



Actionable Intelligence: Big Data for Student Success

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VALDOSTA STATE UNIVERSITY

2014



Strategic Goals

1. Strategic business intelligence for student success
2. Improve academic success with analytics
3. Proactive intervention strategies
4. Automatic alerts and notifications
5. Improve faculty and support staff communications
6. Leverage innovations in technology to automate key business strategies



Technology

- Database 11g
- Application Express (APEX)
- Advanced Analytics and R Programming
- Business Intelligence Enterprise Edition (OBIEE)
- Data Integrator
- Endeca Information Discovery
- PHP/MySql



Improve Reporting

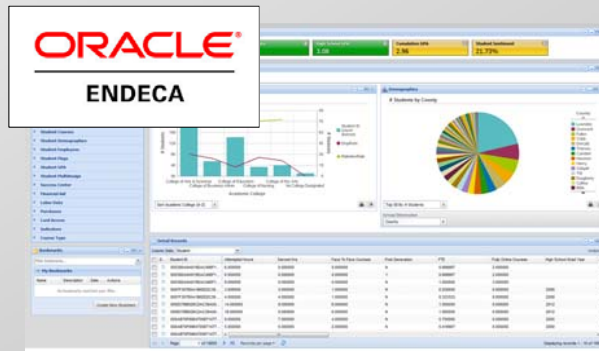
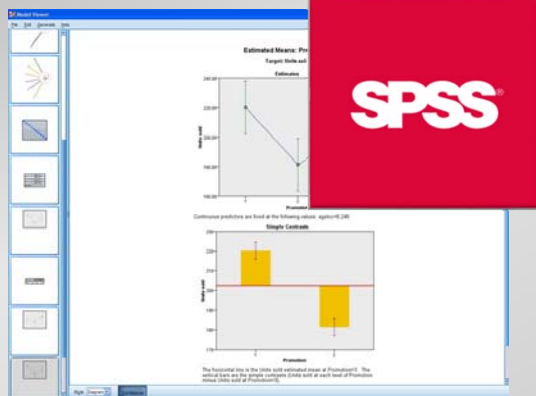
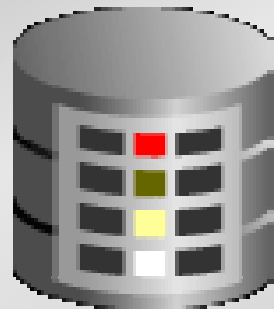
- Improve information access for faculty and advisors
- Provide key reports and analysis
- Interactive class roster with photos and at-risk metrics
- Drag-n-Drop reporting
- Historical trends and patterns



Valdosta State Current Business Intelligence Architecture



Custom Data Warehouse

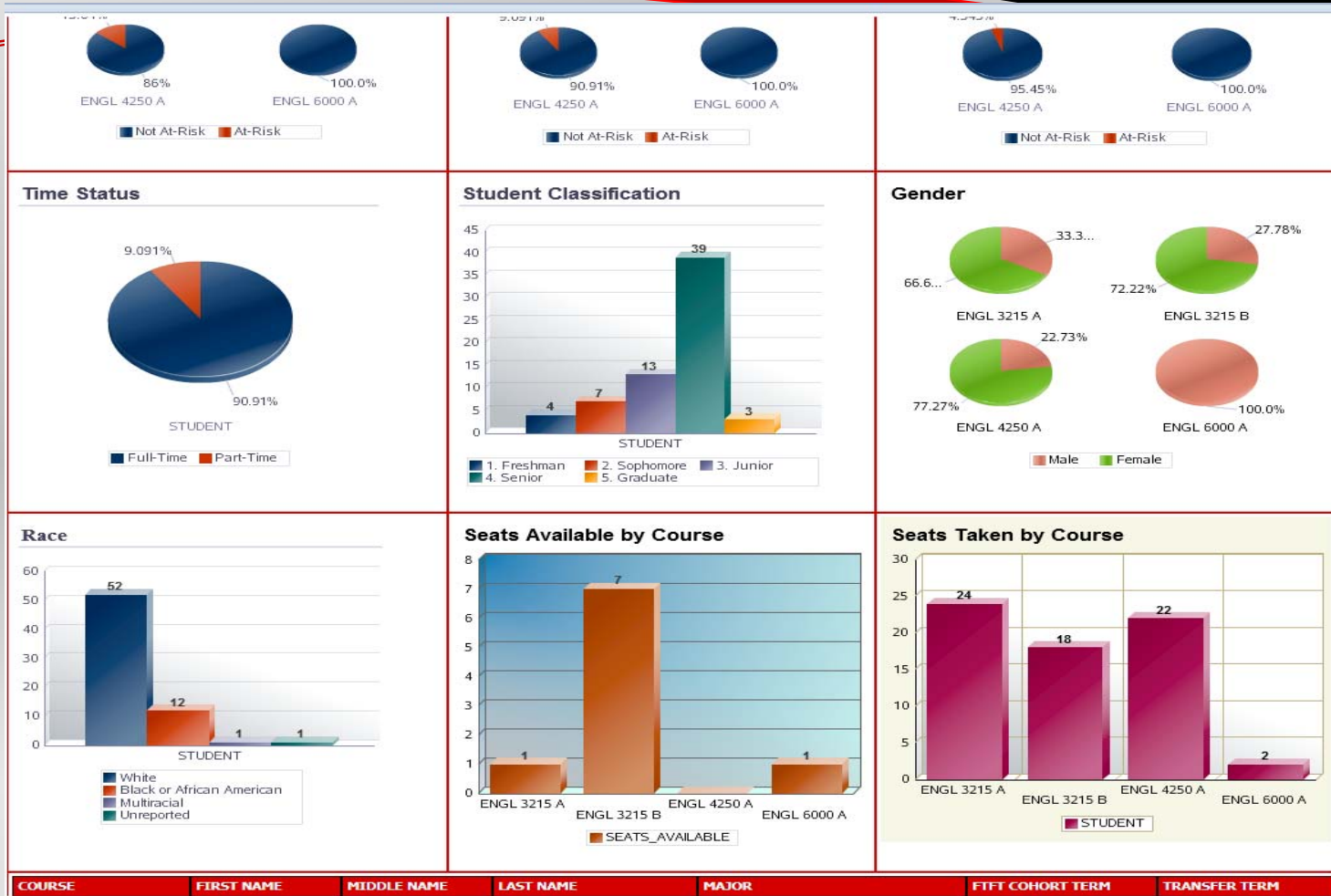


- Business Intelligence Solutions**
- OBIEE
 - Endeca
 - SPSS
 - ETL
 - ODI
 - ERP/CRM
 - Ellucian
 - Oracle PeopleSoft



Valdosta State University: ROI First Year





Oracle (OBIEE) Business Intelligence

Test Dashboard

- Enrollment
- Generated Hours
- Faculty Course Load
- Enrollment/Hours**

Enrollment Dashboard

* Term Category Fall Spring Summer

Time

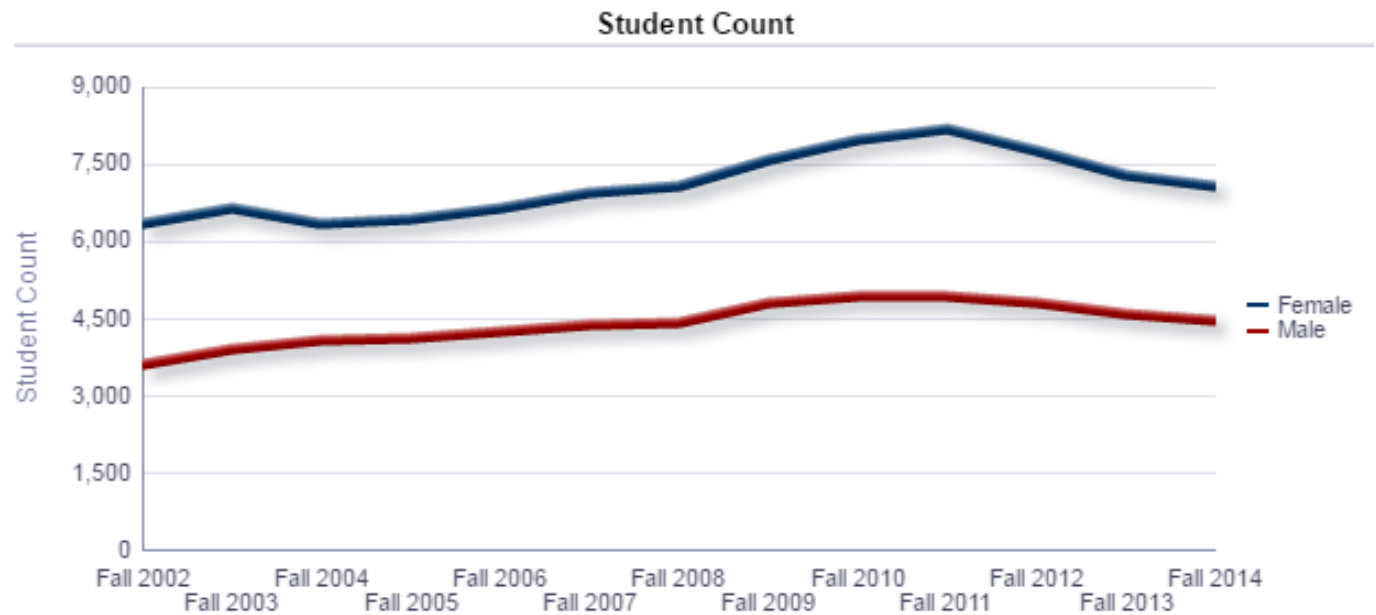
College

Department

Major

Gender Trends by College Department

Time run: 9/24/2014 11:01:09 AM



Generated Hours

Time run: 9/24/2014 11:31:12 AM

			▼ Time Total					
				▼ 0203	Fall 2002	▶ 0304	▶ 0405	▶ 0506
Course College Dimension	Course Department Dimension	Course Level Dimension	Credit Hours Generated	Credit Hours Generated	Credit Hours Generated	Credit Hours Generated	Credit Hours Generated	Credit Hours Generated
▼ Course College Total	▶ Course Department Total	▶ Course Level Total	1,792,754	115,978	115,978	122,075	125,081	
College of Arts & Sciences	▶ Course Department Total	▼ Course Level Total	1,014,106	63,584	63,584	67,281	70,064	
		Lower Undergrad	798,502	50,902	50,902	53,792	54,956	
		Upper Undergrad	188,521	11,023	11,023	11,882	13,452	
		Grad I	23,734	1,596	1,596	1,538	1,548	
		Grad II	3,349	63	63	69	108	
College of Business Admin	▶ Course Department Total	▶ Course Level Total	146,832	11,063	11,063	10,996	10,993	
College of	▶ Course	▶ Course	374,556	26,026	26,026	27,883	27,033	



