar 1, 2014	4319	1.34%	2561	-0.08%
Fall 2015	Feb 28, 2015	4069	-5.79%	2321	-9.37%
Fall 2016	Feb 27, 2016	6899	69.55%	2811	21.11%

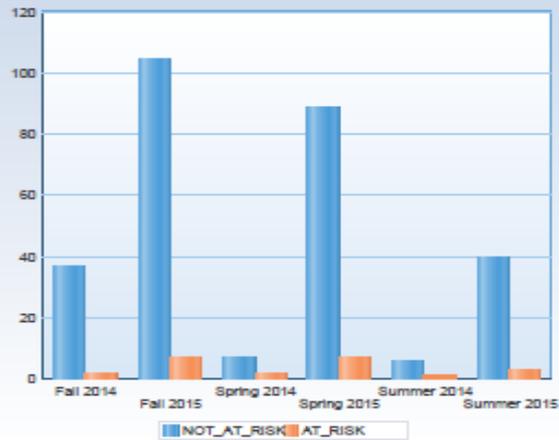
Applied Students



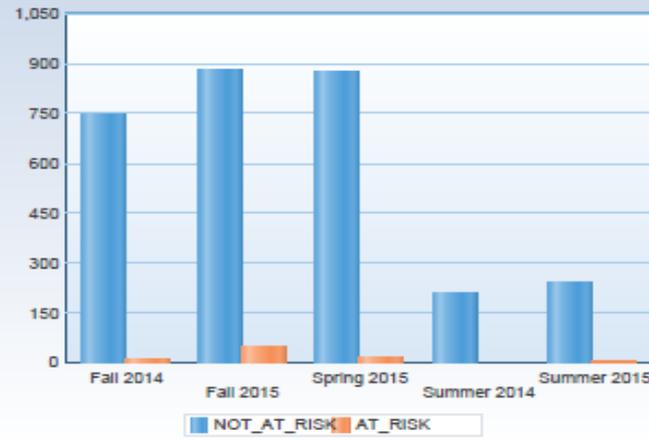
Enrollment Overview



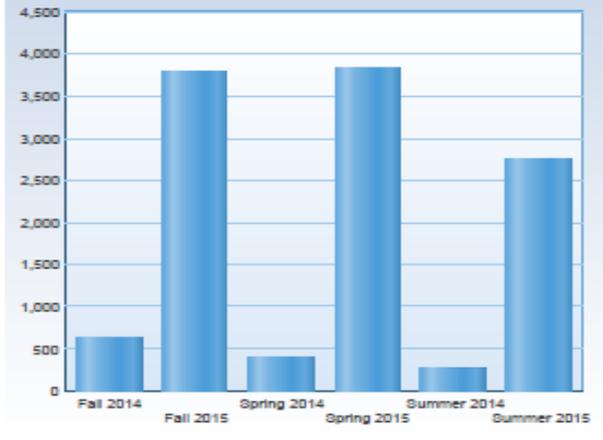
Retention Risk per Term



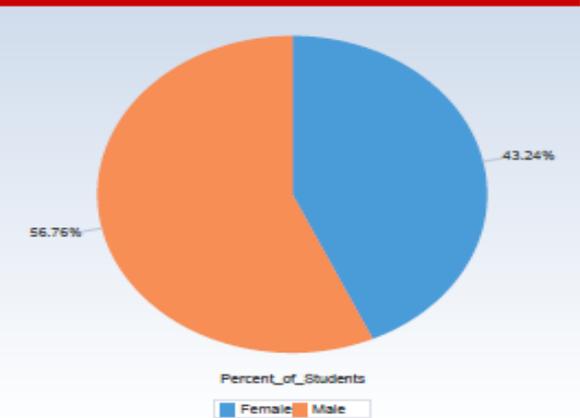
Course Risk per Term



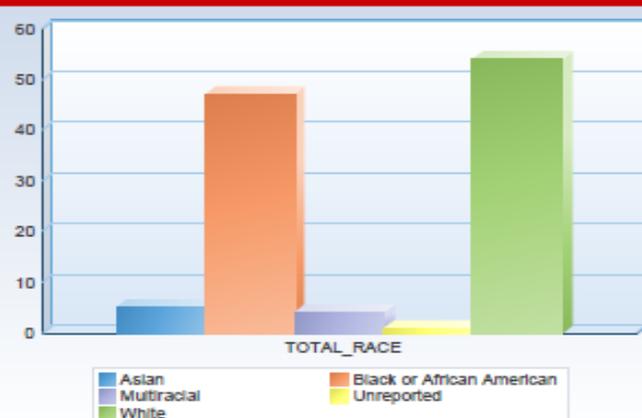
Total Hours Earned Per Term



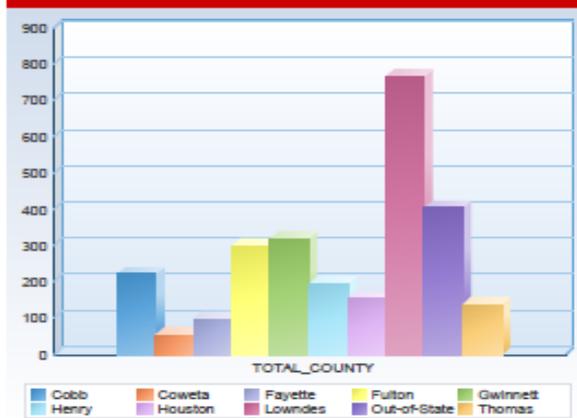
Current Male Female Ratio



Current Students by Race



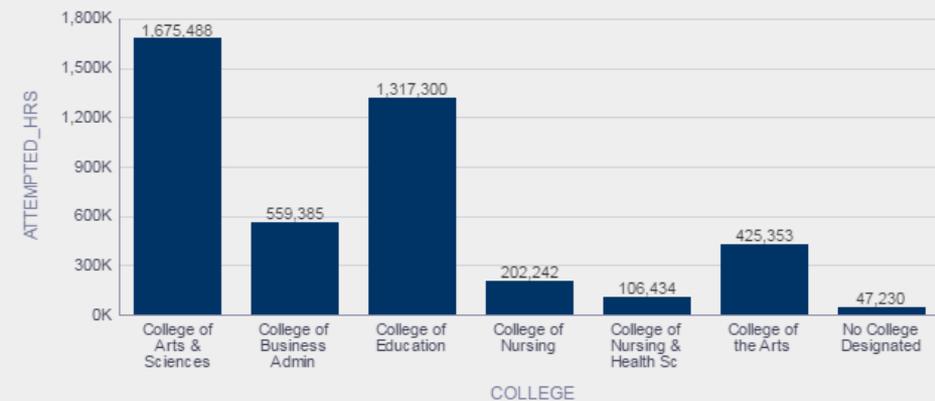
Current Top 10 Counties



Earned Hours

COLLEGE	ATTEMPTED_HRS	EARNED_HRS	PERCENT COMPLETE
College of Arts & Sciences	1,675,488	1,230,541	73.44%
College of Business Admin	559,385	437,965	78.29%
College of Education	1,317,300	1,068,737	81.13%
College of Nursing	202,242	177,485	87.76%
College of Nursing & Health Sc	106,434	63,459	59.62%
College of the Arts	425,353	359,344	84.48%
No College Designated	47,230	43,288	91.65%
Grand Total	4,333,432	3,380,819	78.02%

ATTEMPTED_HRS

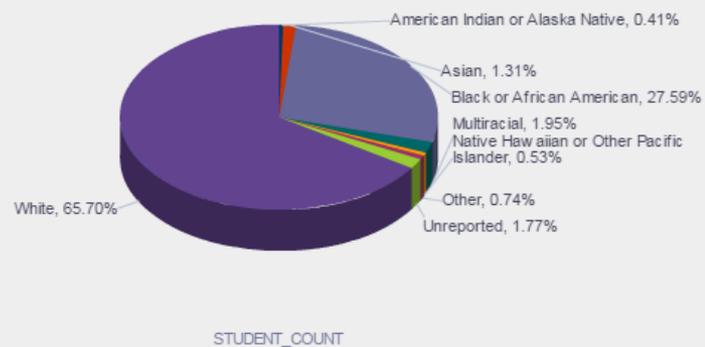
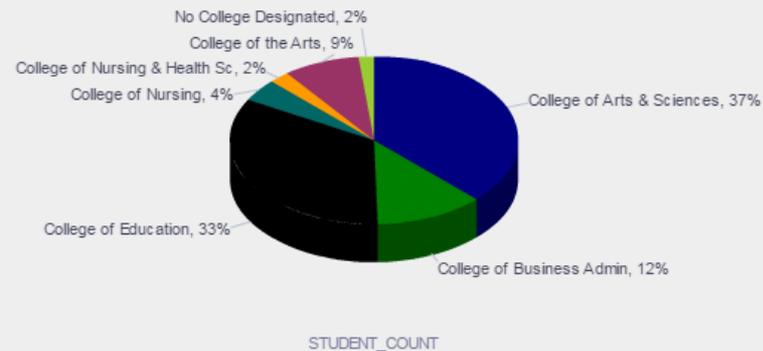


Earned Hours

EARNED_HRS



Students



Academic Department Analysis

Student Sex Distribution

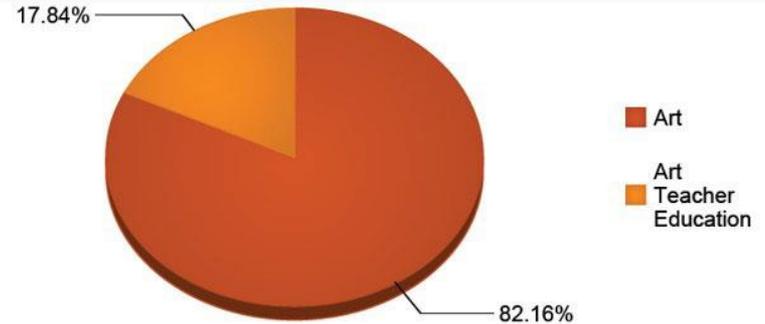
SEX	TOTAL	PERCENT
Female	153	71.83%
Male	60	28.17%

Top 5 Counties of Origin of In-State Students

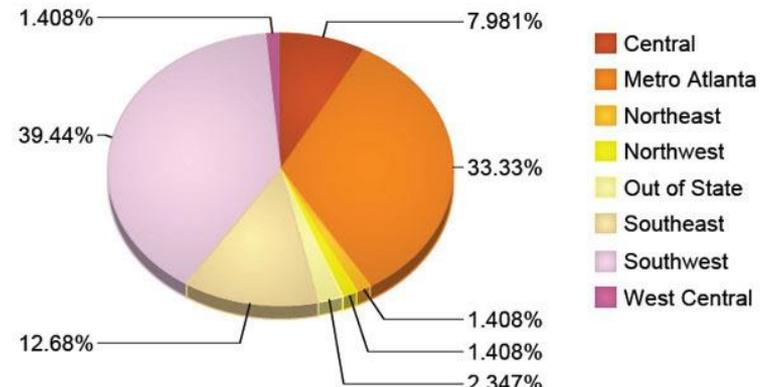
COUNTY OF ORIGIN	TOTAL	PERCENT
Fulton	71	33.33%
Gwinnett	14	6.57%
DeKalb	8	3.76%
Houston	7	3.29%
Fayette	6	2.82%

Student Level Distribution

STUDENT LEVEL	TOTAL	PERCENT
Senior	63	29.58%
Freshman	51	23.94%
Sophomore	54	25.35%
Junior	40	18.78%
Post-Baccalaureate	4	1.88%
Other	1	0.47%



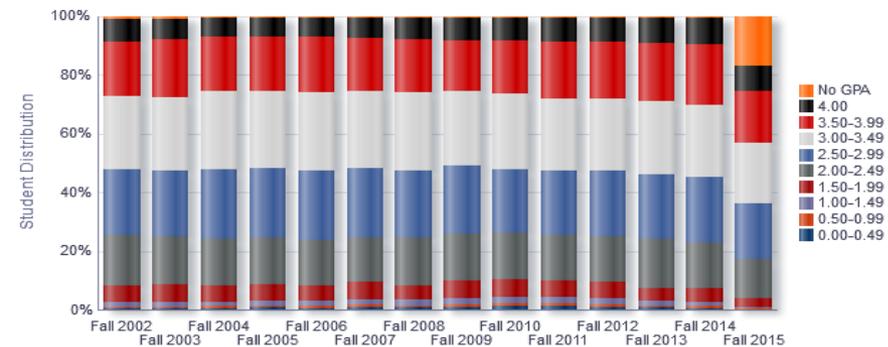
Student Distribution by Economic Development Region



Rate of GPA Population Change

Time run: 11/18/2015 1:38:08 PM

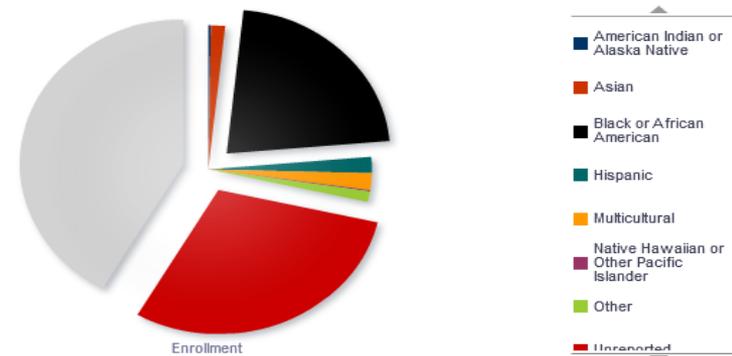
GPA Distribution



[Export](#)

Race Distribution

Time run: 11/18/2015 1:38:08 PM



[Export](#)

Enrollment Trends

Time run: 11/18/2015 1:38:08 PM

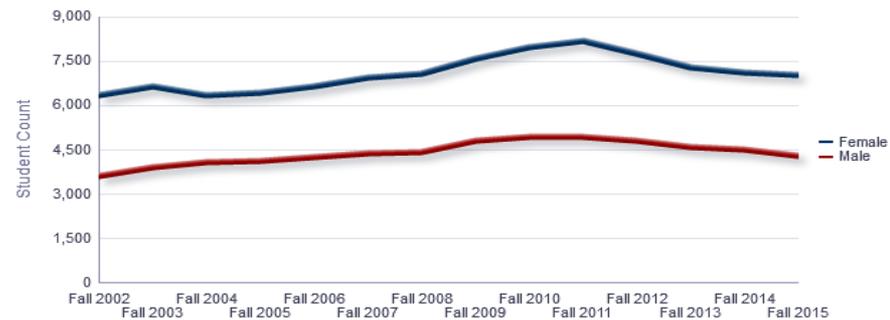
Enrollment



Gender Trends

Time run: 11/18/2015 1:38:08 PM

Student Count



Major Summary Report: Criminal Justice Spring 2007

Student Totals

Total Student	356
Total Student FTE	325.92

Student Sex Distribution

SEX	TOTAL	PERCENT
Female	155	43.54%
Male	201	56.46%

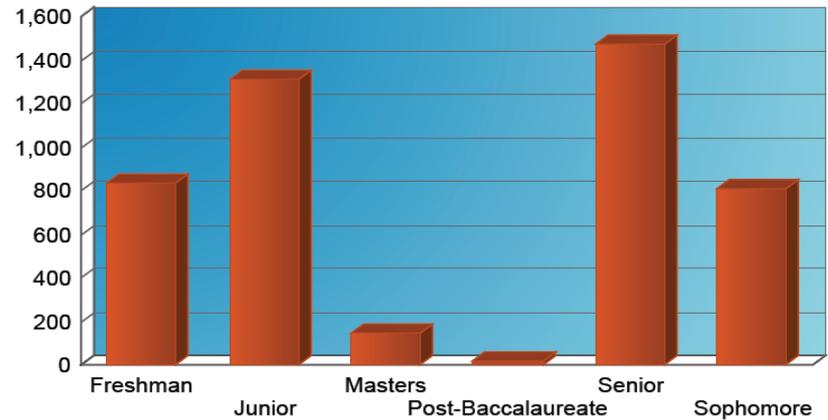
Top 5 Counties of Origin of In-State Students

COUNTY OF ORIGIN	TOTAL	PERCENT
Lowndes	73	20.51%
Camden	22	6.18%
Gwinnett	21	5.90%
DeKalb	15	4.21%
Fulton	10	2.81%

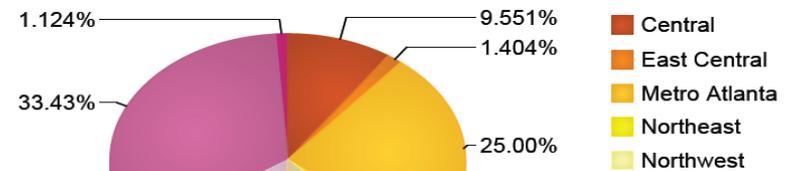
Student Level Distribution

STUDENT LEVEL	TOTAL	PERCENT
Senior	120	33.71%
Junior	96	26.97%
Freshman	62	17.42%

Credit Hours Attempted During This Term by Student Level



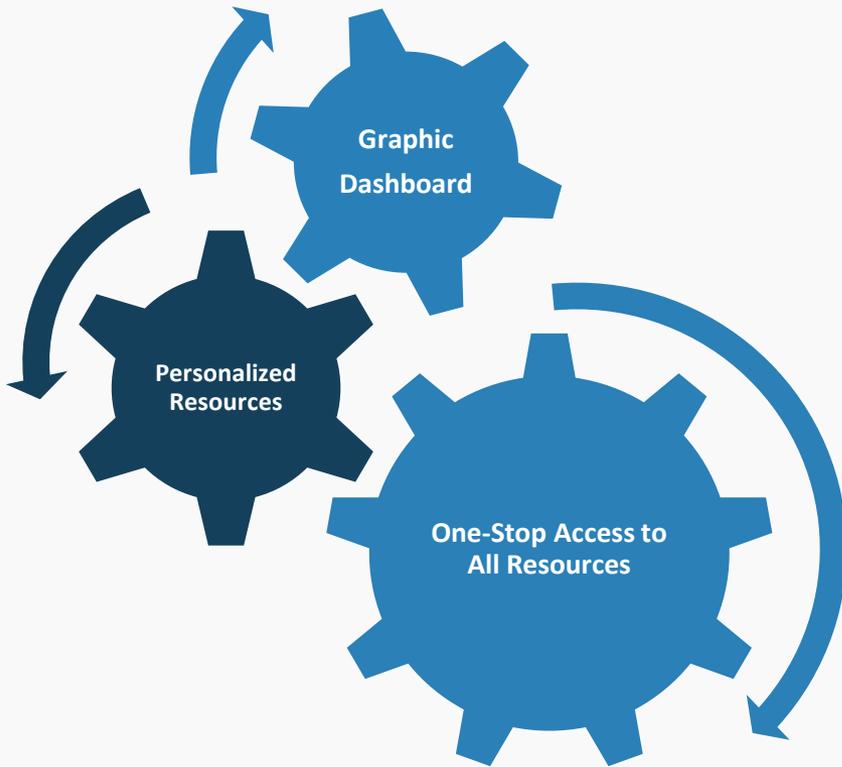
Student Distribution by Economic Development Region



Student Portal

FEATURES

- **Interactive Graphic Dashboards** that integrate with the faculty portal and data warehouse to provide students with messages and recommendations for coaching, advising and other resources.
- **Single Sign-On Feature** that provides students with immediate access to email and other online resources that allow them to register for classes, check their financial aid status, pay tuition and fees, buy books and view their transcripts.
- **Student-Tailored Ads** that appear on the dashboard based on attributes associated with the individual student.
- **Measurable Success Markers** that indicate student progression through classifications and time left before graduation.



MyUniversity Student Portal

Welcome ▾

Library Athletics News Directory Helpdesk Calendar

! Urgent Message From Your Advisor [FIND OUT MORE](#)

! New Message From Your Advisor [FIND OUT MORE](#)

View Background

Math Tutor Session

Study Abroad in Italy

Events list

- 2 NOV** Connell Lecture Series 10:00 am - 12:00 pm
- 14 NOV** Connell Lecture Series 10:00 am - 12:00 pm
- 23 NOV** Connell Lecture Series 10:00 am - 12:00 pm

Info box



Class Status: Junior

Pursuing: Bachelor of Fine Arts

Username: aawilliams
ID # 870XXXXXX



Progress Bar

65/120

BFA

65/120

BFA

65/120

BFA Minor in Something

Info box



229-000-0000

Health Science and Business Administration Building
3rd Floor
Room 3017C



Email 

Cascade Server CMS

Information Technology Service Desk



Menu

 Active Flags 0	 Holds 0	 Academic Standing Good Standing
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Brooke Jaros
 Biology
 870XXXXXX - Sophomore
 Cumulative GPA: 2.64

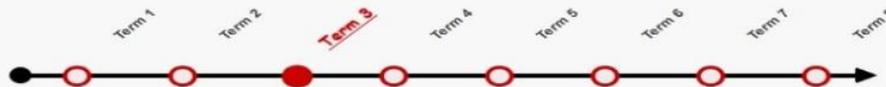
Course	Meet Time	Chart
BIOL 3700 A	TR 09:30 AM- TR 10:45 AM	
CHEM 3402 A	MWF 11:00 AM- MWF 11:50 AM	
CHEM 3402 A	T 1:00 PM- T 4:50 PM	
PERS 2430 B	TR 11:00 AM- TR 11:50 AM	
REL 3330 1A		

Our Goal: Graduation
38%



Based on a 120 credit hour Degree

Program Map



Term 3

AREA E Elective,
 BIOL 3200,
 CHEM 1211 and 1211L,
 ENGL 2111, 2112, or 2113,
 PERS 2XXX



My Advisor
Lorrie Evans
 advisor@university.edu

Degree Plan

Fall 2015

 CHEM 1211 Principles of Chemistry I ✓ Fall 2015	 CHEM 1211L Principles Chem Lab I ✓ Fall 2015	 MATH 2620 Statistical Methods ✓ Fall 2015	 PERS 2390 Music in Film X	 PSYC 1101 Intro to General Psychology ✓ Fall 2015
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▶ Portal and Early Alert Notes

▶ Emails Sent via the Portal

▶ Course Registration History

GPA History



Student Portal

The Benefits

01 Keep Students Informed

The portal dashboard keeps students abreast of their individual progress while also keeping them up-to-date on university events, initiatives and resources that they can take advantage of to be successful.

02 Improve Experience

Attribute-driven ads strategically placed on the dashboards provide students with fast access to activities and tools that help enhance their overall experience.

03 Simplify Online Experience

The portal's single sign-on feature alleviates the hassle of creating multiple account logins and visiting multiple sites to access student support services.

04 Improve Student Performance

Data from the faculty/advisor portal determines the type of information displayed on the student portal dashboards. The dashboard provides students with a variety of resources and information designed to promote academic success.

05 Graduate Your Students

Seeing is believing. The student portal provides students with a visual pathway to their ultimate goal – graduation. As students progress from one classification to the next, they can reflect on the work they have completed while referencing their own personal blueprint for success.

Big Data Discovery



Identify Key Attributes
for student success



Determine Probability
for student success



Improve Success Rates
through historic
pattern comparison



Develop Success Models
through data mining
and analysis

What is Predictive Analytics?

Predictive analytics is the exploration of past and present data to identify patterns in behavior and determine a student's potential for success. Through predictive analytics, institutions can develop academic instruction and student satisfaction models that help retain students and increase graduation rates.

FEATURES

- Information Access and Delivery
- Drag and Drop Reporting
- Report Generation and Analysis
- Oracle BI Cloud Option

Search Box

Search Within

Breadcrumbs

No refinements have been selected.

Range Filters

Success Counts

Success Hours

- Guided Navigation
- Student
 - Student Courses
 - Student Demographics
 - Student Employess
 - Student Flags
 - Student GPA
 - Student MultiAssign
 - Success Center
 - Financial Aid
 - Labor Data
 - Purchases
 - Card Access
 - Indicators
 - Course Type

Bookmarks

Filter bookmarks...

My Bookmarks

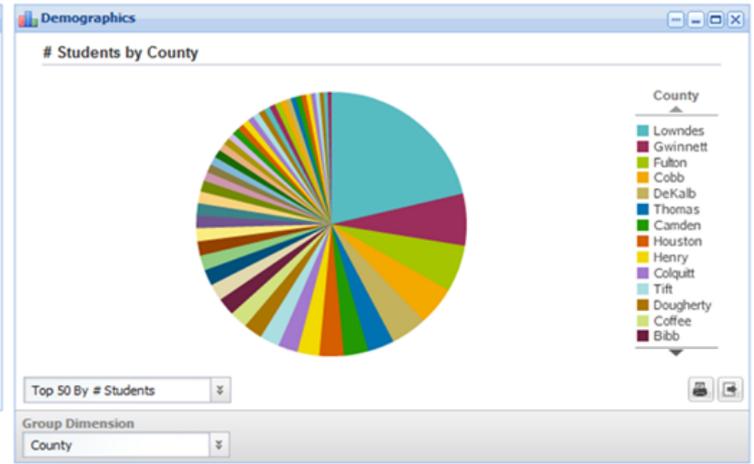
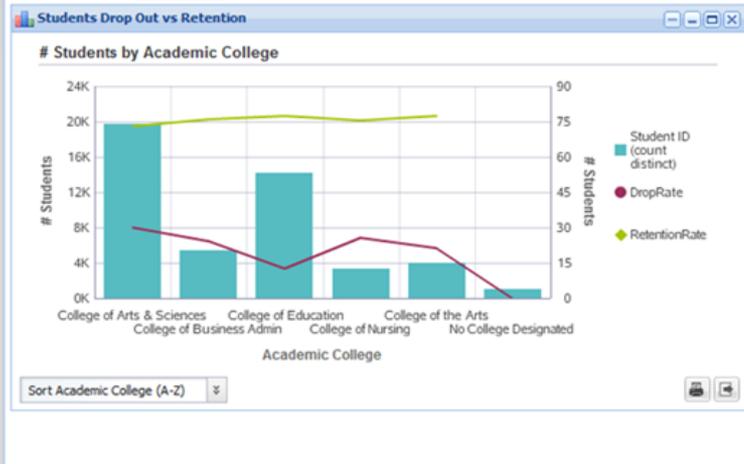
Name	Description	Date	Actions
No bookmarks matched your filter.			

Create New Bookmark

Student Metrics

At Risk Rate 17%	Drop Out Rate 24%	High School GPA 3.08	Cumulative GPA 2.96	Student Sentiment 21.73%
---------------------	----------------------	-------------------------	------------------------	-----------------------------

Student Location



Detail Records

Column Sets: Student

D...	Student ID	Attempted Hours	Earned Hrs	Face To Face Courses	First Generation	FTE	Fully Online Courses	High School Grad Year	Lives
<input type="checkbox"/>	000380A9A619DAC486F1...	6.000000	0.000000	0.000000	N	0.666667	2.000000		N
<input type="checkbox"/>	000380A9A619DAC486F1...	6.000000	0.000000	0.000000	Y	0.666667	2.000000		N
<input type="checkbox"/>	000380A9A619DAC486F1...	9.000000	0.000000	0.000000	N	1.000000	3.000000		N
<input type="checkbox"/>	0007F307E6A1B6DD2C39...	3.000000	3.000000	1.000000	N	0.250000	0.000000	2008	N
<input type="checkbox"/>	0007F307E6A1B6DD2C39...	4.000000	4.000000	1.000000	N	0.333333	0.000000	2008	N
<input type="checkbox"/>	000837BB026C2AC39A00...	14.000000	8.000000	6.000000	N	1.000000	0.000000	2012	N
<input type="checkbox"/>	000837BB026C2AC39A00...	18.000000	0.000000	6.000000	N	1.000000	0.000000	2012	N
<input type="checkbox"/>	000AB70F6964700971477...	9.000000	7.000000	4.000000	N	0.750000	0.000000	2000	N
<input type="checkbox"/>	000AB70F6964700971477...	5.000000	5.000000	2.000000	N	0.416667	0.000000	2000	N
<input type="checkbox"/>	000AB70F6964700971477...								

Page 1 of 19855 Records per page

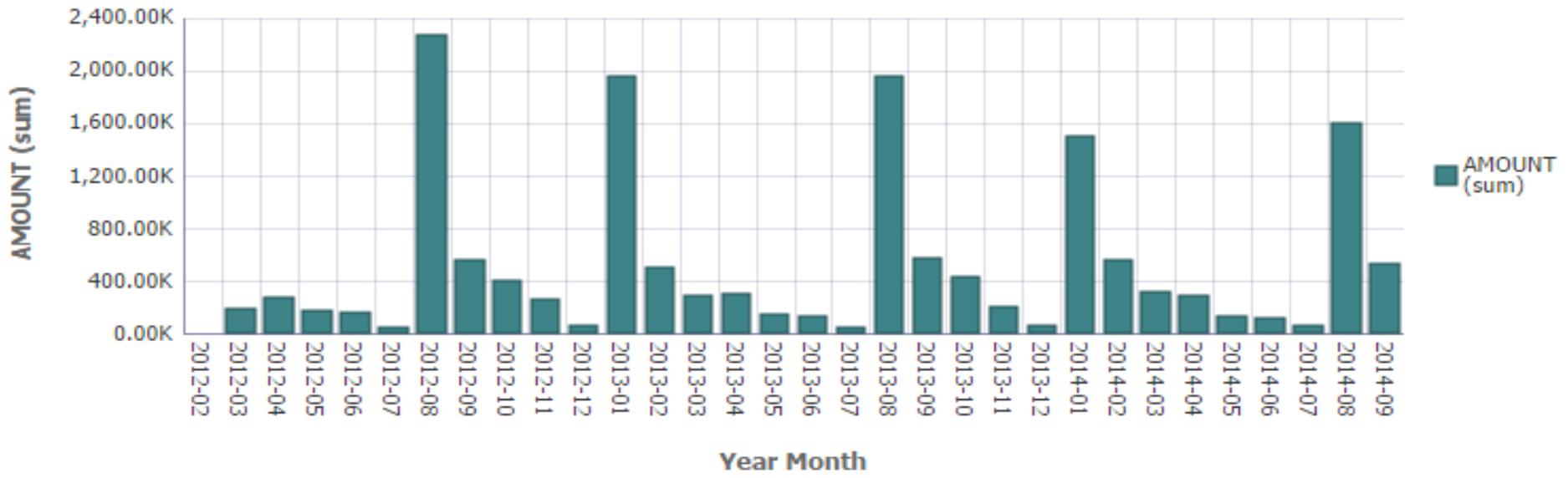
Displaying records 1 - 10 of 198550

Compare By Month



Actions

AMOUNT (sum) by Year Month



Sort: Year Month

Page 1 of 1

1-32 of 32 | 50 per page

Value axis: AMOUNT (sum) | Color: (none)