ORACLE Business Intelligence

Untitled

Criteria Results Prompts Advanced

Subject Areas

- OTHER_COURSES
- PELL_RECEIVED
- PIDM
- RACE
- SAT_MATH
- SAT_VERBAL
- SPORT
- SPORT_CODE
- STUDENT_CLASS
- STUDENT_CLASS_CODE
- STUDENT_ID
- STUDENT_LEVEL
- STUDENT_LEVEL_CODE
- STUDENT_TYPE
- STUDENT_TYPE_CODE
- TERM
- TERM_DESC
- TRANSFER
- TRANSFER_STUDENT
- TRANSFER_TERM
- TRANSFER_TERM_GPA
- US_VETERAN
- ACADEMIC_YEAR
- ACT_ENGLISH
- ACT_MATH
- ACT_READING
- ADVISOR_EMAIL
- ADVISOR_FNAME
- ADVISOR_LNAME
- ADVISOR_MNAME
- CAMPUS_ECORE
- CAMPUS_EMAJOR
- CAMPUS_GOML
- CAMPUS_KINGSBAY
- CAMPUS_MAIN
- CAMPUS_MILITARY

Selected Columns

Double click on column names in the Subject Areas pane to add them to the analysis. Once added, drag

STUDENT_TERM_DETAILS

- TERM_DESC
- COLLEGE
- DEPARTMENT
- MAJOR
- STUDENT_ID

Filters

Add filters to the analysis criteria by clicking on Filter option for the specific column in the Selected Column

Catalog

List All

- My Folders
- Shared Folders

Oracle (OBIEE) Business Intelligence



A screenshot of the Oracle Business Intelligence Enterprise Edition (OBIEE) interface. The window title is "Untitled". The interface is divided into two main panes. The left pane, titled "Subject Areas", shows a hierarchical tree structure. It starts with "Admissions Cube", which contains "Application Decision" (with sub-items "Decision Code" and "Decision"), "Application Decision Dimer" (with "Grand Total" and "Application Decision D..."), "College", "County", "Degree", "Major" (with "AID_ELIGIBLE", "CIPC_CODE", "Major Code", and "Major"), "Major Dimension", "Nation" (with "Nation Code" and "Nation"), "Nation Dimension", and "State" (with "State Code"). The right pane shows a "Measures" folder containing several items: "Total Accepted Application", "Application Accepted", "Application Decision Code", "Application Number", "Application Rejected", "Total College Change", "Total Major Change", "Total Applicants" (highlighted in blue), "Entry Term", and "Enrolled Entry Term". Below the measures list is a "Catalog" section with a "List" dropdown set to "All", and two folders: "My Folders" and "Shared Folders".

Oracle (OBIEE) Business Intelligence

Gender Trends by College Department

Criteria **Results** Prompts Advanced

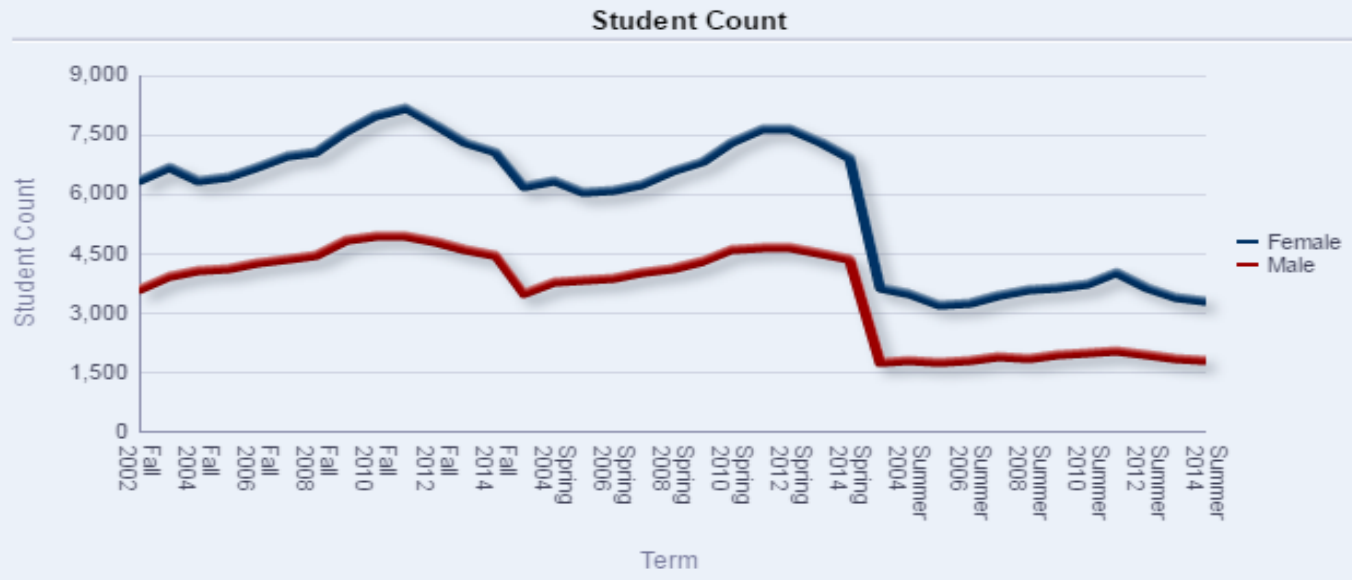
- Subject Areas
 - Major Dimension
 - Minor
 - Concentration
 - Aid Eligible
 - CIPC Code
 - Concentration Code
 - Concentration
 - Concentration Dimension
 - Gender
 - Gender Code
 - Gender
 - Gender Dimension
 - Race
 - Race Code
 - Race
 - Race Dimension
 - Full-Time / Part-Time
 - Student Level
 - Student Class
 - Student Type
 - Student Type Code
 - Student Type
 - Student Type Dimension
 - Overall GPA Range
 - Person
 - Other E-mail



Compound Layout

Title
Gender Trends by College Department
Time run: 9/24/2014 11:28:53 AM

Graph (2)





ORACLE Business Intelligence

Untitled

Criteria Results Prompts Advanced

Subject Areas

- ATHLETE
- ATTEMPTED_HRS
- CITIZEN
- COLLEGE
- DEPARTMENT
- EARNED_HRS
- EARNED_HRS_SATISFAC
- EMAIL_OTHER
- EMAIL_VSU
- ETHNICITY
- FIRST_GENERATION
- FLC
- FNAME
- FTE
- FTFT_FRESHMAN
- FTFT_TERM
- FULL_CUMULATIVE_GPA
- FULL_TIME
- GENDER
- HOPE_RECEIVED
- HOUSING
- HS_CODE
- HS_DEGREE_TYPE
- HS_DEGREE_YEAR
- HS_GPA
- INSTITUTIONAL_TERM_C
- LNAME
- MAJOR
- MNAME

Catalog

List All

- My Folders
- Shared Folders

Compound Layout

Graph

STUDENT_ID

DEPARTMENT	STUDENT_ID
Dept of Accounting/Finance	410
Dept of Management	360
Dept of Marketing/Economics	230
Undeclared Department	300

Pivot Table

TERM_DESC	COLLEGE	DEPARTMENT	MAJOR	
Fall 2012	College of Business Admin	Dept of Accounting/Finance	Accounting	176
			BA-Accounting	142
			BA-Finance	48
			Finance	49
		Dept of Management	BA-International Business	62
			BA-Management	174
			International Business	23
			Management	105
		Dept of Marketing/Economics	BA-Economics	26
			BA-Marketing	128
			Economics	16
			Marketing	65
		Undeclared Department	Business Administration	248
			Master Business Administration	52

Oracle (OBIEE) Business Intelligence

* Term Category

Fall
 Spring
 Summer

Time

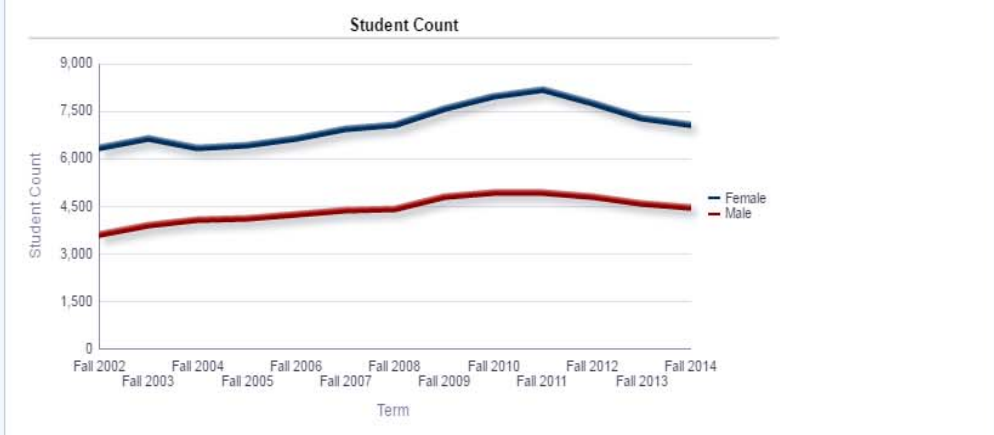
College

Department

Major

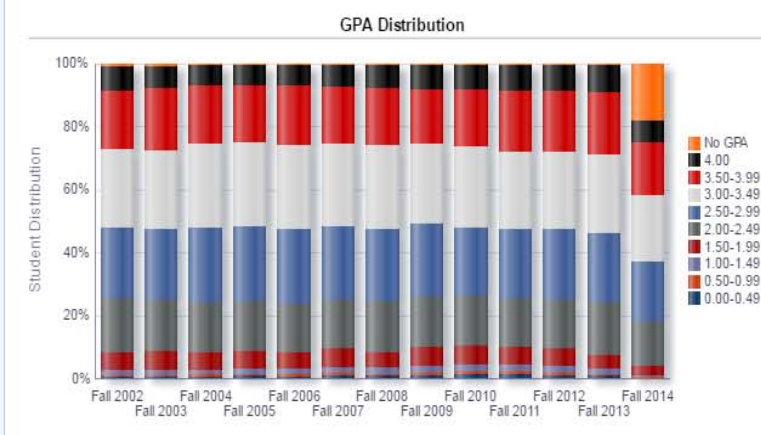
Gender Trends by College Department

Time run: 9/24/2014 11:01:09 AM



Rate of GPA Population Change

Time run: 9/24/2014 11:01:09 AM



Percent Change from Academic Year Ago





- SWIS Home
- Student Record
- Agencies
- Contacts
- Summary List of Students
- List of Current Students
- Detailed List of Current and Prior Students
- Missing Students
- Title IV-E Funding Report
- Completed Practicum Placements Report
- Advising

Student Information Updated. ✖

Query Student

Enter a Student ID Number and Press Enter to Query. Erase the block and type a new Student ID Number and Press Enter to select a different student.