Purchase Metrics

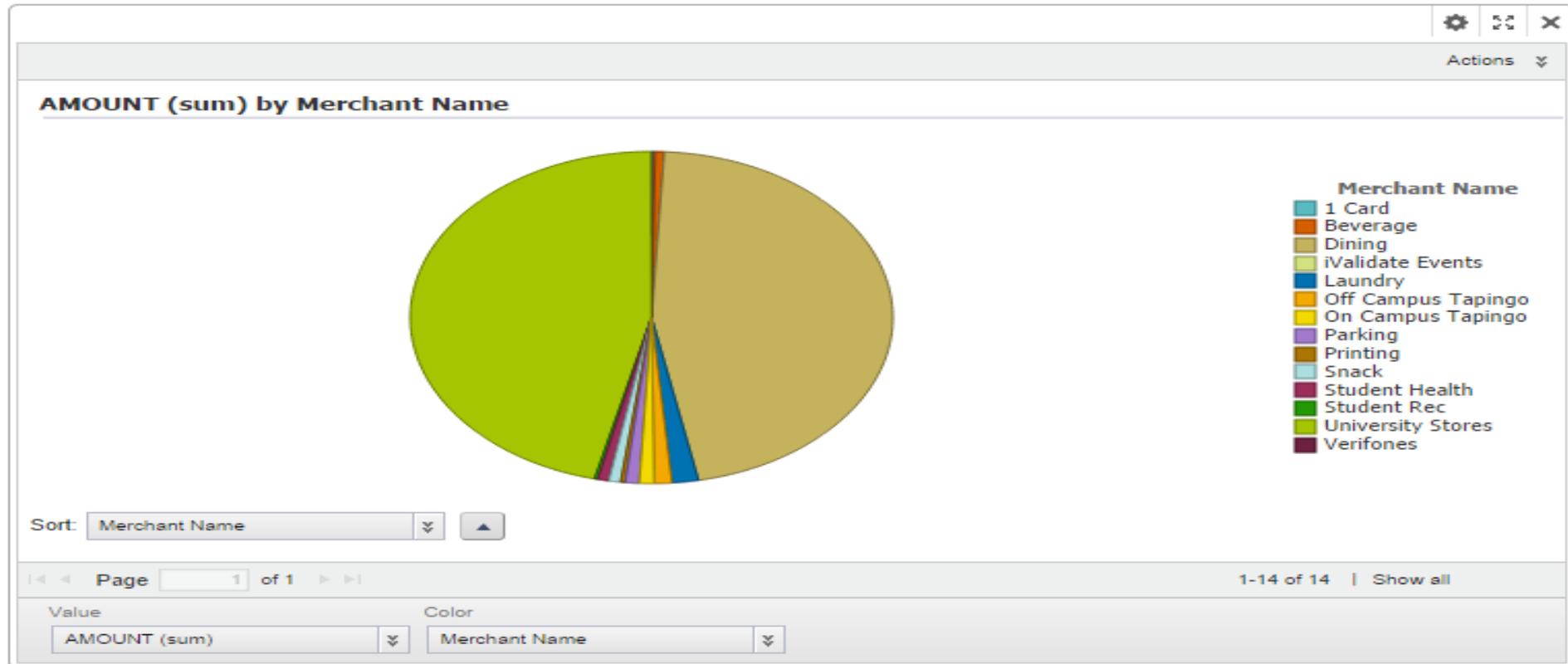
14,603
Students

\$16,054,431
Total \$ Amount

1,912,588
Total Transactions

\$8.39
Avg \$ per Transaction

2,035
Transactions Per Day

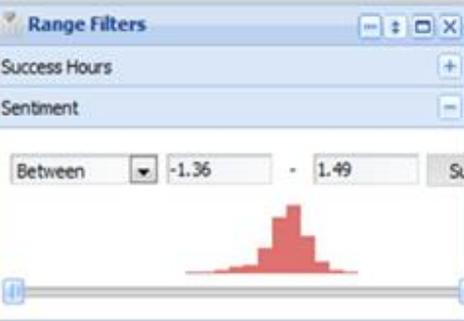


Search Box

Search Within

Breadcrumbs

No refinements have been selected.

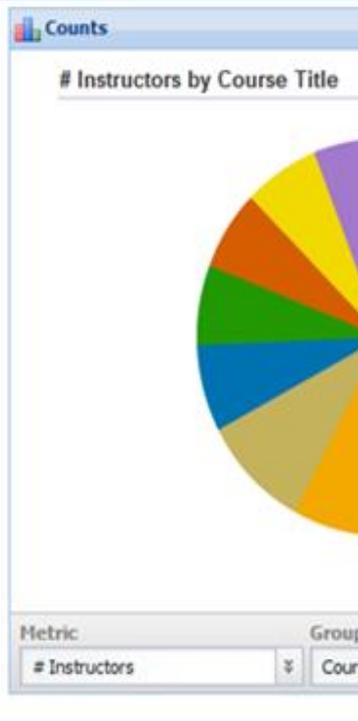
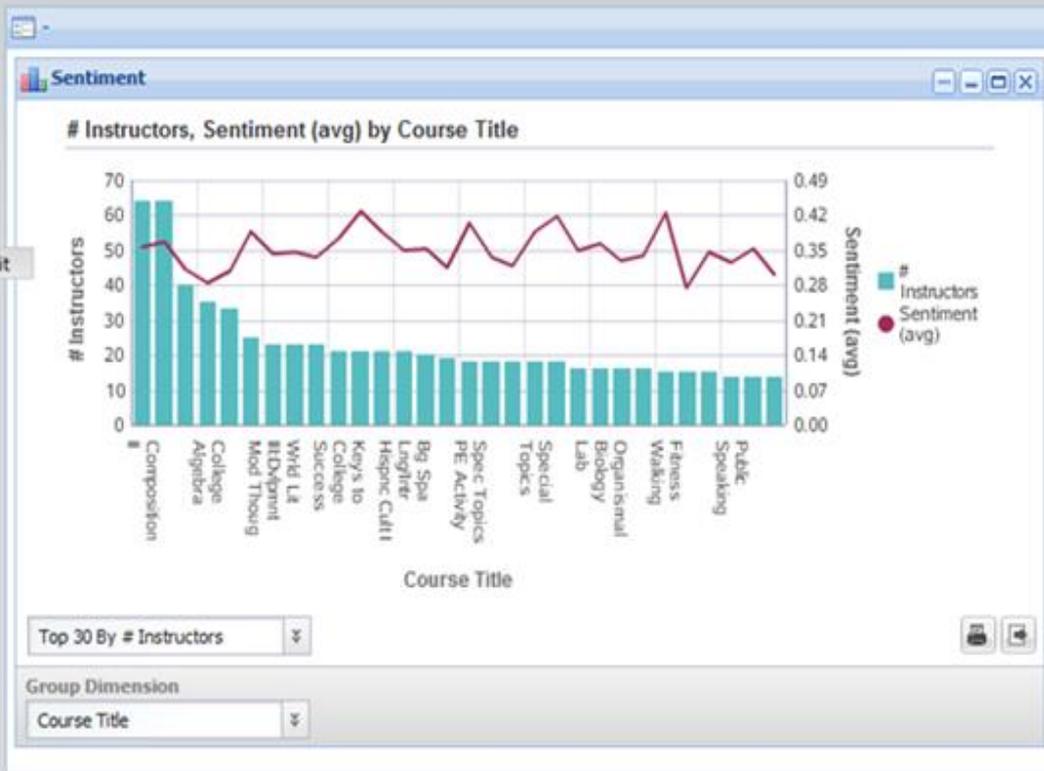


- Guided Navigation
- ▶ Student
 - ▶ Student Courses
 - ▶ Success Center
 - ▶ Student Demographics
 - ▶ Evaluation
 - ▶ Student Flags

Bookmarks

Course Metrics

Sentiment 34%	Students 40,472	Number of Courses 2,446	Courses by Instructor 4
------------------	--------------------	----------------------------	----------------------------



always willing busy work

class discussions class fun

class time

course content

course material

due dates extra credit good teacher

good work great class

great teacher group work

little bit power points study guides

subject matter

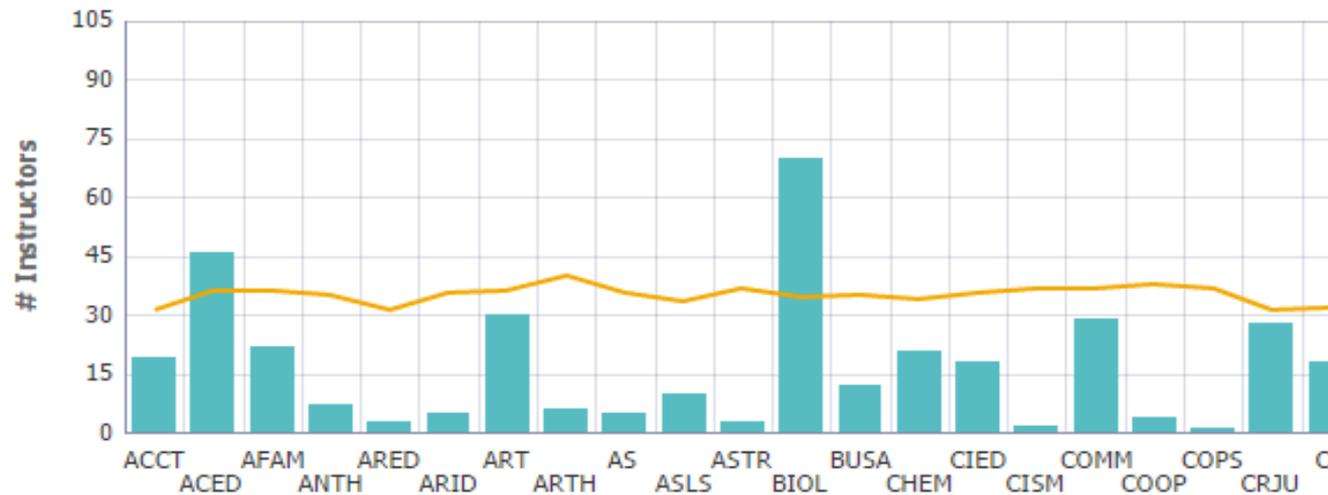
teaching style



Sentiment

Chart

Instructors by Course Subject



Sort: Course Subject

Big Data Discovery

The Benefits

01 Know Where You Stand

While it is easy to make assumptions on whether current methods are working or not working, access to the right data allows you to know exactly where you stand and pinpoint any areas that need to be addressed.

02 Identify Trends

With current and historical data as a reference point, you are able to rapidly identify trends for successes and failures and address them accordingly.

03 Predict Future Trends

With past performance in mind, you are in a better position to make informed predictions of what students will likely need the most attention and in which academic areas.

04 Make Data-Driven Decisions

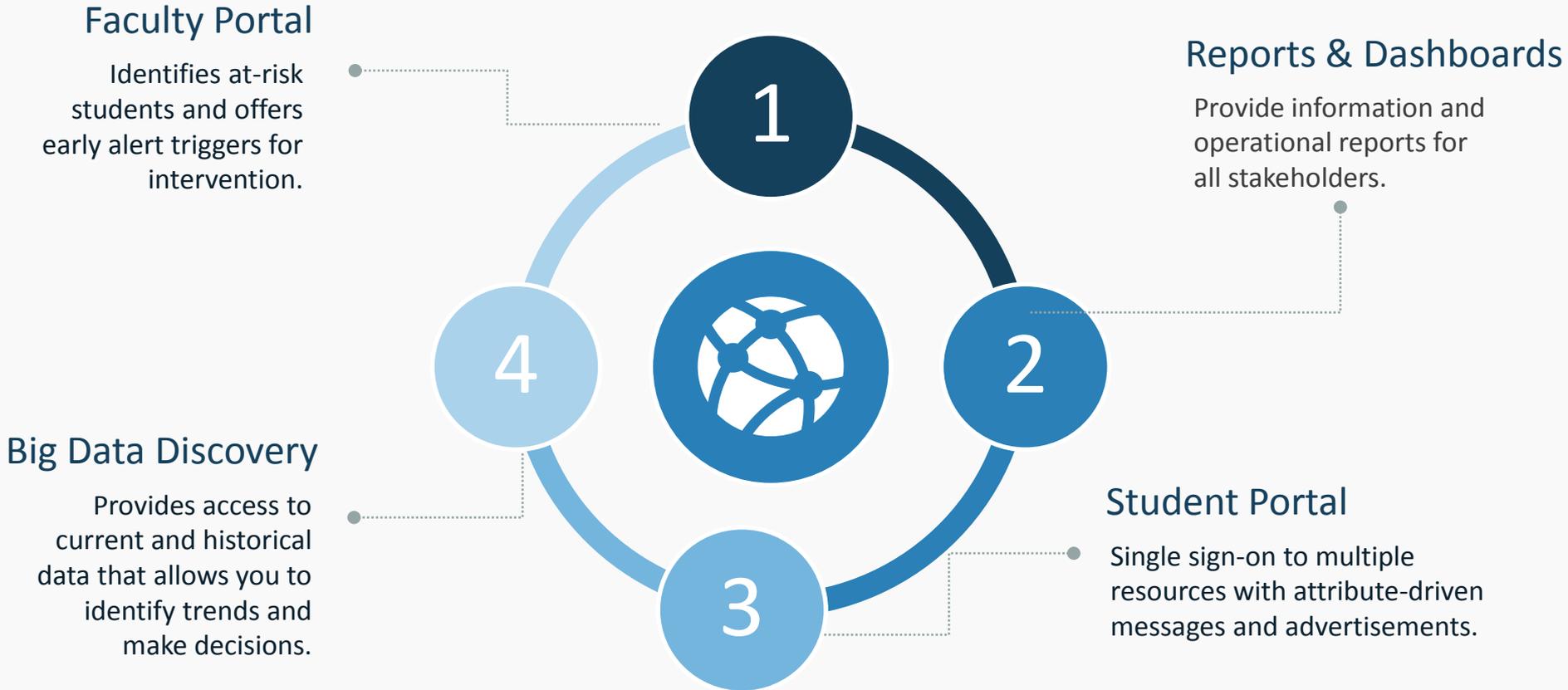
Use numbers and trends to justify decisions inside and outside of the classroom – from the development of new curriculum models to the introduction of a new student activity or support program.

05 Improve Resource Allocation

By identifying areas of success and areas of concerns, you are in a better position to predict future revenue, determine areas that need more financial investment and properly allocate or re-allocate monies and resources.

Actionable Student Intelligence

Overview



Scalability

The Benefits

01 Scalability

Solutions and technology is currently being utilized at other USG institutions. Technologies are flexible to adapt to existing business processes and resources.

02 Transparency

Full access to expand and modify predictive models. Other SaaS based solutions often restrict access to models (black box) and results cannot easily be integrated into other resources.

03 Customization

Features, functionality, and development initiatives are driven by faculty and advisors. This improves adoption, utilization, and integration with existing business processes.

04 Cost

The cost of implementation and support is 50% less than outsourced solutions that limit the expansion of predictive analytics and do not provide an enterprise data warehouse

05 Flexibility

All solutions are flexible and allow the institution to meet students where they enter and provide a personalized support framework in assisting them through graduation.

USG Support

The Benefits

01 Procurement of Technology

Many technologies and solutions are available through existing state contracts and system-wide purchases. This provides better pricing and adoption rates.

02 BI Conference Track

Two major conferences hosted annually brings together Information Technology and Institutional Research professionals. Focus groups have also been formed that meet monthly.

03 Director/VC of BI

USG teams dedicated to enhancing the use of data and supporting institutions. Internal projects will provide standard reporting and central repository for all institutions.

Strategies

The Benefits

01 Partnerships

Technology partnerships with USG institutions and other companies in developing innovation solutions to solve challenging problems facing higher education.

02 CIO Meetings

Both statewide and regional CIO meetings bring IT leadership and expert staff to share ideas, processes, and best practices.

03 Data Analysis

Collaborate with other IT and IR departments in sharing processes to meet reporting needs.

04 Barriers

Data cleansing, standardization
Documenting the various academic business processes from all colleges
Faculty perception of profiling students for doing predictive analytics

05 University Changes

Co-located IT and IR teams for improved collaboration and communication
Data Science training provided to programmers and data analysts
Collaboration among IT, IR, Academic Affairs and Centralized Advising to create early alerts, reports, communication and predictive analytics to improve student success

Solutions and Strategic Partnerships

The Benefits

01 Oracle

Oracle Business Intelligence and data warehousing solutions are the primary technology. This provides easy integration with Banner and Campus Solutions as both run on Oracle database

02 Advanced Analytics

The Oracle Advanced Analytics option of the database allows easy creation of powerful predictive models within Oracle. This allows seamless integration with Banner, Campus Solutions, data warehouse, and early alert applications

03 Tower Insights

Strategic partner in innovative designs, processes, cloud integration, and predictive analytics. Collaboration with expert staff in determining best practices in taking leading technologies and building a solution for higher education.

04 ERP Analysts

Process review with big data experts from banking industry. Assisted in designing upcoming big data initiatives with Hadoop technologies to support very large scale big data deployments.

Contact

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Valdosta State University

aroberson@valdosta.edu

<https://www.linkedin.com/in/alicia-roberson-b52a5643>

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Chief Information Officer
Valdosta State University

bahaugab@valdosta.edu

<https://www.linkedin.com/in/brianhaugabrook>

Full presentation can be downloaded from

<http://www.valdosta.edu/administration/it/innovation-technology/>

Do you have any questions?



NATIONAL ASSOCIATION OF SYSTEM HEADS

MARCH 3, 2016

USING GUIDED PATHWAYS AND PREDICTIVE ANALYTICS TO CLOSE THE ACHIEVEMENT GAP



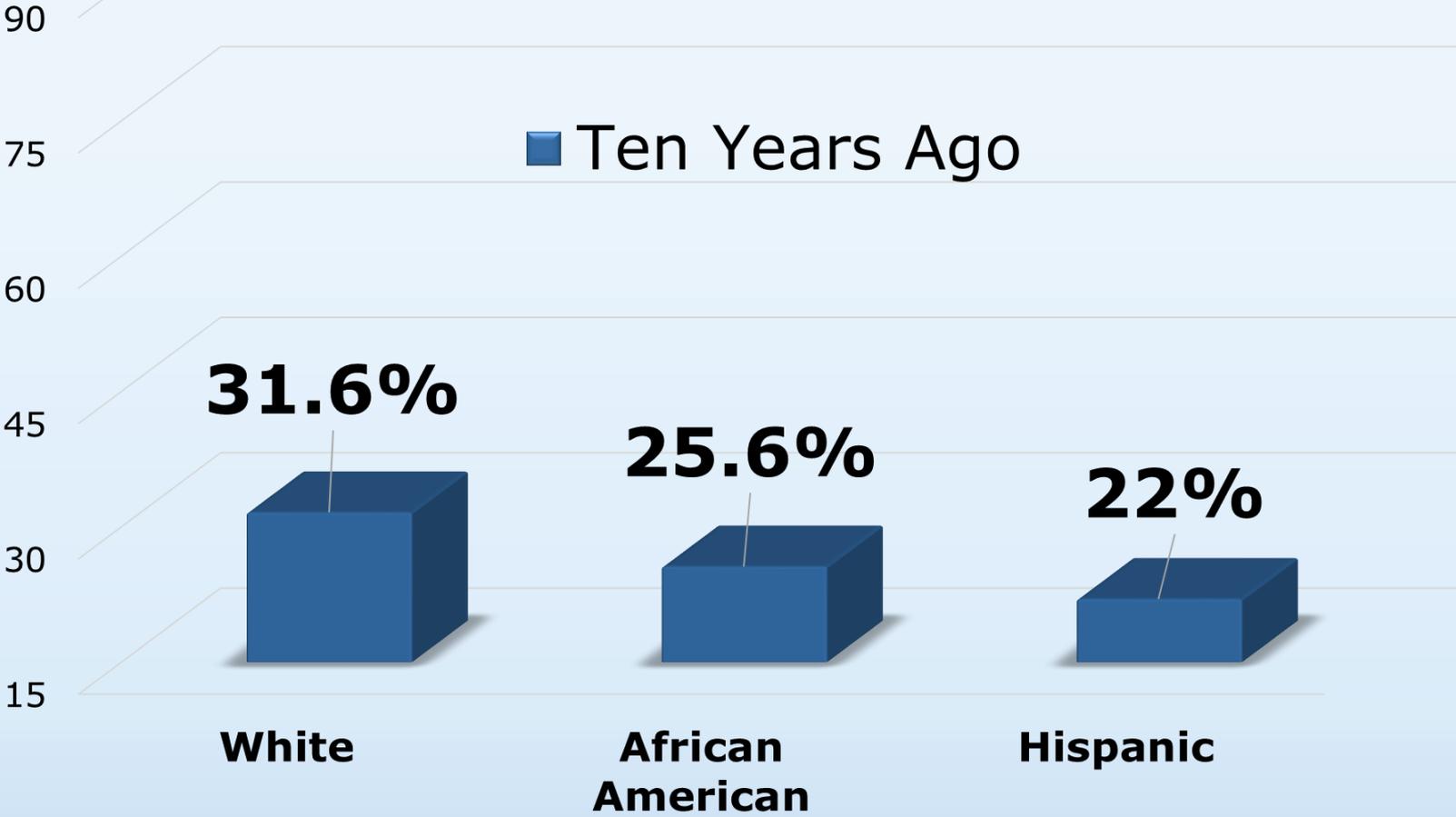
Timothy M. Renick, Ph.D

Vice President for Enrollment & Student Success

Vice Provost

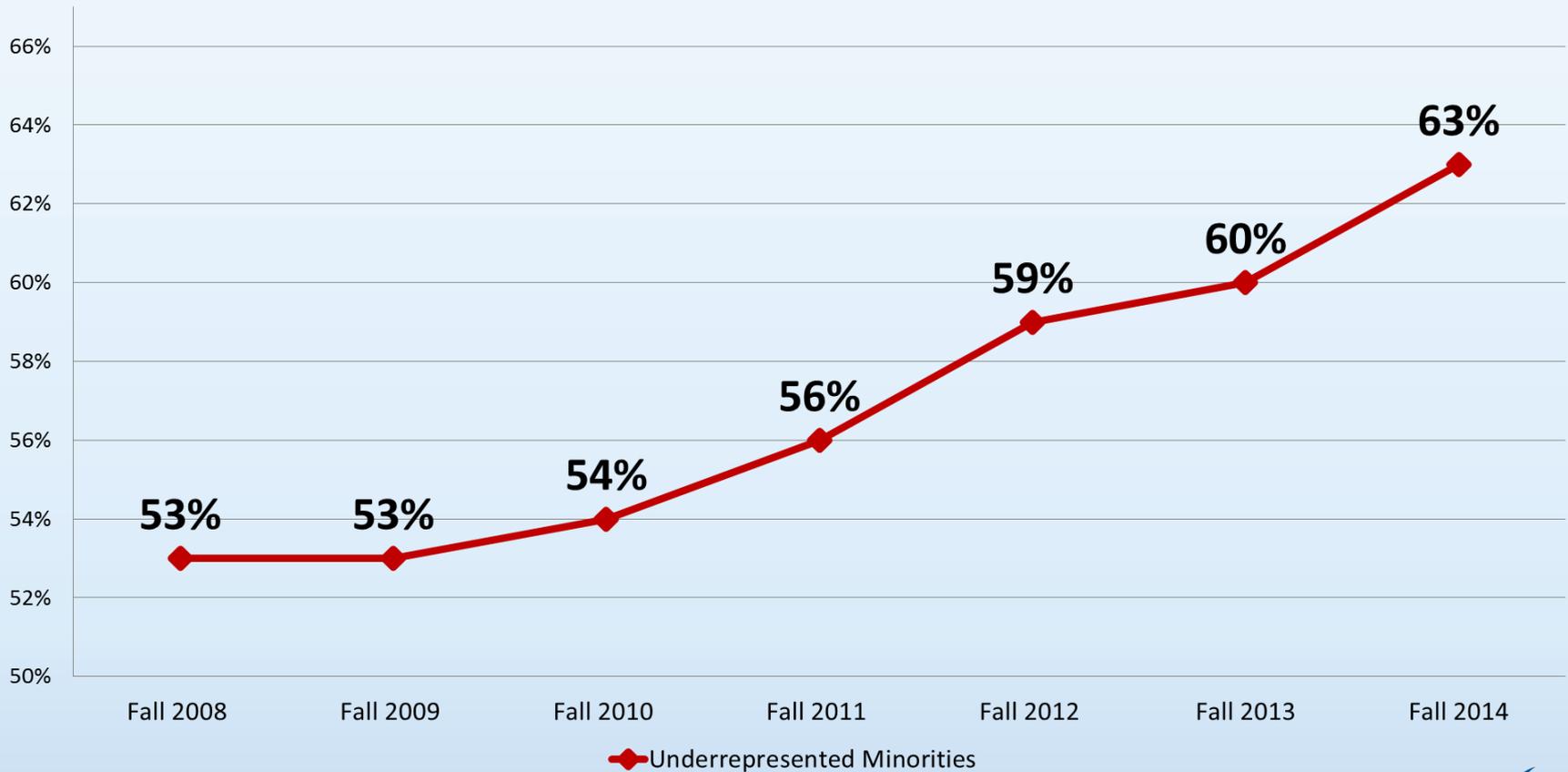

GeorgiaStateUniversity

GRADUATION RATES BY RACE & ETHNICITY



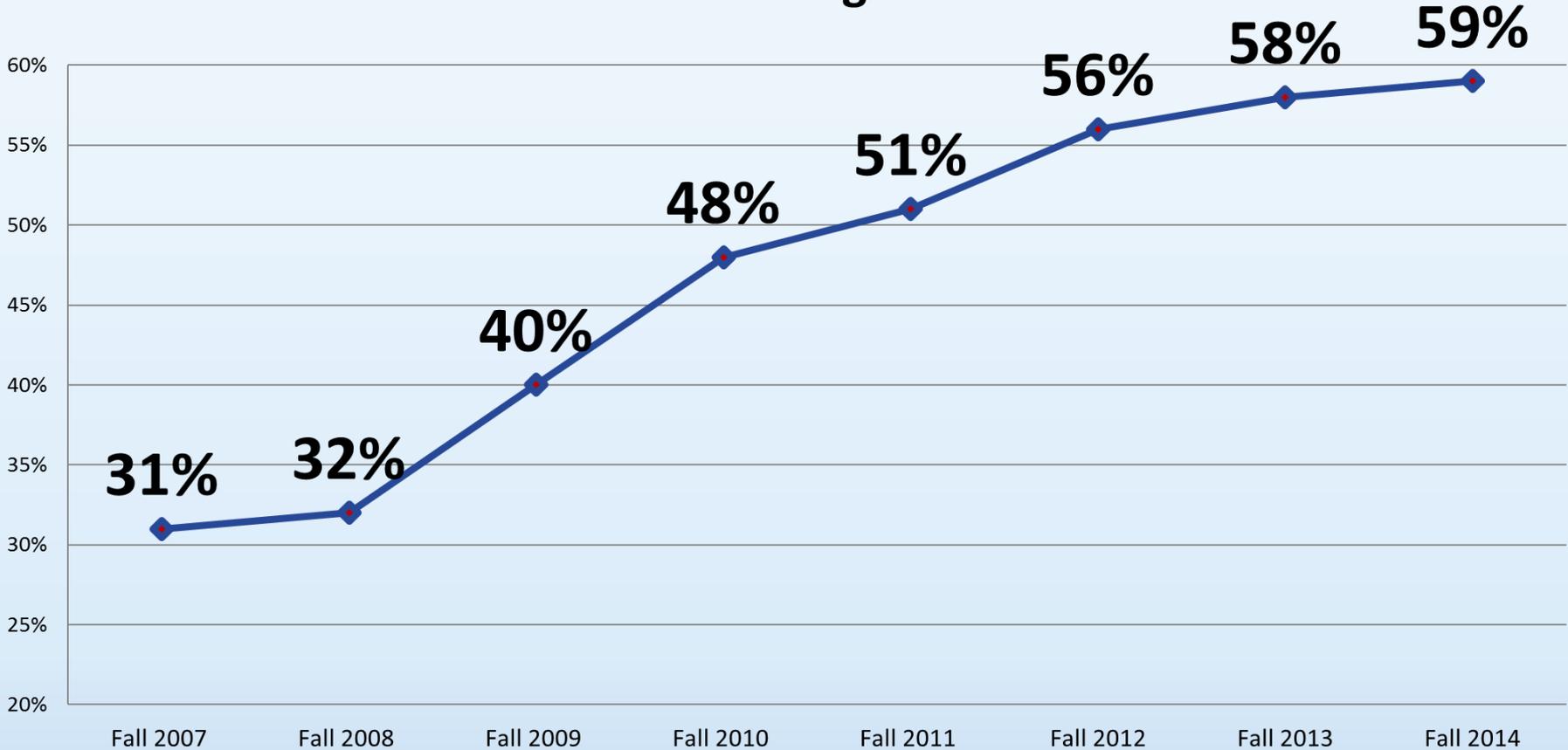
CHANGING DEMOGRAPHICS: RACE & ETHNICITY

UNDERREPRESENTED MINORITIES



CHANGING DEMOGRAPHICS: PELL

Percent of GSU Undergraduates on PELL



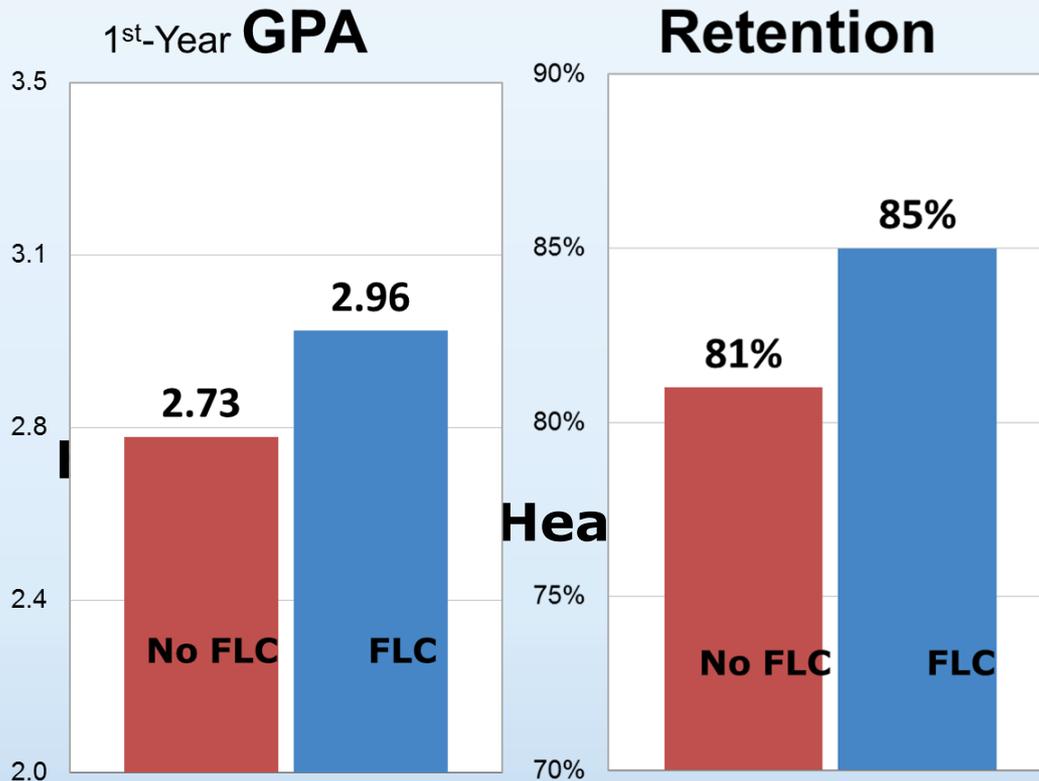
Georgia State University

- ▶ **32,000+** students on Atlanta Campus: **37% White, 38% African American, 13% Asian, 9% Hispanic**
- ▶ **89%** of undergraduates receive need-based financial aid
- ▶ Ranks in the **Top 15 in the Nation** for both Pell Population and Diversity *US News and World Report (2015)*