Enter Student ID (press Enter to Query)

Selected Student Haugabrook, Brian Antonio

SWIS (Social Work Information System). Custom developed application to provide custom reports, track forms, placements, agencies, program tracks, and documents.

Advisors

Advisor Name Advisor Type

Special Flags

Flag	Flag Set On	Flag Set By	Flag Lifts On
<input checked="" type="checkbox"/> Test Flag	17-SEP-2012	Haugabrook, Brian Antonio	-

1 - 1

Student Information

Track	Full Time Program
Program Level	
Academic Status	Good Standing
Graduation Term	Not a SW Graduate
VSU Email Address	bahaugab@valdosta.edu
Other Email Addresses	-
Needs Follow Up	No

Photo



1 - 1

Special Documentation

No Special Requirements Found.

IV-E Funding

Department Forms

-
-
-

Form Name	Received On	Received By	View	Received	Reset Status	Delete Request	PDF
Student Contact Information	25-JUL-2011	Haugabrook, Brian Antonio	Download	✓	<input type="checkbox"/>	<input type="checkbox"/>	Upload/Replace
Statement of Understanding	25-JUL-2011	Haugabrook, Brian Antonio		✓	<input type="checkbox"/>	<input type="checkbox"/>	Upload/Replace
Official Program of Study	25-JUL-2011	Haugabrook, Brian Antonio		✓	<input type="checkbox"/>	<input type="checkbox"/>	Upload/Replace
Graduation Application	25-JUL-2011	Haugabrook, Brian Antonio		✓	<input type="checkbox"/>	<input type="checkbox"/>	Upload/Replace
Learning Plan 7612	* FORM NOT TURNED IN *	-		<input type="checkbox"/>	-	<input type="checkbox"/>	Upload/Replace
Foundation Practicum Application	* FORM NOT TURNED IN *	-		<input type="checkbox"/>	-	<input type="checkbox"/>	Upload/Replace
Concentration Practicum Application	* FORM NOT TURNED IN *	-		<input type="checkbox"/>	-	<input type="checkbox"/>	Upload/Replace
Foundation Liability Insurance	* FORM NOT TURNED IN *	-		<input type="checkbox"/>	-	<input type="checkbox"/>	Upload/Replace
Concentration Liability Insurance	* FORM NOT TURNED IN *	-		<input type="checkbox"/>	-	<input type="checkbox"/>	Upload/Replace



Academic Affairs Faculty Portal

[Main](#)[Advisor](#)[Courses](#)[At-Risk](#)[Data Warehouse Tools](#)[Applications/Portals](#)

Contact Brian Haugabrook, Director of Data Warehouse, for any questions. Email: bahauqab@valdosta.edu. Phone: (229) 333-7447
You can also email the VSU Data Warehouse department (VSUDataWarehouse@valdosta.edu) for requests, issues, or suggestions.

Digital Measures (College of Education)



[Login to Digital Measures](#)

Note: The Digital Measures link will expire 09/17/2012 at 09:32 AM.
If this link expires, Refresh the page to get the current link.

Watch a short video on using Digital Measures [here](#).

DegreeWorks



[Login to DegreeWorks](#)

DegreeWorks is an advising tool to aid in advising with electronic checklists, what-if scenarios, GPA calculators, advising planner, and notes.

For more information and tutorials click [here](#).

FLC Portal



[Login to the FLC Portal](#)

Freshmen Learning Communities advising and faculty portal. Access to course and student information that are part of an FLC community.

For more information click [here](#).

First-Time Full-Time Freshman Portal



[Login to the FTFT Portal](#)

Provides information on all enrolled students part of a FTFT cohort. Highlights students marked at-risk in general, reading and math based courses. This includes new FTFT students and enrolled FTFT students from previous years.

Department Specific Applications

[COE Advising Scheduler](#)[Nursing Advising Scheduler](#)[OASIS Advising Scheduler](#)[Student Success Center Scheduler](#)[Social Work Information System \(SWIS\)](#)

Application Directory



Course Summary

By User Role

Course

Select Term

Rows

1 - 200 of 2465

Term Desc	Crn	Subject	Crse Numb	Course Section	Course Title	Students Enrolled	Seats Available	Instructors Email
Fall 2012	00000	ACCT	2101	A	Principles of Accounting I	84	0	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	B	Principles of Accounting I	34	0	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	C	Principles of Accounting I	35	3	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	D	Principles of Accounting I	49	1	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	E	Principles of Accounting I	44	4	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	F	Principles of Accounting I	34	0	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2101	G	Principles of Accounting I	35	3	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2102	A	Principles of Accounting II	14	12	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2102	B	Principles of Accounting II	30	8	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2102	C	Principles of Accounting II	46	-1	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2102	D	Principles of Accounting II	43	2	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	2102	E	Principles of Accounting II	36	-2	bahaugab@valdosta.edu
Fall 2012	00000	ACCT	3100	A	Intro to Fraud Examination	32	6	bahaugab@valdosta.edu



Class Roster that Highlights At-Risk Students

[Back to Course List](#)

Course ACCT 2101 A - Principles of Accounting I

Rows 100

- At Risk General = 'Yes'
- At Risk Reading = 'Yes'
- At Risk Math = 'Yes'

1 - 84 of 84

Student Photo	Last Name	First Name	Middle Name	Attendance/Course Progress	Email	At Risk General	At Risk Math	At Risk Reading	DegreeWorks
	Doe	J	Tanner	Attendance/Course Progress Flags	bahaugab@valdosta.edu	Yes	Yes	No	DegreeWorks
	Doe	J	Jahmeem	Attendance/Course Progress Flags	bahaugab@valdosta.edu	No	No	No	DegreeWorks
	Doe	J	Qamar	Attendance/Course Progress Flags	bahaugab@valdosta.edu	No	No	No	DegreeWorks



Automatic Alerts, Triggers, and Events

- Sends notification to the student's advisor and academic success center
- If the student lives on campus, a wellness check is automatically triggered through the housing office
- If the student is in an FLC, all other instructors are notified

[Return To List](#)

Edit Student Attendance

Course ACCT 2101 - Principles of Accounting I

Edit Name Jane Doe

Edit Status
Level 0: No Absences
Level 1: 1-2 Absences, No-Risk
Level 2: Multiple Absences. At-Risk
Level 3: Failing due to Absences

Comments

0 of 2000

[Update Attendance](#)

ATTENDANCE

Attendance in good standing

Edit Course Progress

Course ACCT 2101 - Principles of Accounting I

Edit Name Jane Doe

Course Status

Comments

0 of 2000

[Update Progress](#)


PROGRESS

Course progress in good standing



Student Progress in all Courses

Student

STUDENT_PHOTO	STUDENT_NAME	EMAIL_VSU	FULL_CUMULATIVE_GPA	ADVISOR_NAME	ADVISOR_EMAIL
	John Doe	bahauqab@valdosta.edu	-	Robert Smith	bahauqab@valdosta.edu

1 - 1

[Return To List](#)

Student Schedule

CRN	Course	Instructor Email	Attendance Status	Attendance Comments
80354	ENGL 1101 T - Composition I	ido@valdosta.edu	Level 2: Multiple Absences. At-Risk	Marlee has accrued three absences. We are in the process of setting up a meeting to discuss the matter.
80042	KSPE 1020 C - Weight Training	ido@valdosta.edu		
80643	VSU 1101 K - Keys to College Success	ido@valdosta.edu		
81056	PHIL 2010 B - Fundamentals of Philosophy	ido@valdosta.edu		
81213	HIST 2112 K - United States History Sn 1865	ido@valdosta.edu		



Custom Application Integrations

VALDOSTA STATE UNIVERSITY

Back to Self-Service | Course Attributes | Help | Print

Find Student ID: Haugabrook, Brian Anton | Degree: MPA | Major: Public Administration | Level: GS | Classification: Graduate | Last Audit: 08/20/2012 | Last Refresh: 02/10/2012 at 1:25 pm

Worksheets | Planner | Notes | Petitions | Exceptions | GPA Calc | Admin

Format: Student View | View | Process New | Class History

Degreeworks Production Environment

Student View AB171111 as of 08/20/2012 at 11:49

Student	Haugabrook, Brian Antonio	Level	Graduate-Semester
ID		Degree	Master of Public Admin
Classification	Graduate	College	College of Arts & Sciences
Catalog	Fall 2006	Major	Public Administration
Advisor	Argyl	Minor	
FIFT Freshman		Prior Degrees	

Requirements Degree Progress 100%

- ✓ Current Holds Affecting Registration or Graduation
- ✓ You have no holds.
- ✓ Master of Public Administration
 - ✓ Classified as a Regular Graduate Student
 - ✓ You meet the minimum GPA requirement
 - ✓ Degree Requirements
- ✓ Major in Public Administration-MPA

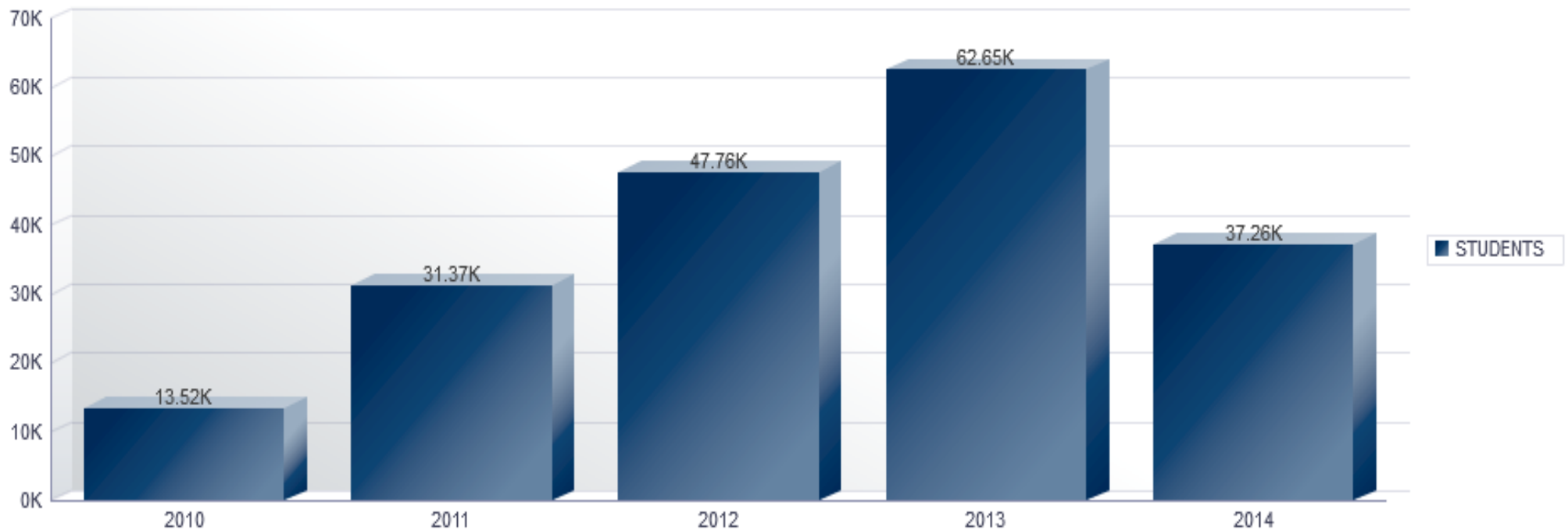
✓ Foundations Seminar in PA	PADM 7300	Foundation in MPA
✓ Quantitative Methods for PA	PADM 7060	Quantitative Mthds for PADM
✓ Policy Analysis	PADM 7090	Policy Analysis



DegreeWorks Login Statistics

By Year

Logins by Year





Course Withdrawal Alerts

- What happens if a student drops a course that is in his/her cohort?
- What actions should take place?