FRESHMAN LEARNING COMMUNITIES & META MAJORS

Freshman Learning Communities with Block Schedules of 5 to 6 courses: 95% of non-Honors Freshmen (Opt-out model)



Meta

**STEM
Business
Arts and**

**Education
Policy and Social**

Exploratory



STRENGTHENING MATH PATHWAYS



Pre-Calculus, College Algebra, Intro to Stats

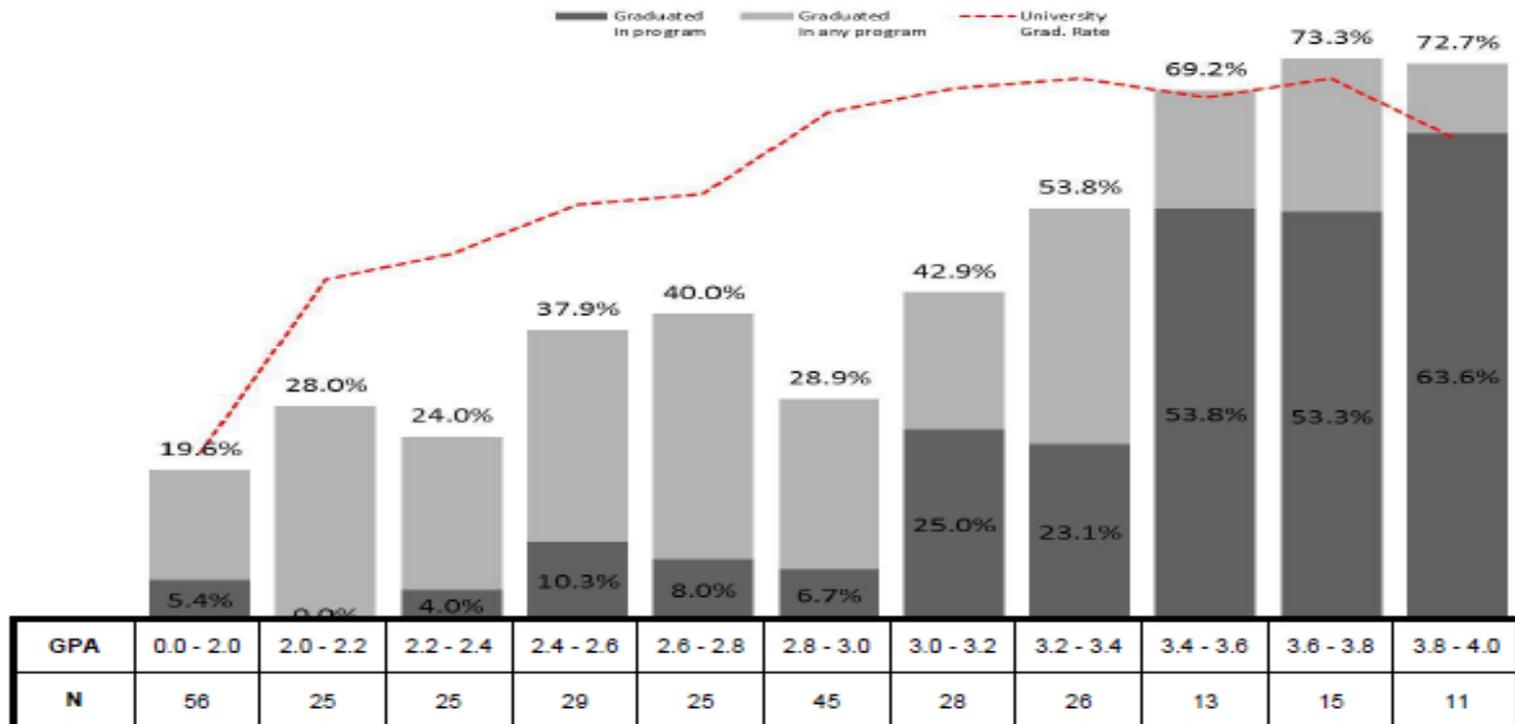
- Prior to Change: DFW rates were **43%**
Fall 2014: DFW rate of **19%**
- Number of Students enrolled in courses taught through the MILE, 2014-15: **7,500+**
- Additional passing grades: **1,800**

Academic Program Redesign: Nursing

How Well Does First-Year GPA Predict Graduation in NURSING AND HEALTH PROFESSIONS - NURSING and Overall?

What Opportunities Do We See to Inflect Change?

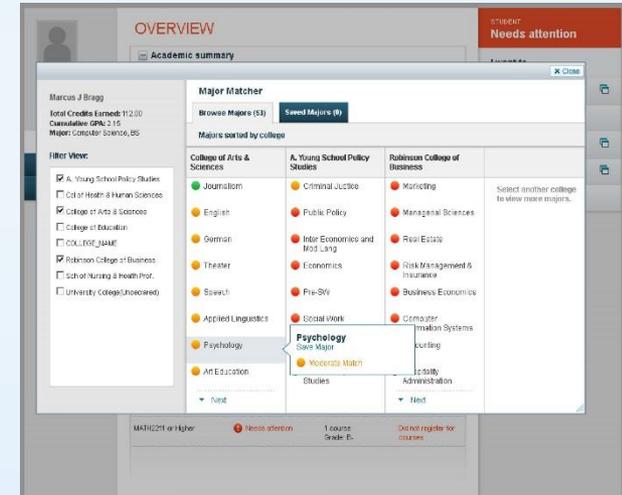
Graduation Rates by First-Year GPA
FT/FT Students



ADVISEMENT

Georgia State's Web-Based GPS Advising System

- A collaboration with the Education Advisory Board and four other schools
- Based on **10 years of RPG data** at Georgia State and **2.5 million grades**
- Live, **nightly feeds from Banner** and daily alerts to advisors if students have missed any of the markers
- **Predictive analytics** for each student's success in individual majors and courses
- Tracks **800+ alerts** for risk factors



ACADEMIC PROGRAM MAPS

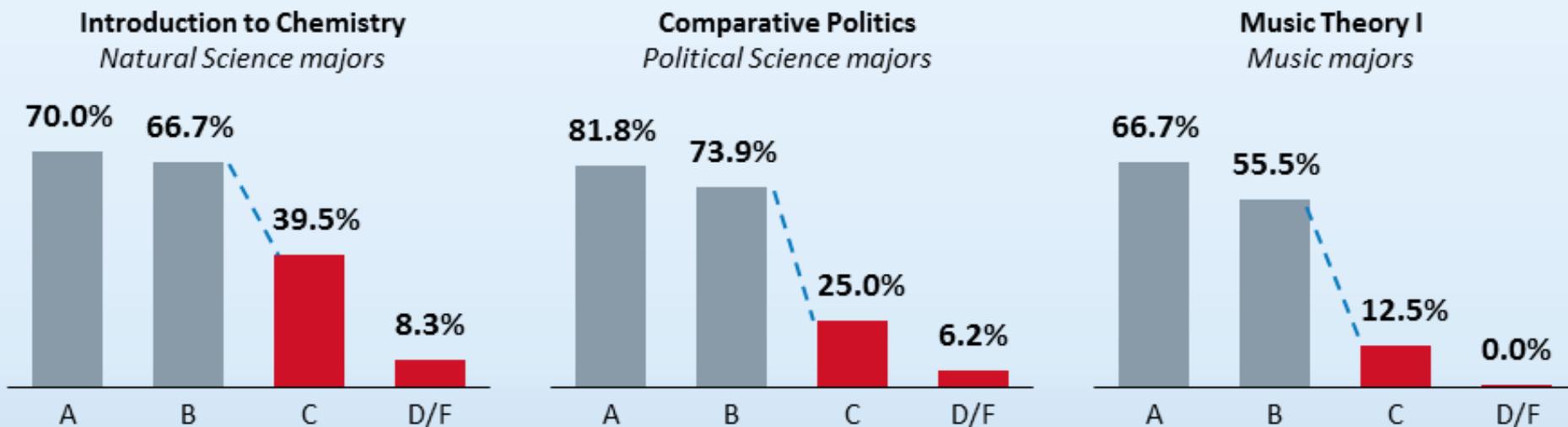
Chemistry (B.S.)

Semester 1	Semester 2
<ul style="list-style-type: none"> • Complete 1 of ENGL 1101, ENGL 1102 or ENGL 1103 (C or Better) • Complete MATH 1113 or Higher (B- or Better) • Complete CHEM 1211K (B- or Better) 	<ul style="list-style-type: none"> • Complete ENGL 1102 or 1103 (C or Better) • Complete MATH 2211 or Higher (B- or Better) • Complete CHEM 1212K (B- or Better) • <i>Maintain a cumulative GPA of 2.25 or Better</i>
Semester 3	Semester 4
<ul style="list-style-type: none"> • Complete CHEM 2400 (B- or Better) • Complete MATH 2212 (C or better) • Complete PHY 2211k (C or better) 	<ul style="list-style-type: none"> • Complete CHEM 3410 (C or better) • PHY 2212k (B- or Better) (C or better) • <i>Maintain a cumulative GPA of 2.25 or Better</i>
Semester 5	Semester 6
<ul style="list-style-type: none"> • Complete CHEM 4000 with a C or Better • Complete CHEM 4110 with a C or Better 	<ul style="list-style-type: none"> • Complete CHEM 4010 with a C or Better • Complete CHEM 4120 with a C or Better
Semester 7	Semester 8
<ul style="list-style-type: none"> • Complete CHEM 4160 with a B- or better 	<ul style="list-style-type: none"> • Complete CHEM 4190 with a C or Better

ALERTS BASED ON HISTORICAL RPG DATA

The Difference Between Satisfying a Requirement and Being on Track

Graduation Rate in Major by Introductory Course Grade



MAJOR MATCHING

Predictive Analytics for Courses and Majors

Students
Institutional Analytics

Students >

[← Previous student](#)
[Next student ▶](#)

X Close

Total Credits Earned: 171.00
Cumulative GPA: 2.23
Major: Pre-Nutrition, BS

Major Matcher

Browse Majors (70)
Saved Majors (5)

Predictive Courses Sorted by Major

● Pre-Nutrition		● Health and Physical Education		● Criminal Justice		● Nutrition		● Social Work	
Completed	Grade	Completed	Grade	Completed	Grade	Completed	Grade	Completed	Grade
BIOL1110K	W	KH2130	B	ANTH1102	C+	BIOL1110K	W	ANTH1102	C+
BIOL1120K	D	KH3020	A	SOCI1101	C	BIOL1120K	D	ECON2105	B
BIOL2300	D	KH3600	B	Others Have Taken	Difficulty For You	BIOL2300	D	MATH1070	D
BIOL2310	C	KH3610	C+			BIOL2310	C	SOCI1101	C
CHEM1151K	C-	KH3650	A	CRJU3610	High	CHEM1151K	C-	No Other Predictive Courses	
CHEM1152K	C-	Others Have Taken	Difficulty For You	CRJU4350	Med	CHEM1152K	C-		
Others Have Taken	Difficulty For You			KH3410	High	CRJU4010	Low		
		BIOL2240	High	KH3200	Low	BIOL2240	High		
NUTR3150	Med	EDUC2110	Low	CRJU4110	Low	NUTR3150	Med		
▼ Next		▼ Next		▼ Next		▼ Next			

Filter View:
 Dock Current Major
 Criminal Justice
 Health and Physical Education
 Nutrition
 Pre-Nursing
 Social Work

Update Saved Majors

Academic Guides with Live Job Data

Program Picker 🕒 Est. Time				
Take control of your future! Explore majors and certificates that work for you.				
You chose this... on your application	Would you consider... Explore these possibilities for you based on your interests and priorities Find more options			
Nursing A.S. Learn More <input checked="" type="checkbox"/> Selected	Medical Office Assistant Certificate Learn More <input type="checkbox"/> Explore	Radiologic Technology A.A.S Learn More <input type="checkbox"/> Explore	Health Studies A.S. Learn More <input type="checkbox"/> Explore	
<i>Classes/Credits</i>	20 classes / 60 credits	8 classes / 24 credits	20 classes / 55 credits	20 classes / 62 credits
<i>Time to Complete</i>	2 years	1 year	2 years	2.25 years
<i>Financial Aid</i>	✓	May not be Financial Aid eligible	✓	✓
<i>Total Tuition</i>	\$9,176 in state	\$3,641 in state	\$8,850 in state	\$9,427 in state
<i>Outcomes</i>	High rate of transfer to 4-year colleges	Students seek employment or another stackable certificate	Most students seek employment post-graduation	High rate of transfer to 4-year colleges
<i>Average Salary</i>	\$38,500 \$51,100 with BA degree	\$29,129	\$37,819	\$42,774 \$51,553 with BS degree
<i>Hiring Demand</i>	129 job posts <input checked="" type="checkbox"/> Selected	137 job posts <input type="checkbox"/> Explore	459 job posts <input type="checkbox"/> Explore	661 job posts <input type="checkbox"/> Explore

LINKING MAJORS TO CAREER PATHWAYS

Georgia State University Welcome Timothy Log Out

Students Institutional Analytics

Students > ◀ Previous student Next student ▶



ID: _____
Age: _____
DOB: _____

- Overview
- Success Progress
- Term Details
- History
- Major Explorer**

KEY INFO

Email: _____

Phone: _____

Address: _____

MAJOR EXPLORER

ACADEMIC SUMMARY

COURSE GRADE OF D/F **0** REPEATED COURSES **0** COURSE WITHDRAWALS **0** Expand ▼

RISK
 Current risk **LOW**

CURRENT MAJOR

Major Name	Risk Level	Related Careers
Biological Science College of Arts & Sciences	Low Risk	Biochemist Biological Technician Biologist Biomedical Engineer Biostatistician 12 more...

MAJOR OPTIONS

🔍 Search for a major or career

College: All colleges ▼

Major Name	Risk Level ▲	Related Careers
Real Estate Robinson College of Business	Low Risk	Apartment Manager Appraiser / Assessor Community Manager Leasing Manager Property Manager Real Estate Agent / Broker

STUDENT
ADV: In Person

I want to...

- Change student status 📄
- Email student
- Remind me to follow-up 📄
- Add a note on this student 📄
- Browse student majors

DRILL-DOWN, LIVE DATA ON INDIVIDUAL CAREERS

MAJOR EXPLORER



ACADEMIC SUMMARY

COURSE GRADE of D/F

0

REPEATED COURSES

0

COURSE WITHDRAWALS

0

Notifications

0

Expand

< Back to Major Options

Biochemist

Studies the chemical composition of cells and organisms and conducts research using advanced technologies. Studies the chemical interactions involved in biologic processes such as metabolism, reproduction, and growth, or the effect of drugs or hormo... [View more](#)

Related titles: Research Manager, Wildlife Biologist, Chemist, Food and Agricultural Scientist / Technologist, Soil / Plant Scientist

National Hiring Statistics Provided by Burning Glass

Statistics for this career, and its related titles, are derived from nationwide, online job postings from the last 12 months.

Salary

\$55K - \$112K*

* From U.S. Bureau of Labor Statistics

Hiring Demand

Low

Education & Experience Requirements

Minimum education and experience levels typically required by employers.

Education

Bachelor's Degree	80%	
Graduate/Prof. Degree	20%	

Experience

<2 years	15%	
2-5 years	49%	
5-8 years	28%	
>8 years	8%	

Foundation Skills, Most Requested by Employers

1. Research
2. Communication Skills
3. Writing
4. Organizational Skills
5. Problem Solving
6. Creativity
7. Leadership
8. Detail-Oriented
9. Quality Assurance and Control
10. Planning
11. Multi-Tasking
12. Presentation Skills

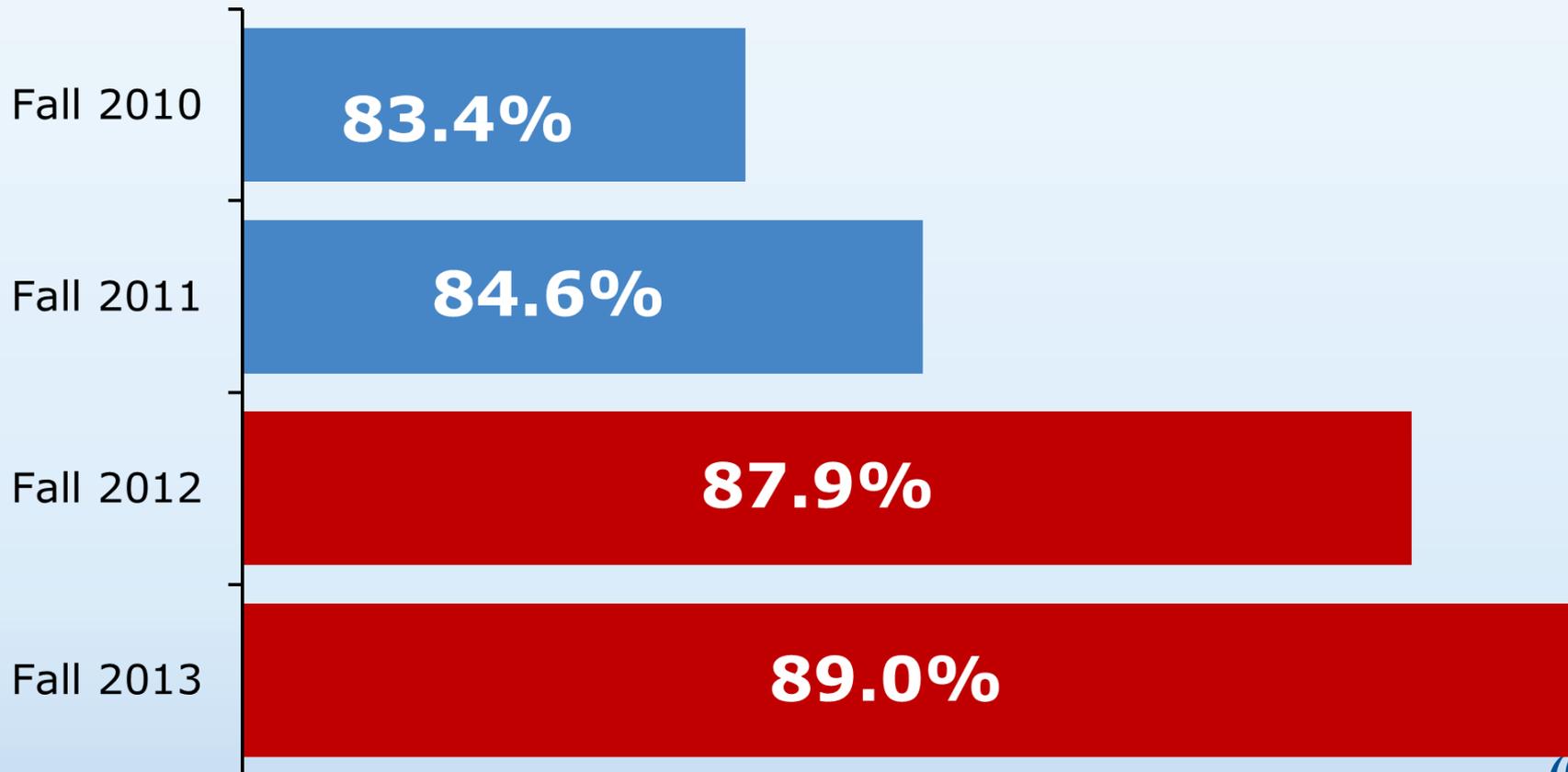
WE NEED TO CHANGE THE WAY WE OPERATE

- **University Advisement Center student visits in the last 12 months: 45,103**
- **Pre-Term Registration Corrections: 2,000+**
 - **Advising for Major Changes: 7,145**



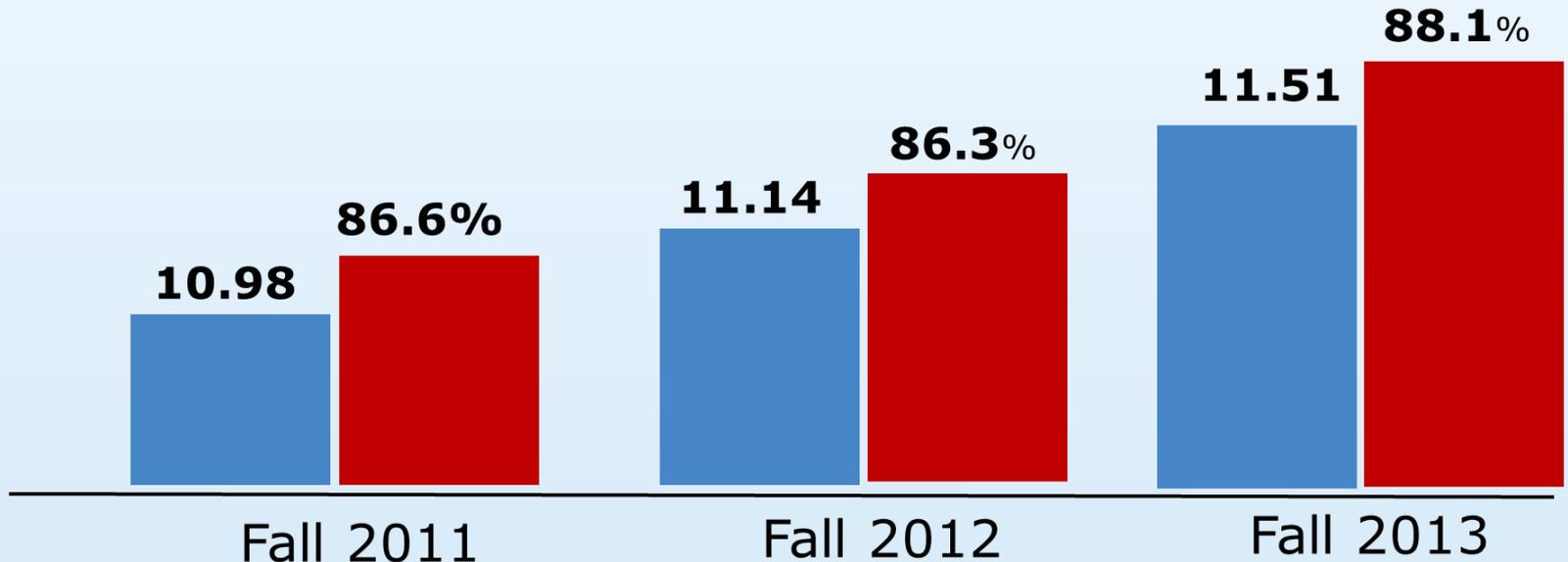
RESULTS: INCREASED RETENTION

Increased Average First Term Retention *Fall to Spring Retention*



RESULTS: FASTER PROGRESSION

First Term Earned Credits and Credit Completion Ratio By First Academic Term

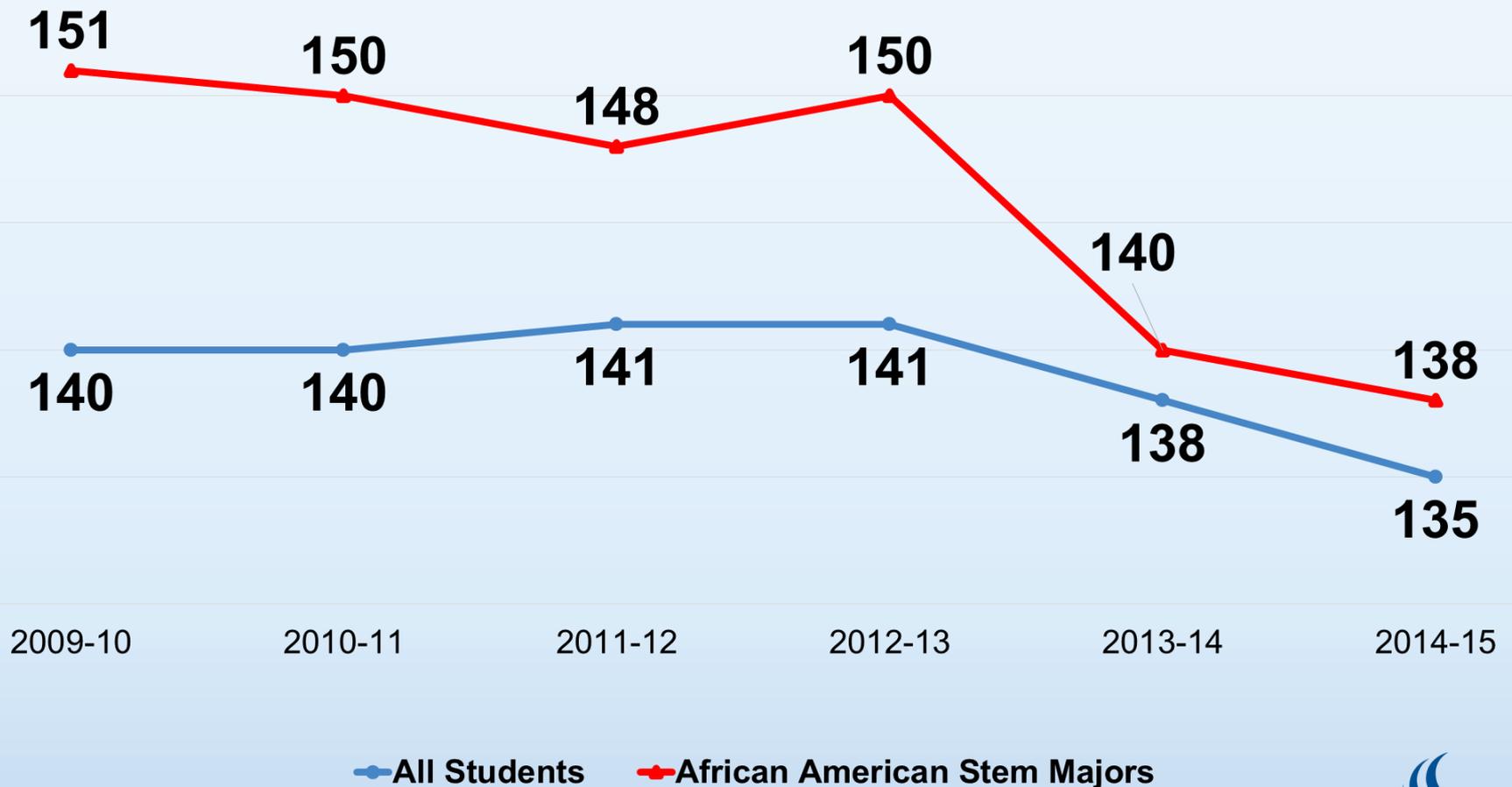


■ First Term Earned Credits

■ First Term Credit Completion Ratio

Decline in Wasted Credit Hours

Credit Hours at Completion



Proactive Course Recommendations

Academic Plan

To get started you can browse the courses in the catalog or you can search for a specific course. Suggested courses are shown on the plan in gray.

Charlotte Lo
Radiologic T

12-15

Credits/Term

A.A.S Radiologic Technology

Smart Start Courses	Suggested Courses	Search
	<i>MTH 200 – Dev. Math 2</i>	
	<i>MTH 300 – Dev. Math 3</i>	
	<i>ENG 310 – English Composition</i>	
	ENG 320 – College Composition	☰
	COMM 101 – Communication Skills	☰

Fall 2015 / Term 1	Registration Open
English Composition ENG 310	☰
Radiologic Technology Introduction XRT 111	🔒
Developmental Math II MTH 200	🔒
College Success Skills CSS 101	☰
Add Course	
Planned: 15	

Spring 2016 / Term 2
Clinical Studies I XRT 212
Biology I BIO 101
Radiologic Technolog XRT 121
Developmental Math MTH 300
Add Course

Add Summer Term

Planning for Work and Commutes

APPOINTMENTS BY WEEK DAY & HOUR

Day	Mon	Tues	Wed	Thurs	Fri
Hour	%	%	%	%	%
8a					
9a	Low	Low	Low	Low	Low
10a	Low	Low	Low	Low	Low
11a	High	High	High	Low	Low
12p	High	High	High	High	High
1p	High	High	High	Low	Low
2p	High	High	High	High	Low
3p	High	Low	High	Low	Low
4p	High	Low	High	Low	Low
5p		Low			
6p					

High Volume  Low Volume

APPOINTMENTS BY WE

Day	Mon	Tues
Month	%	%
Aug	Low	Low
Sep	High	High
Oct	High	High
Nov	Low	Low

High Volume 

Prepopulated Semester Schedules

Build Your Own Schedule

Review the recommended schedule below and fine-tune your availability and preferences.