From: flc_coordinator@valdosta.edu [mailto:flc_coordinator@valdosta.edu]

Sent: Monday, September 17, 2012 8:13 AM

To: Brian A. Haugabrook

Subject: FLC NOTIFICATION Course Withdrawal (Gi)

Dear Brian Haugabrook,

J Doe (@valdosta.edu) has withdrawn from PERS 2160 C FLC course and currently lives on campus. You are encouraged to follow up with the student.

Login to the FLC Portal for more information. <https://apex.valdosta.edu/apex/f?p=FLC>



Summer 2013 Dept of Phy/Ast/Geosciences

TERM	DEPARTMENT	SUBJ	CRSE_NUMB	INCOME	COST	REVENUE
Summer 2013	Dept of Phy/Ast/Geosciences	ASTR	1000	\$13,746.00	\$11,206.69	\$2,539.31
Summer 2013	Dept of Phy/Ast/Geosciences	ASTR	1010K	\$14,536.00	\$15,681.10	-\$1,145.10
Summer 2013	Dept of Phy/Ast/Geosciences	GEOG	1102	\$15,642.00	\$17,273.07	-\$1,631.07
Summer 2013	Dept of Phy/Ast/Geosciences	GEOG	1110	\$34,602.00	\$25,415.24	\$9,186.76
Summer 2013	Dept of Phy/Ast/Geosciences	GEOG	1112K	\$25,912.00	\$10,553.20	\$15,358.80
Summer 2013	Dept of Phy/Ast/Geosciences	GEOL	3120	\$3,318.00	\$2,842.42	\$475.58
Summer 2013	Dept of Phy/Ast/Geosciences	ISCI	2002	\$11,376.00	\$8,303.72	\$3,072.28
Summer 2013	Dept of Phy/Ast/Geosciences	PHSC	1100	\$4,740.00	\$11,150.12	-\$6,410.12
Summer 2013	Dept of Phy/Ast/Geosciences	PHYS	1111K	\$15,800.00	\$9,099.53	\$6,700.47
Summer 2013	Dept of Phy/Ast/Geosciences	PHYS	1112K	\$15,168.00	\$10,321.68	\$4,846.32
Summer 2013	Dept of Phy/Ast/Geosciences	PHYS	2211K	\$13,272.00	\$14,853.86	-\$1,581.86
Summer 2013	Dept of Phy/Ast/Geosciences	PHYS	2212K	\$5,056.00	\$7,656.00	-\$2,600.00
				\$173,168.00	\$144,356.64	\$28,811.36

Course Planning and Cost Projection



MyVSU Student Portal

- Data-driven portal based on student attributes
- Tailored advertisements promoting support services
- Advisor alerts to improve communication
- Single sign-on to email, D2L, Banner, library, and other services
- Integration with VSU data warehouse to deliver real-time prioritization to advertisements and messages



Math Tutoring
229.333.1500

- Math Study Tips
- Tutoring Schedule
- Course Catalog
- Choosing a Major



English Tutoring
229.333.1500

This would be text for a paragraph.
This would be text for a paragraph.
This would be text for a paragraph.

Logout



VSU E-mail



Banner Registration



BlazeView



Information Technology
Service Desk



Password Management

Registrar's Office



English Tutoring
229.333.1500

- English Study Tips
- Tutoring Schedule
- Course Catalog
- Choosing a Major

Fall Registration
July 8 @ 7am



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MyVSU Portal



Advanced and Predictive Analytics

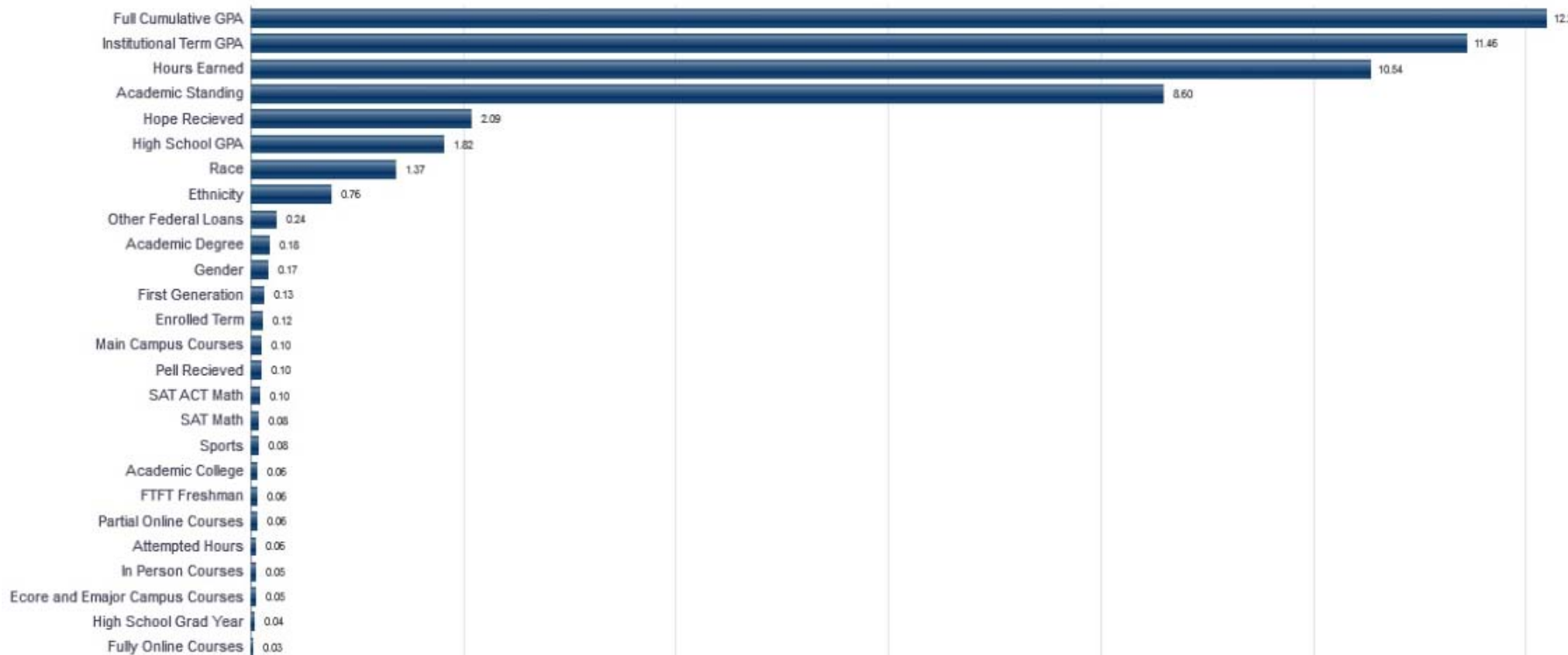
- Identify key attributes to improve student success
- Create decision trees for individual success probability
- Provide real-time analytics
- Data mining and full access to models
- Provide students with predicted course and program difficulty
- Compare predictions with historic patterns to ensure accuracy

Student Attributes Ranked by Predictive Importance

Displays attributes included in AI model that contribute to student success

Time run: 8/13/2014 12:21:02 PM

Student Attributes Ranked by Predictive Importance



Retention Decision Tree

Decision Tree Rules with Drill to Student ID
 Displays Decision Tree Rules which drill into the Student ID's that fall into those rules
 Time run: 9/4/2014 7:23:36 AM

Concern Criteria	Rule Id
(HIGH_SCHOOL_GPA <= 2.254) AND (SAT_ACT_MATH > 407.5)	10
(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.254) AND (SAT_ACT_VERBAL <= 535)	11
(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.254) AND (SAT_ACT_VERBAL > 535)	12
(HIGH_SCHOOL_GPA <= 2.985) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL <= 462.5)	13
(HIGH_SCHOOL_GPA <= 2.985) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL > 462.5)	14
(HIGH_SCHOOL_GPA > 2.985) AND (HIGH_SCHOOL_GPA <= 3.455) AND (SAT_ACT_VERBAL <= 415)	15
(HIGH_SCHOOL_GPA > 2.985) AND (HIGH_SCHOOL_GPA <= 3.455) AND (SAT_ACT_VERBAL > 415)	16
(HIGH_SCHOOL_GPA > 3.455) AND (HIGH_SCHOOL_GPA <= 3.885)	17
(HIGH_SCHOOL_GPA > 3.885)	18

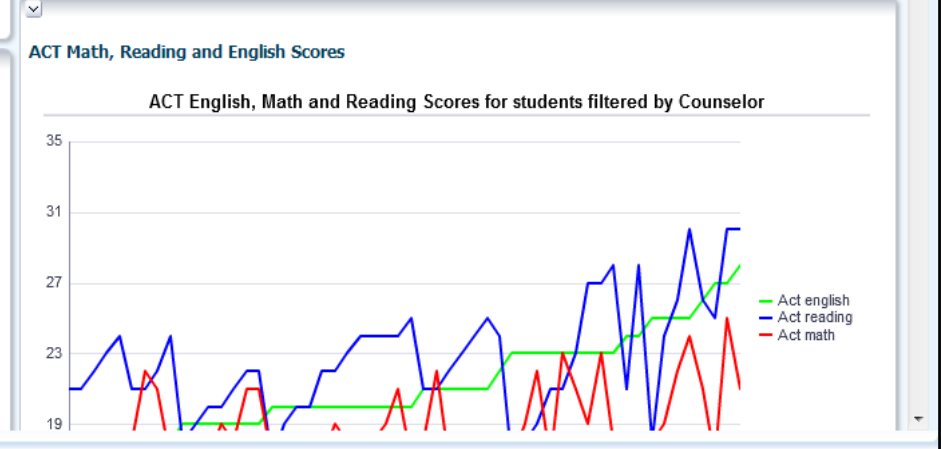
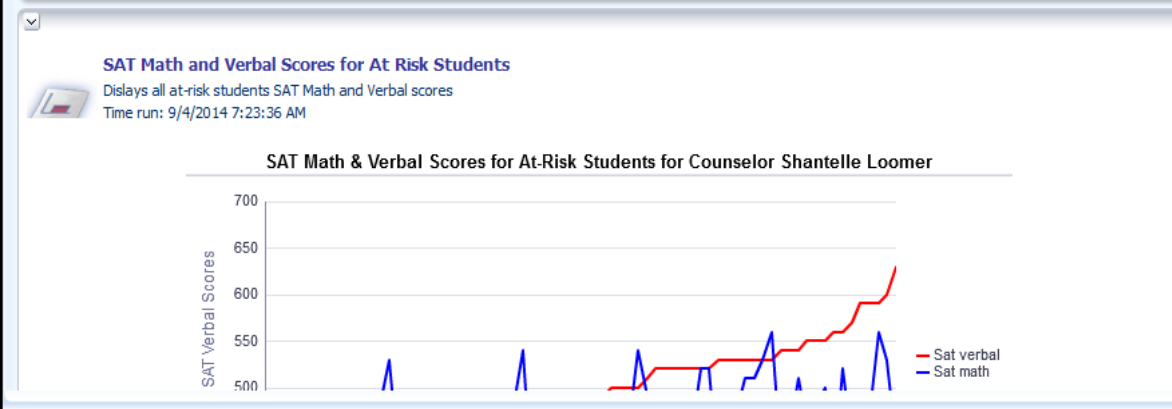
[Analyze](#) - [Edit](#) - [Refresh](#) - [Export](#) - [Add to Briefing Book](#) - [Copy](#)

The **Decision Tree algorithm** is used in this application for classifying students and is based on axis parallel splits of the data. The splits associated with a given leaf node in the tree results in a rule that defines the node or student segment. Such rules can easily be understood and easily used within a database to identify a set of records.

A decision tree predicts a target value by asking a sequence of questions. The goal is to ask questions that, taken together, uniquely identify specific subset of students that best reflects the the target values. Graphically, this process forms a tree structure.

Enter one or more Student Id(s) to get contact details:

Student Id



Get At-Risk Students Now

Please select attributes you would like to include in the advanced analytic model. This model will be dynamically run in the database using the latest table data. Please feel free to re-run this model multiple times with different attributes depending on your needs.

Enter a Term: Select Value(s) NULL
 ACT_COMPOSITE
 ACT_ENGLISH
 ACT_MATH
 ACT_READING
 ACT_SCIENCE
 HSGPA
 SATM
 SATT
 SATV

Dynamic Execution of the Decision Tree Function
 Please select the attributes to include in the execution of the Decision Tree Function
 Time run: 9/5/2014 10:37:00 AM

Values that are being evaluated in the database:
 201108 --- @({params})

The R function:
 Invoked Successfully

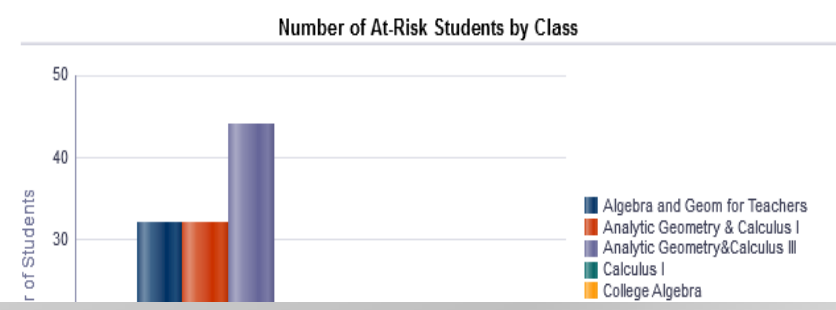
Decision Tree Model that Determines At-Risk in Math

Displays rules that were generated from decision tree model to determine if a student is at risk
 Time run: 9/5/2014 10:36:21 AM

Rule Number	Rule that Determines At-Risk
10	(SATM <= 2.5) AND (HSGPA in ("3"))
11	(SATM <= 2.5) AND (HSGPA in ("4"))
12	(HSGPA in ("3" "4")) AND (SATM > 2.5)
6	(HSGPA in ("1")) AND (SATM <= 2.5)
7	(HSGPA in ("1")) AND (SATM > 2.5)
8	(HSGPA in ("2")) AND (SATM <= 2.5)
9	(HSGPA in ("2")) AND (SATM > 2.5)

At-Risk Students by Course Name

Displays At-Risk Students by Course Name
 Time run: 9/5/2014 10:31:44 AM





Dynamically Running R Function

Oracle BI Answers - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Oracle BI Answers

10.146.91.127:7780/analytics/saw.dll?Answers&Path=%2Fshared%2FVSU%2FRun_ORE_Math_v3&PortalPath=%2Fshared%2FVSU%2F_portal%2FVSU Profess...

Most Visited Getting Started Oracle BI Interactive D... Student 360 | VSU | Ora... Enter Time Project Pelican

ORACLE Business Intelligence

Run_ORE_Math_v3

Criteria Results

Subject Areas

Invalid Subject Area

The selected request cannot be performed because it references an unknown subject area named .

Connection Pool

Enter the name of the Oracle BI Server connection pool you wish to use for this analysis. This must match exactly the name of an

"VSU (pdbord)". "Connection Pool"

SQL Statement

Enter a database-specific SQL statement. This statement will be issued as-is to the database associated with the specified Connec

```
select case when ORE_MATH_function(@{month}{201204}, '@{params}
{ACT_ENGLISH,ACT_MATH,HSGPA,SATI,SATM}')=1 then 'Successfully' else 'Failed' end
from dual
```

Validate SQL and Retrieve Columns Bypass Oracle BI Presentation Services Cache

Result Columns

Add or remove columns by changing the SQL statement and pressing the "Validate SQL and Retrieve Columns" button. Optionally c which case no columns will be displayed.

```
CASEWHENORE_MATH_FUNCTION(201204,'ACT_EN ...
varchar
```

Catalog



Creating an opaque view

The screenshot displays the Oracle BI Administration Tool interface with three main panes: Presentation, Business Model and Mapping, and Physical. The Physical layer is expanded to show the table structure for the view 'VSU_RETENTION_DT_RULES'. The table columns are listed as follows:

- TBL_AI_RETAINED_1YR
- VSU_COHORT_GRADES_ALL_TERMS
- VSU_COHORT_GRADES_FIRST_TERM
- VSU_COHORT_RETENTION
- VSU_COHORT_RETENTION_V2
- VSU_COUNSELOR_NAMES
- VSU_COUNSELORS
- VSU_DECISION_TREE_RULES
- VSU_ENROLLMENT
- VSU_INSTRUCTOR_V2
- VSU_INSTRUCTORS
- VSU_MATH_ATTRIB_IMP_2
- VSU_MATH_ATTRIB_IMP
- VSU_MATH_BUILD_MODEL_QRY
- VSU_MATH_COURSES
- VSU_MATH_DECISION_TREE_Dynamic
- VSU_MATH_DT
- VSU_MATH_DT_FUNCTION
- VSU_MATH_SCORING
- VSU_NEW_STUDENT
- VSU_NEW_STUDENT_EASYID
- VSU_PASS_RATE_COURSE_GRADE
- VSU_PASS_RATE_COURSE_ID
- VSU_PASS_RATE_INSTRUCTOR_NAMES
- VSU_PASS_RATE_noID
- VSU_RETENTION_BUILD_MODEL_QUERY
- VSU_RETENTION_DT_RULES** (highlighted)
 - FULL_SPLITS
 - NODE_ID
 - PARENT
 - PREDICTION
 - ROW_COUNT
 - SPLIT
 - SURROGATE
- VSU_RETENTION_SCORING
- VSU_TEST

The status bar at the bottom of the tool reads: "Physical Tables: 'VSU (edborc)' - 'VSU' - 'VSU_RETENTION_DT_RULES' - Opaque View".



Students and Classes

At Risk

Alerts

- Please come in for a consult Normal 8/8/2014 11:30 PM View | Clear | More -
- Erica - You have at-risk students, please inter... Normal 8/8/2014 11:30 PM View | Clear | More -



Student By Grade

Displays a full list of student per professor by grade

Course Title Algebra and Geom for Teachers Course Number 97 Instructor Name Erica Daniel

Final Grade	Revised id	Student First Name	Student Last Name	Student Email
S	VSU02259	Malcom	Baeringer	malcombaeringer@valdosta.com
	VSU03894	Seymour	Columbus	seymourcolumbus@valdosta.com
	VSU04651	Lacie	Brumby	laciebrumby@valdosta.com
	VSU05272	Neomi	Cerreta	neomicerreta@valdosta.com
	VSU05281	Alfonzo	Brazzel	alfonzobrazzel@valdosta.com
	VSU05293	Yon	Borozny	yonborozny@valdosta.com
	VSU05338	Marsha	Bartolini	marshabartolini@valdosta.com
	VSU05399	Florine	Delrosso	florinedelrosso@valdosta.com
	VSU05409	Rosena	Akana	rosenaakana@valdosta.com
	VSU05411	Beula	Barkalow	beulabarkalow@valdosta.com
	VSU05413	Sonja	Bradish	sonjabradish@valdosta.com
	VSU05414	Aurea	Clem	aureadem@valdosta.com
	VSU05471	Tobias	Baruffi	tobiasbaruffi@valdosta.com