4 Total Classes
15 Total Credits
\$1,932.13 Total Tuition

🕒 Est. Time: 8 mins.

⚠️ Schedule time for your online class: MTH 200

MTH 200 - Dev. Math 2
 MTH 200 - Dev. Math 2

⚠️ You should plan for 12 study hours/week for your classes

STUDY HOURS
 STUDY HOURS
 STUDY HOURS

	SUN	MON	TUE	WED	THUR	FRI	SAT
8 a.m.	Unavailable	Commute	Commute				Unavailable
10 a.m.		CSS 101 – College Success Skills	ENG 310 – English Comp.				
Noon			Commute	Commute	Commute	Commute	
2 p.m.		XRT111 – Radio Tech. I		XRT111 – Radio Tech. I		XRT111 – Radio Tech. I	
4 p.m.		Commute	Unavailable	Commute	ENG 310 – English Comp.	XRT111 – Lab	
6 p.m.					Commute	Commute	
8 p.m.					Unavailable		
10 p.m.							

■ Class does not contribute to degree requirement ■ Permission required before scheduling is allowed ■ General Education

THE COST OF INACTION

The Calculus of Student Success: ROI



1 point increase in
Retention = **325** Students

Avg. Student Tuition &
Fees Annually = **\$9,800**

ROI for each 1-point increase = **\$3.18** million/year

NATIONAL COVERAGE

TIME



The New York Times



THE CHRONICLE

COMPLETE COLLEGE AMERICA



The Atlantic
back to school? Can you afford...
ATLANTA (AP)—The number of students...
The study, published in the journal...
And this is not alone. According to Georgia State...
"The adults that return usually have a goal in mind...
"You almost feel like you've got that youth look, age...
"I've read how to find a wife...
"I've actually know that my...
Thompson said.

The Washington Post

THE WALL STREET JOURNAL.



PBS NEWSHOUR

EE/PR *** WSJ.com

GROWING RECOGNITION



GEORGIA STATE DEGREE CONFERRALS

2008-09: 5,857

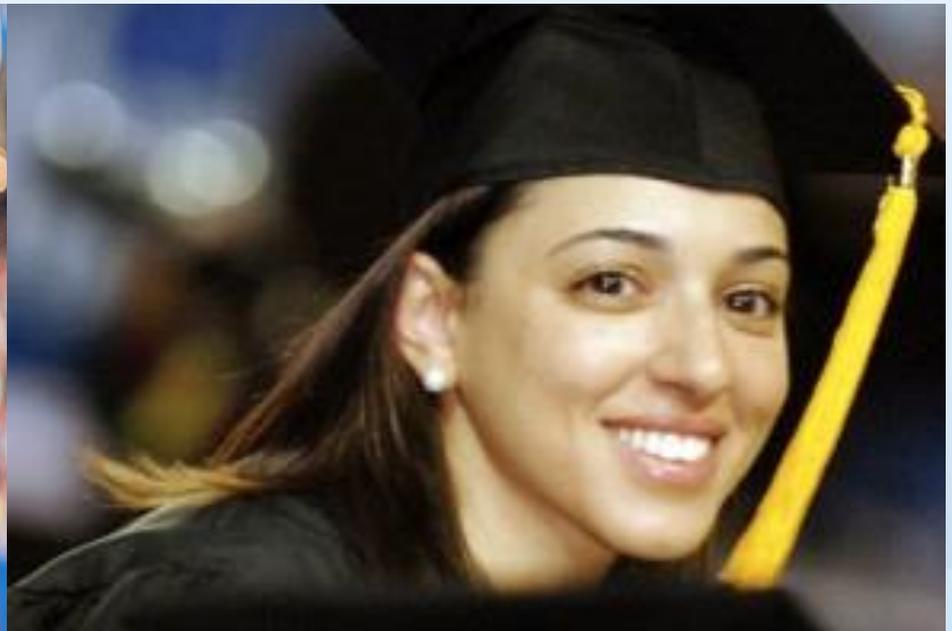
2014-15: 7,601

Increase: 1,744 (+30%)

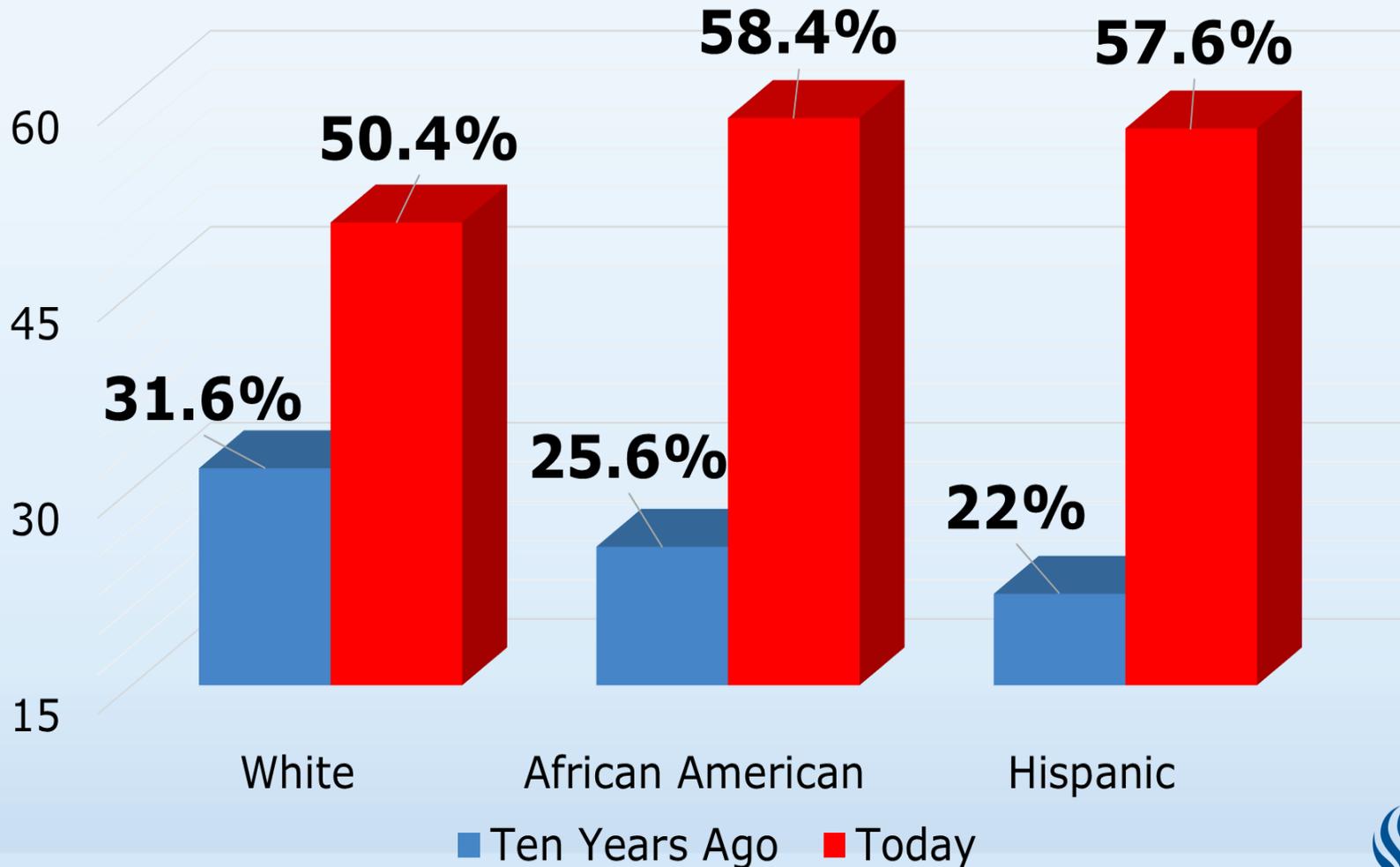


BACHELOR'S DEGREES AWARDED

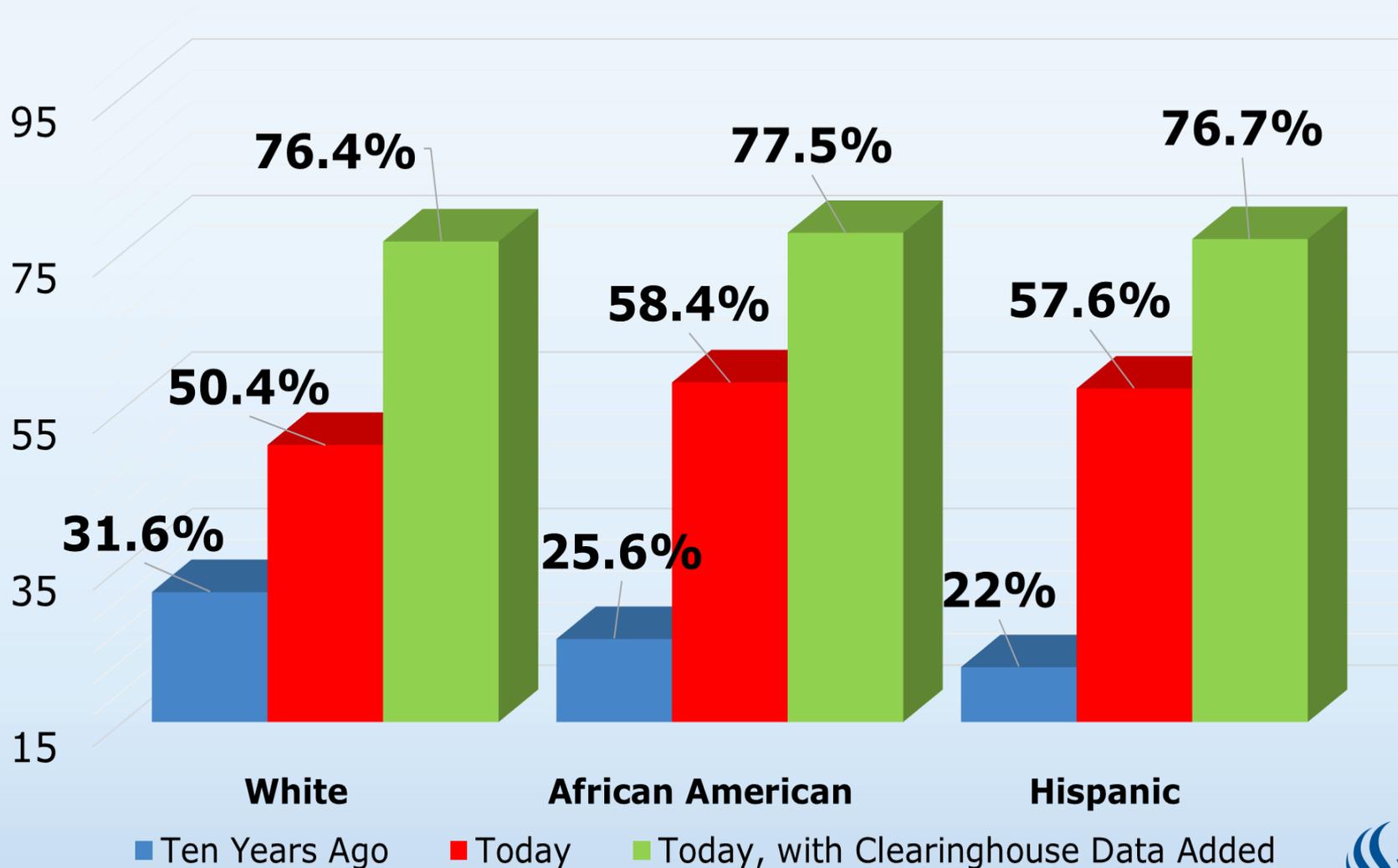
	09-10	10-11	11-12	12-13	13-14	14-15	5-YR Change
AFRICAN AMERICAN	1,001	1,322	1,440	1,550	1,692	1,825	82%
PELL	1,298	1,648	1,835	2,007	2,052	2,501	93%
HISPANIC	196	300	328	372	414	435	123%