Creating an opaque view

Physical Table - VSU_RETENTION_DT_RULES

General | Columns | Keys | Foreign Keys | Properties

Name: VSU_RETENTION_DT_RULES

Table Type: Select

Default Initialization String Use database specific SQL

Database	Initialization String
Hyperion Financial Management 9	
Oracle RPAS	
Oracle Exadata	
Oracle 10g XE	
OracleADF11g	
OracleADF	
Oracle 8i	
Oracle 9i	
Oracle 10g R1	
Oracle 10g R2	
Oracle 11g	
Microsoft	
DB2	
Teradata	
Sybase	
XML	
Apache Hadoop	
Informix IDS 9.4/10.0	
MySql	
Neoview	
NetezzaSQL R3.1/R4.0	
Oracle BI Web Services	
OracleCEP	
TimesTen V11	
TimesTen V7	

```
select * from table(rqEval(
  cursor(select 1 'ore.connect',
    'ds.vsu.reten.mdl.DT' "ds.name"
    from dual),
  'select cast("a" as varchar2(10)) parent,
  cast("a" as varchar2(10)) node_id,
  cast("a" as varchar2(10)) row_count,
  cast("a" as varchar2(10)) prediction,
  cast("a" as varchar2(4000)) split,
  cast("a" as varchar2(4000)) surrogate,
  cast("a" as varchar2(4000)) full_splits
  from dual,
  'get_mdl_reten_DT_Rules'))
```

Cacheable

Cache never expires

Cache persistence time

Hint:








Description:



Creating an opaque view

Physical Table - VSU_RETENTION_DT_RULES

General | Columns | Keys | Foreign Keys | Properties

Name	Type	Length	Nullable
 FULL_SPLITS	VARCHAR	4000	false
 NODE_ID	VARCHAR	10	false
 PARENT	VARCHAR	10	false
 PREDICTION	VARCHAR	10	false
 ROW_COUNT	VARCHAR	10	false
 SPLIT	VARCHAR	4000	false
 SURROGATE	VARCHAR	2000	false



Creating an opaque view

View Data from Table "VSU (pdborcl)".."VSU"."VSU_RETENTION_DT_RULES"

10 rows Distinct

Show 10 rows starting from 0

	FULL_SPLITS	NODE_ID	PARENT	PREDICTION	ROW_COUNT	SPLIT	SURROGATE
0	(HIGH_SCHOOL_GPA <= 2.	9	3	1	10	(SAT_ACT_MATH <= 407.5	
1	(HIGH_SCHOOL_GPA <= 2.	10	3	0	378	(SAT_ACT_MATH > 407.5)	
2	(HIGH_SCHOOL_GPA <= 2.	11	4	1	2298	(SAT_ACT_VERBAL <= 535	(SAT_ACT_MATH <= 605)
3	(HIGH_SCHOOL_GPA <= 2.	12	4	1	409	(SAT_ACT_VERBAL > 535)	(SAT_ACT_MATH > 605)
4	(HIGH_SCHOOL_GPA <= 2.	13	5	1	1249	(SAT_ACT_VERBAL <= 462	(SAT_ACT_MATH <= 415)
5	(HIGH_SCHOOL_GPA <= 2.	14	5	1	2864	(SAT_ACT_VERBAL > 462.5	(SAT_ACT_MATH > 415)
6	(HIGH_SCHOOL_GPA > 2.9	15	7	1	65	(SAT_ACT_VERBAL <= 415	
7	(HIGH_SCHOOL_GPA > 2.9	16	7	1	5476	(SAT_ACT_VERBAL > 415)	
8	(HIGH_SCHOOL_GPA > 3.4	17	8	1	3098	(HIGH_SCHOOL_GPA <= 3.	
9	(HIGH_SCHOOL_GPA > 3.8	18	8	1	807	(HIGH_SCHOOL_GPA > 3.8	



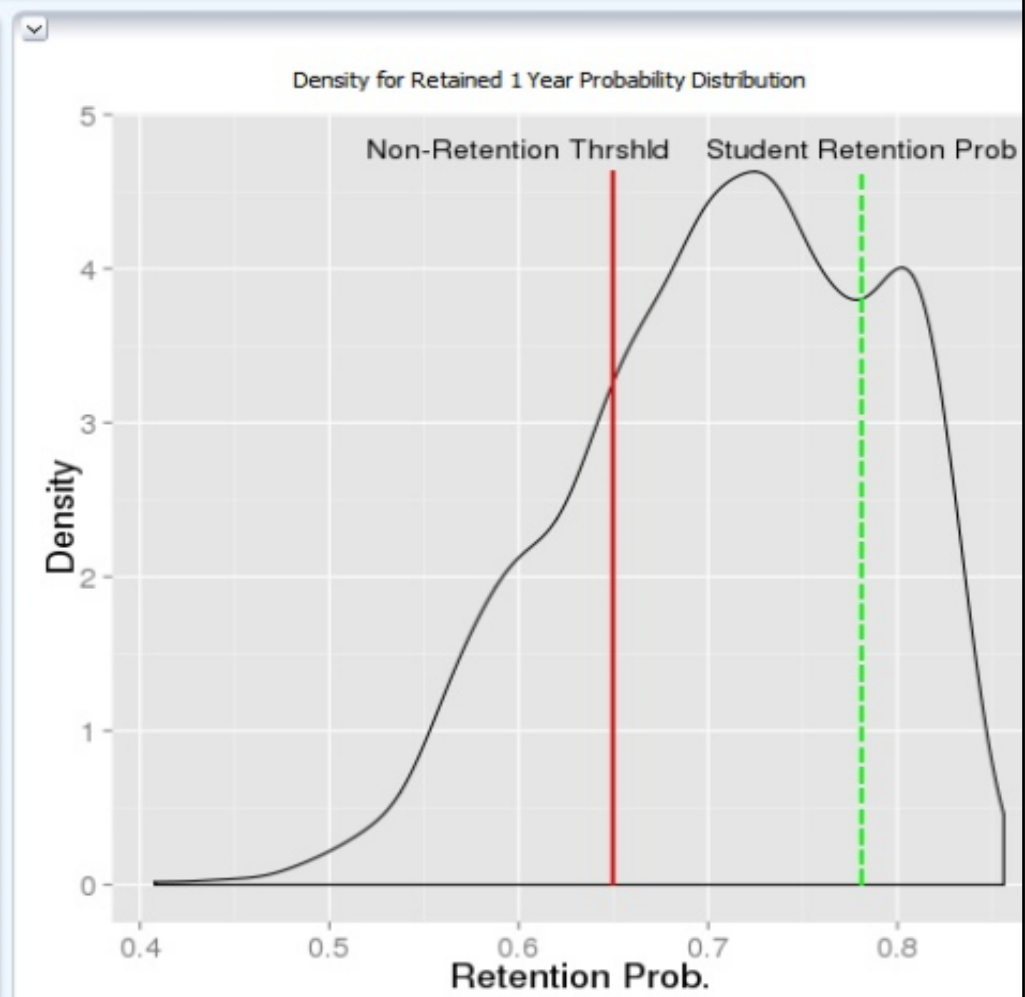
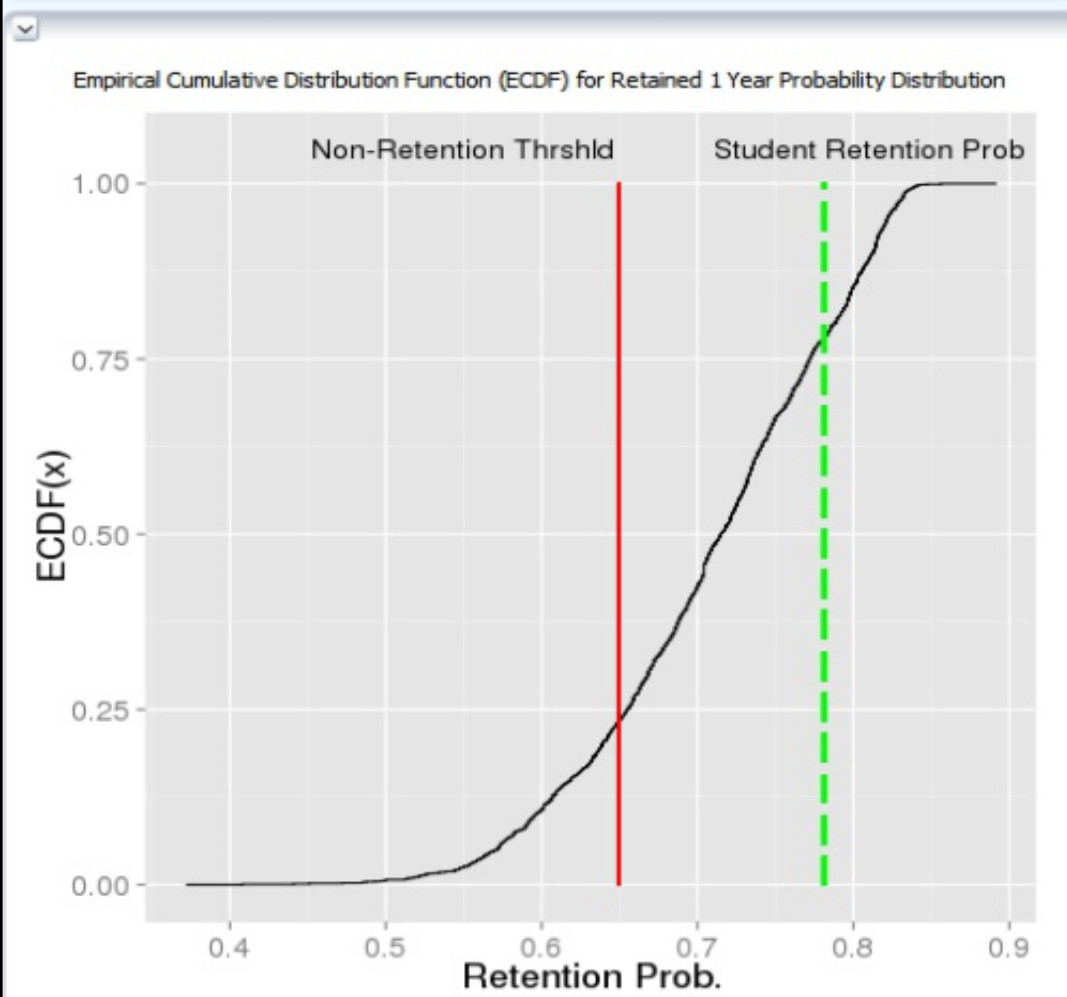
Oracle Answers for Ad-Hoc Queries

The screenshot displays the Oracle Business Intelligence interface for Decision Tree Rules. The left pane shows a tree view of 'Subject Areas' including 'Retention - Decision Tree Rule' and 'Retention Decision Tree Score'. The right pane shows the 'Results' tab with a 'Compound Layout' containing a pivot table of 'Concern Criteria' and 'Rule Id'.