GRADUATION RATES BY RACE & ETHNICITY

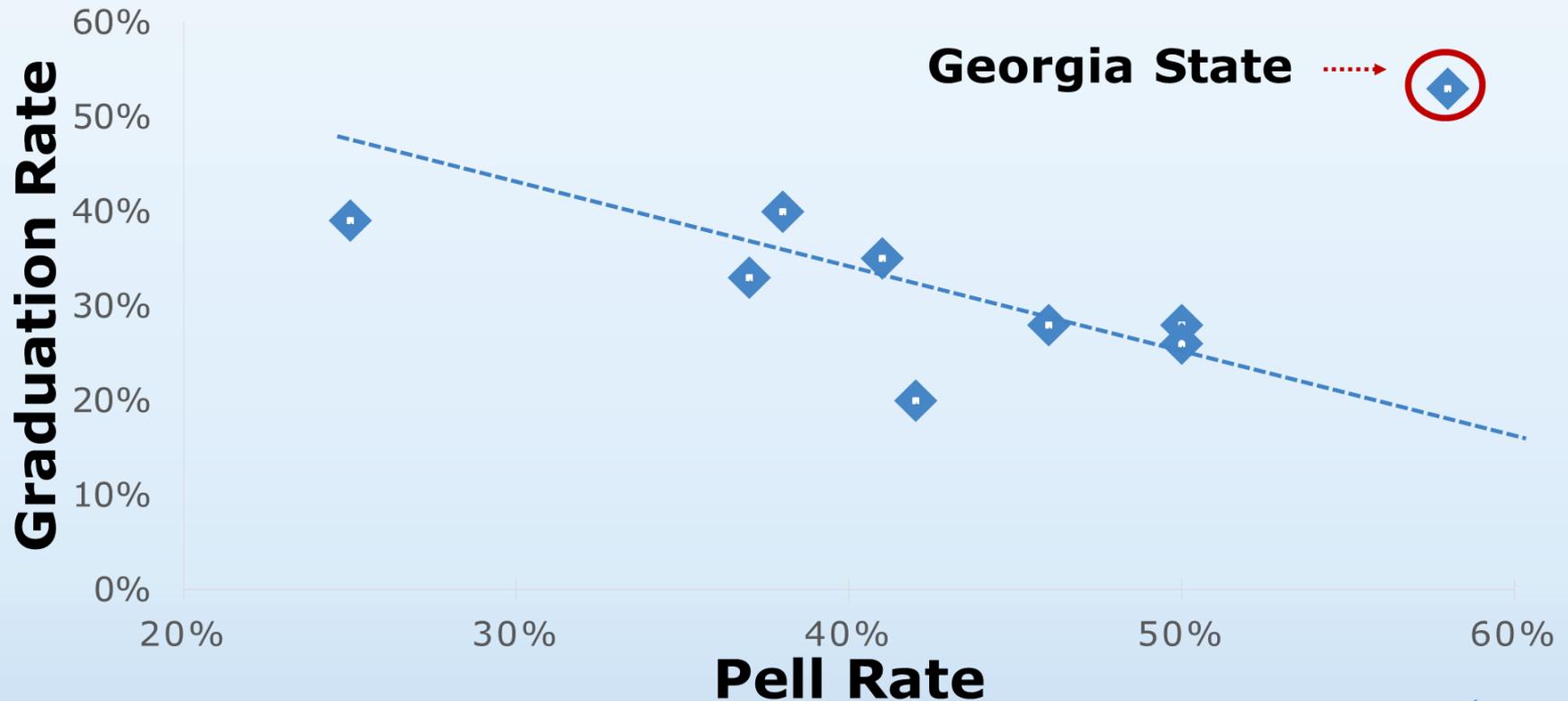


GRADUATION RATES BY RACE & ETHNICITY



MAKING A DIFFERENCE

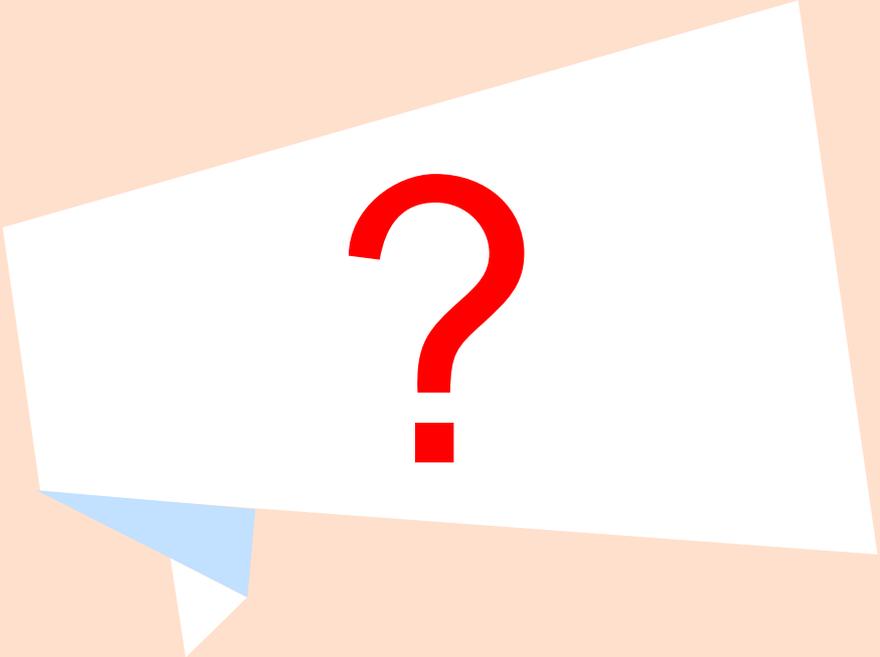
GRADUATION AND PELL RATES OF URBAN RESEARCH UNIVERSITIES



WE CAN MAKE A DIFFERENCE



Do you have any questions?



PREDICTIVE ANALYTICS

Robert L. Todd &
Jonathan Watts Hull
University System of Georgia

What can a System do?

Connect

- Convene statewide events focused on predictive analytics and pathways
- Engage with national solution providers on potential solutions and offerings
- Support communities of interest around predictive analytics
- Identify peer partners and resources

What can a System do?

Focus

- Maintain a focus on data-driven decision making
- Highlight and share campus-based success and challenges
- Promote a focus on student outcomes
- Put predictive analytics into context with other strategies and tools

What can a System do?

Support

- Promote good data governance and effective data access across institutions
- Improve institutional data access and practice
- Investigate new models of implementation at lower capacity institutions

Why not a System solution?

- Data differences on campus
- Algorithms and indicators may vary across the system, not homogeneous
- Banner – ubiquitous, but many different “instances” used across GA
- Timeliness
- “All interventions are local”
- System can’t likely be that granular

The Institutional Role

Huge.

The Institutional Role

Practical elements

- Determine the model (homegrown vs. vendor)
- Define the indicators
- Inform models with local experiences
- Decide upon an audience
 - Faculty & Staff or Students or Both?
- Scope and scale
 - Academic record
 - Financial aid & need
 - Student affairs and engagement indicators
 - Pre-collegiate background

The Institutional Role

Logistical details

- Convince faculty and staff (buy in)
- Adjust instructional practice (for early alert)
 - Earlier grades
 - Different indicators
 - Attendance!
- Improve Data Governance and Quality
- Determine roles (who does what & when)

The Institutional Role

Maintenance

- Measure and adjust procedures
- Experiment with interventions
 - Texts?
 - Emails?
 - Dedicated online media alerts?
 - Holds?
- Document and share experiences

What does the future hold?

Expect more...

- Data will be more important to how we do our work
- Institutions will adopt PA whether Systems lead or not
- Integration may not be necessary (or possible), but...
- Less-resourced institutions (however that may be defined) will need help along the way.

Do you have any questions?





- Update you on TS³
- Highlight the efforts to use predictive analytics across the University System of Georgia
- **Share out best practices, cautionary tales and content related to predictive analytics**

Guided Pathways Using Predictive Analytics Self-Assessment Rubric

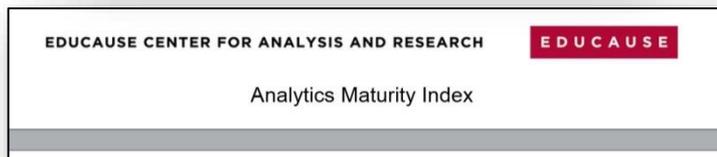
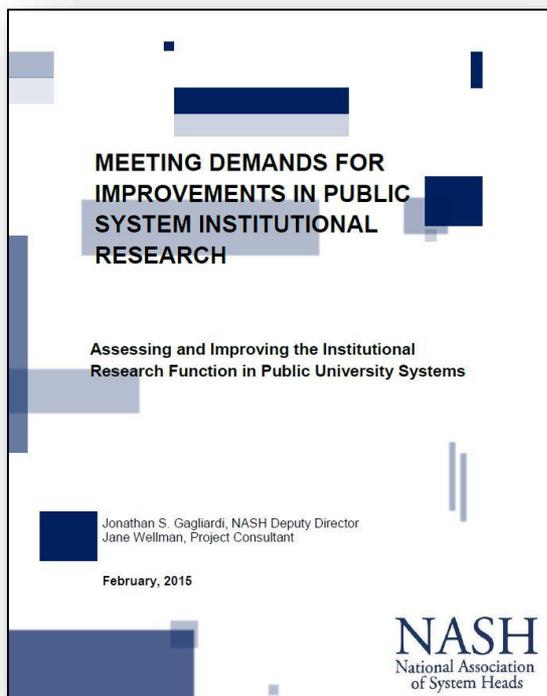
This tool is designed for system and campus leaders to self-assess how guided pathways using predictive analytics are being developed across their system or campus. The tool focuses on areas that are key to the early stages of guided pathways using predictive analytics, including:

- Leadership & Consensus
- Resources & Support
- Taking Inventory
- Data & Analysis
- Prototyping & Scaling
- Building & Sustaining Momentum

We hope to continuously improve this document based on the engagement and feedback of our community members. Questions, comments, and feedback should be shared with Jonathan Gagliardi, Deputy Director of the National Association of System Heads, at jonathan@nash-dc.org.

These key themes include:

- Leadership & Consensus
- Resources & Support
- Taking Inventory
- Data & Analysis
- Prototyping & Scaling
- Building & Sustaining Momentum



Both NASH and EDUCAUSE have created tools to help:

- Determine baseline capacity to use predictive analytics
- Understand key opportunities and areas of growth
- Identify key stakeholders
- Take stock of where you are versus where you want to be

ACE American Council on Education®
CEAL Center for Learning Analytics & Assessment

We are pleased to introduce this series of what we are calling "Quick Hit" papers: briefs on current and emerging topics in the realm of education attainment and innovation. Through this project, funded by Lumina Foundation, we hope to provide up-to-date information and thinking on emerging trends to higher education leaders, policymakers, and others. The views expressed are those of the author(s) and not necessarily those of ACE.

QUICK HITS

Moving the Needle on Predictive Analytics

In using data to improve student success, higher education is at a transition point, pivoting from harvesting data to learning how to use it strategically in developing interventions—and getting those findings to faculty and students so they can have an impact.

When it comes to data on campus, the challenge increasingly seems to be that we're drowning in information, but thirsting for wisdom. That seems especially true regarding the use of data for improving learning, retention, and completion. Technology makes it possible for colleges and universities to be increasingly more sophisticated in their capacity to collect, store, and mine data pertaining to student learning. At the same time, though, our skills in making meaning of those data—and using them to design interventions to improve student success—have yet to reach a commensurate level of refinement.

As Ellen D. Wagner, chief research and strategy officer for the Predictive Analytics Reporting (PAR) Framework, has observed, the central challenge, distilled to its essence, is to gather data, turn the data into information, and use that information to help learners. Fulfilling those three basic steps may be easier said than done, but some pioneers are developing innovative pathways to help universities use data strategically.

CLARIFYING TERMINOLOGY

Among many terms that apply to the use of data in higher education, "predictive analytics" encompasses the use of modeling to pinpoint variables that can help predict the aspects of the student experience that contribute to academic success. The value of predictive analytics is in building on an analysis of those variables to design interventions that improve student progress. While colleges and universities are getting better at collecting data, only a relative handful are making full use of those data by using predictive modeling to design improvements.

In a recent presentation, Joel L. Hartman, vice provost for information technologies and resources at the University of Central Florida, offered a helpful distinction between predictive analytics and its perhaps less-sophisticated cousin, descriptive analytics. Whereas the latter might seek to determine the number of student logins and page views in a course's learning-management system, Hartman suggested, the former seeks answers to deeper questions, such as which students show behaviors that put them at risk for not completing the course. Similarly, descriptive analytics might seek to find out which course tools students are using, while predictive analytics would take a deeper look at understanding the tools and course content that correlate to student success, with the goal of informing meaningful interventions.

The primer serves as a helpful guide to:

- Clarify terminology
- Facilitate a conversation among key stakeholders
- Showcase emerging solutions, including Degree Compass, which you learned about today
- Identify paths forward



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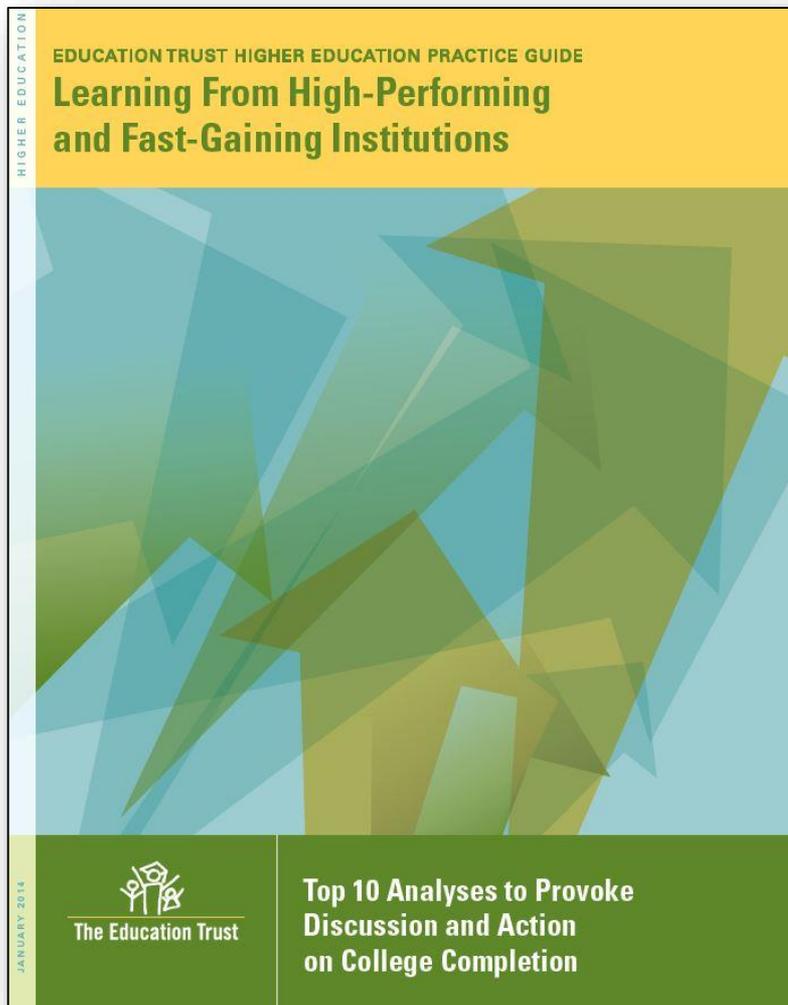
Connect with your WCET colleagues and experts, both virtually and in-person.

Boot Camp: Building Institutional Readiness for Data Analytics



WCET Boot Camp: 
**Building Institutional Readiness
for Data Analytics**

June 17-20, 2014
Vail Marriott Mountain Resort, Vail, Colorado
wcet.wiche.edu/connect/bootcamp

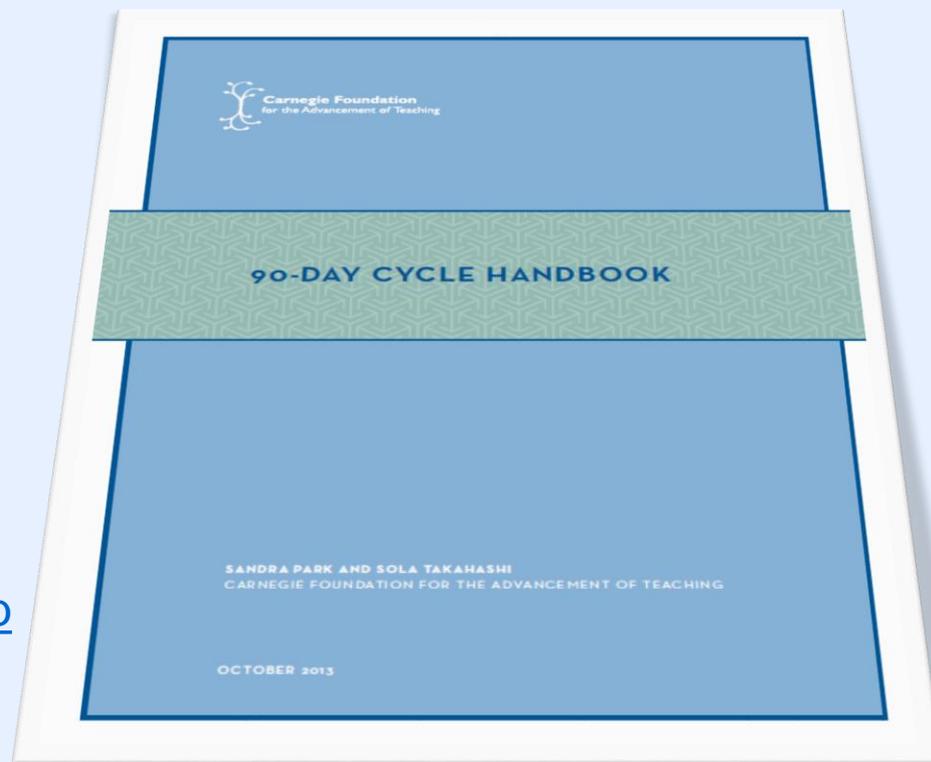


Some of the analyses in this practice guide include:

- A look at year-to-year retention rates
- Tracking the rate of second-year students who achieve sophomore standing
- Analyzing success rates in the 25-35 courses with the largest annual enrollment
- Analyzing success rates in first credit-bearing math course

Elements of the report include:

- Prototyping innovations
- Leveraging knowledge from scholars and practitioners
- Testing and assessing
- http://cdn.carnegiefoundation.org/wp-content/uploads/2014/09/90DC_Handbook_external_10_8.pdf



Do you have any questions?





NASH

National Association
of System Heads

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