Concern Criteria	Rule Id
(HIGH_SCHOOL_GPA <= 2.254) AND (SAT_ACT_MATH > 407.5)	10
(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.254) AND (SAT_ACT_VERBAL <= 535)	11
(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.254) AND (SAT_ACT_VERBAL > 535)	12
(HIGH_SCHOOL_GPA <= 2.985) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL <= 462.5)	13
(HIGH_SCHOOL_GPA <= 2.985) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL > 462.5)	14
(HIGH_SCHOOL_GPA > 2.985) AND (HIGH_SCHOOL_GPA <= 3.455) AND (SAT_ACT_VERBAL <= 415)	15
(HIGH_SCHOOL_GPA > 2.985) AND (HIGH_SCHOOL_GPA <= 3.455) AND (SAT_ACT_VERBAL > 415)	16
(HIGH_SCHOOL_GPA > 3.455) AND (HIGH_SCHOOL_GPA <= 3.885)	17
(HIGH_SCHOOL_GPA > 3.885)	18

The density plots show the retention probability distribution. The ECDF plot shows the empirical cumulative distribution function for the retention probability.

- The red vertical line is the decision threshold (0.65). Under it students are predicted not-retained
 - The green line corresponds a particular chosen student. For this case we picked NEW_STUDENT_ID = "00ACA7A29C707FCC5E40C9AB5CDC889D"
- These plots were generated for the Generalized Linear Model (GLM) prediction





Decision Tree Rules with Drill to Student ID

Displays Decision Tree Rules which drill into the Student ID's that fall into those rules

Time run: 8/13/2014 12:26:48 PM

Shantelle Loomer

Rule Number	Full_splits
10	(HIGH_SCHOOL_GPA <= 2.2549999999999999) AND (SAT_ACT_MATH > 407.5)
11	(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.2549999999999999) AND (SAT_ACT_VERBAL <= 535)
12	(HIGH_SCHOOL_GPA <= 2.615) AND (HIGH_SCHOOL_GPA > 2.2549999999999999) AND (SAT_ACT_VERBAL > 535)
13	(HIGH_SCHOOL_GPA <= 2.9850000000000001) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL <= 462.5)
14	(HIGH_SCHOOL_GPA <= 2.9850000000000001) AND (HIGH_SCHOOL_GPA > 2.615) AND (SAT_ACT_VERBAL > 462.5)
15	(HIGH_SCHOOL_GPA > 2.9850000000000001) AND (HIGH_SCHOOL_GPA <= 3.4550000000000001) AND (SAT_ACT_VERBAL <= 415)
16	(HIGH_SCHOOL_GPA > 2.9850000000000001) AND (HIGH_SCHOOL_GPA <= 3.4550000000000001) AND (SAT_ACT_VERBAL > 415)
17	(HIGH_SCHOOL_GPA > 3.4550000000000001) AND (HIGH_SCHOOL_GPA <= 3.885)
18	(HIGH_SCHOOL_GPA > 3.885)

[Analyze](#) - [Edit](#) - [Refresh](#) - [Add to Briefing Book](#) - [Copy](#)

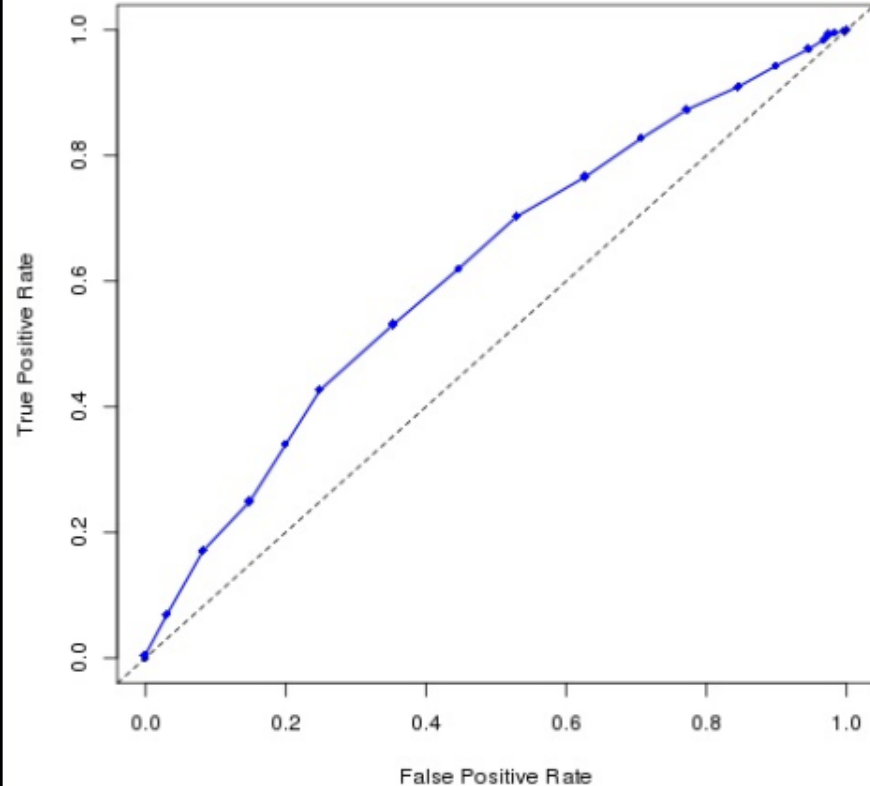
Data Mining Decision Tree for At-Risk Students



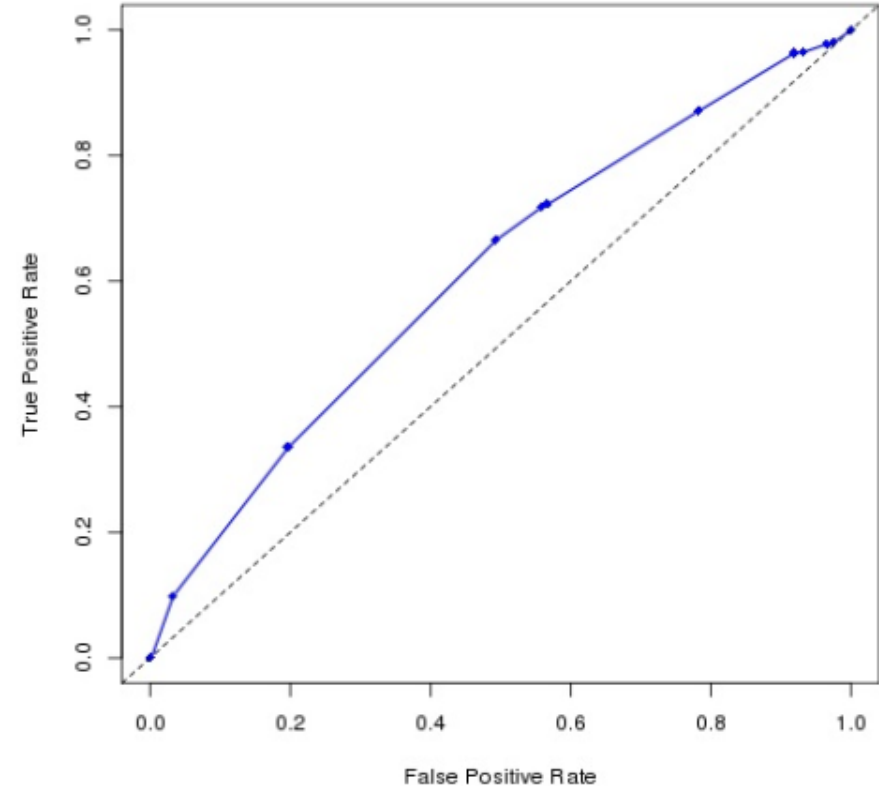
Receiver Operating Characteristic Plots

ROC : GLM for RETAINED_1YR

An ROC plot (short for Receiver Operating Characteristic) gives an understanding of how well the model predicts the target value.



ROC : DT for RETAINED_1YR





Real-Time Math At-Risk Models

Decision Tree Model that Determines At-Risk in Math

Displays rules that were generated from decision tree model to determine if a student is at risk
Time run: 8/13/2014 10:38:35 AM

Rule Number	Rule that Determines At-Risk
10	(HSGPA in ("2")) AND (HSRank in ("1" "2"))
11	(HSGPA in ("2")) AND (HSRank in ("3" "4" "9"))
12	(SAT_MATH <= 485) AND (HSGPA in ("3")) AND (HSRank in ("1" "2"))
13	(SAT_MATH <= 485) AND (HSGPA in ("3")) AND (HSRank in ("3" "4" "9"))
14	(SAT_MATH <= 485) AND (HSGPA in ("4"))
15	(SAT_MATH > 485) AND (HSGPA in ("3"))
16	(SAT_MATH > 485) AND (HSGPA in ("4"))
8	(HSGPA in ("1")) AND (SAT_MATH <= 485)
9	(HSGPA in ("1")) AND (SAT_MATH > 485)

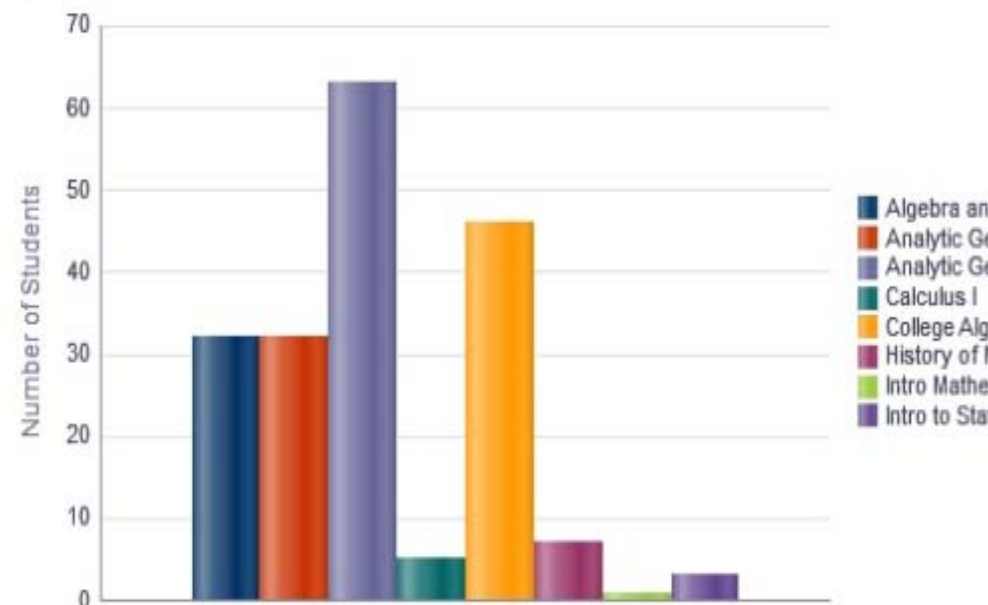
[Analyze](#) - [Edit](#) - [Refresh](#) - [Print](#) - [Add to Briefing Book](#) - [Copy](#)

At-Risk Students by Course Name



Displays At-Risk Students by Course Name
Time run: 8/13/2014 10:38:35 AM

Number of At-Risk Students by Class





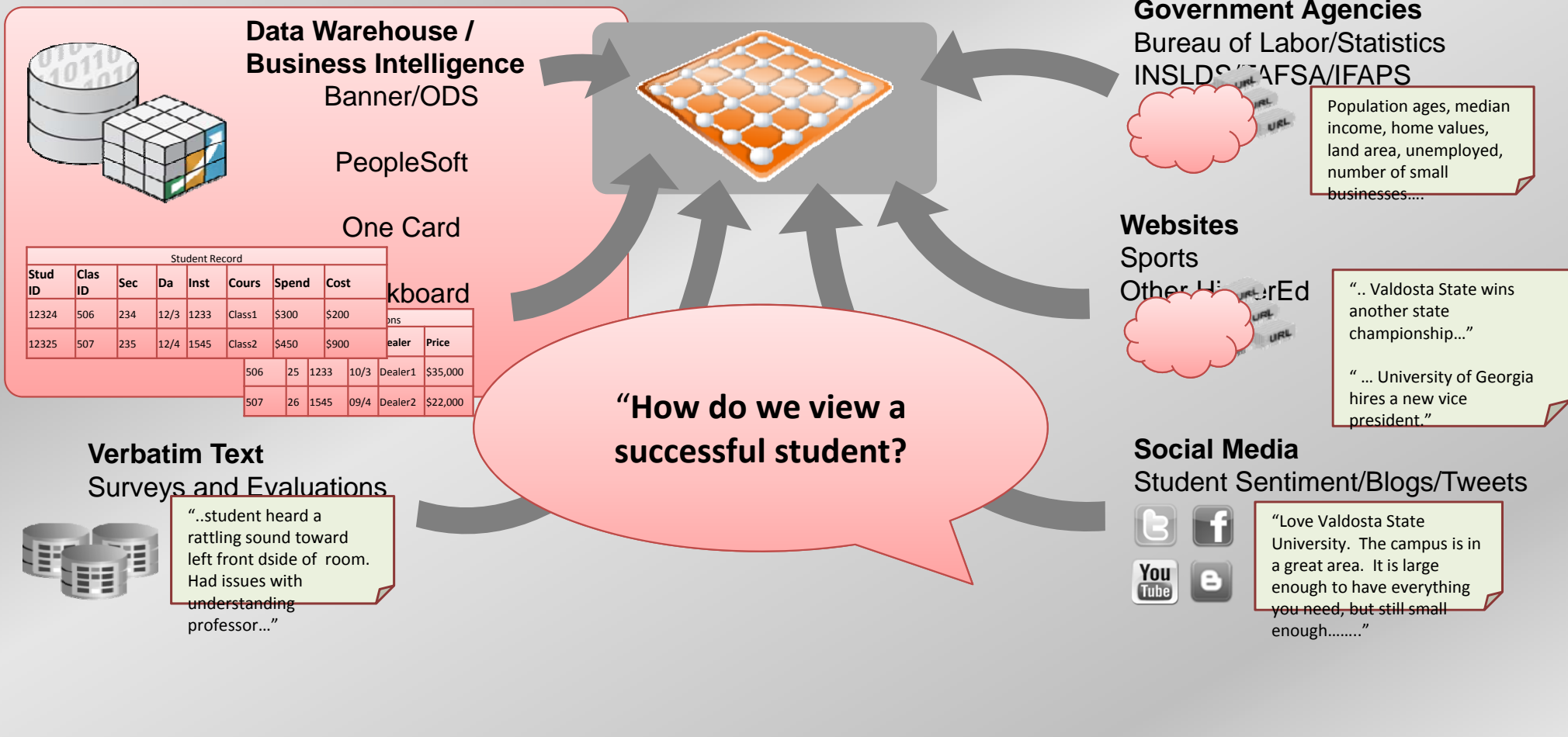
Information Discovery

- Analyze data from any source
- Measure and quantify student engagement
- Combine both structured and unstructured data
- Provide sentiment analysis on surveys and social media
- Measure the impact social and engagement metrics have on retention and graduation rates



Oracle Endeca Information Discovery

Understand the Complete Picture with Context from Any Source



▼ Enrolled Term

Search for specific value...

- Fall 2012 (1178)
- Spring 2013 (1090)
- Fall 2013 (885)
- Spring 2014 (843)
- Fall 2014 (729)
- Summer 2014 (302)
- Summer 2013 (198)

Select All

▼ Student GPA

- ▶ High School GPA
- ▶ Institutional Term GPA
- ▼ Full Cumulative GPA

Between -

5224 results

Submit

- ▶ SAT Verbal
- ▼ Purchases
 - ▶ Enrolled Term
 - ▶ Purchase Amount
- ▼ Financial Aid
 - ▶ Parent Marital Status
 - ▶ Parent Taxes Paid
 - ▶ Parent Adjusted Income
 - ▶ Enrolled Family Members
 - ▶ Total Parent Contribution
 - ▶ Other Fed Grants
 - ▶ Other Fed Loans
 - ▶ Other Loans
 - ▶ Pell Received
 - ▶ Hope Received
 - ▶ Private Scholarships
 - ▶ Primary Parent Contr
 - ▶ Par 2 Adj Avail Income
 - ▶ Secondary Parent Contr
- ▼ Student Flags
 - ▶ Graduated This Term
 - ▶ At Risk General
 - ▶ At Risk Math
 - ▶ Registered Full Time
 - ▶ Transfer Student

- ▶ Enrolled Term
- ▼ Student Demographics
 - ▶ County Residence
 - ▶ High School
 - ▶ Citizen
 - ▶ Ethnicity
 - ▶ Gender
 - ▶ Race
 - ▼ Sport
 - Search for specific value...
 - Football (57)
 - Soccer (40)
 - Dance (39)
 - Cheerleader (30)
 - Baseball (18)
 - Softball (17)
 - Women-Cross Country (10)
 - Men-Cross Country (8)
 - Men-Tennis (5)
 - Women-Basketball (5)
 - Volleyball (4)

- ▼ Course Type
 - ▶ Hybrid Courses
 - ▶ Partially Online Courses
 - ▶ Vista Online Courses
 - ▶ Tech Enhanced Courses
 - ▶ Kingsbay Campus
 - ▶ Military Campus Courses
 - ▶ Offsite Campus Courses
 - ▶ Online Campus Courses
 - ▶ Gomi Campus Courses
 - ▶ Ecore Campus Courses
 - ▶ Emajor Campus Courses
 - ▶ Webmba Campus Courses
- ▼ Student Courses
 - ▶ Enrolled Term
 - ▶ Freshman Learning
 - ▶ Student Athlete
 - ▶ Student Class
 - ▶ Student Level
 - ▶ Student Type
 - ▶ Academic College

Search Box

Search Within

Breadcrumbs

No refinements have been selected.

Range Filters

Success Counts

Success Hours

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

Bookmarks

Filter bookmarks...

My Bookmarks

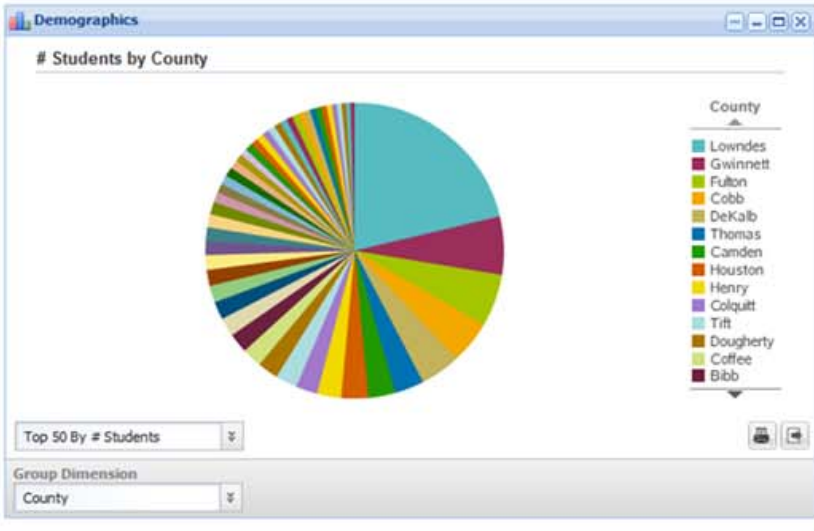
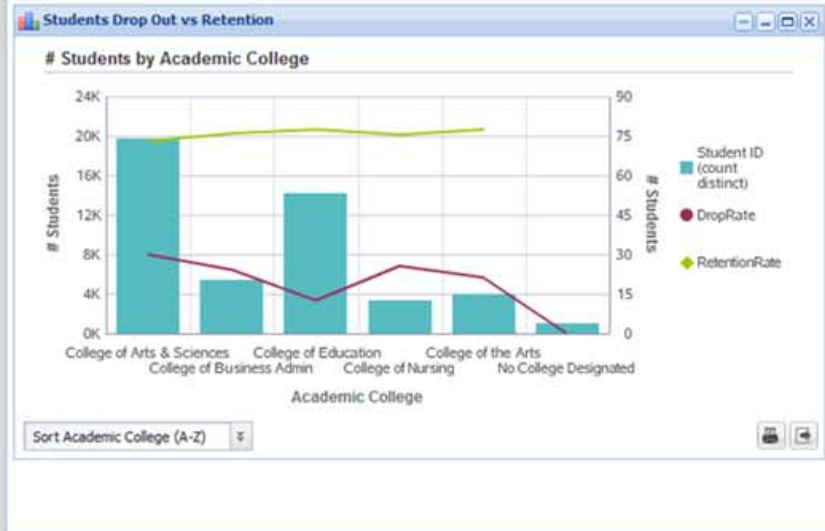
Name	Description	Date ...	Actions
No bookmarks matched your filter.			

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	Live
<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...								N

Page 1 of 19855 | Records per page

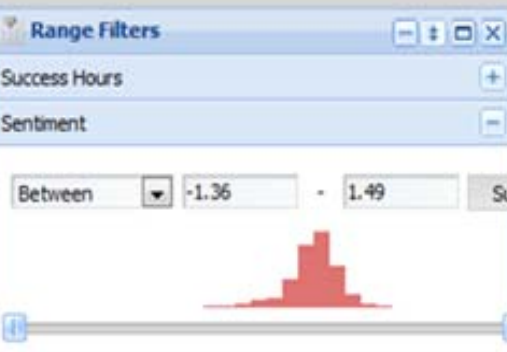
Displaying records 1 - 10 of 198550

Search Box

Search Within

Breadcrumbs

No refinements have been selected.

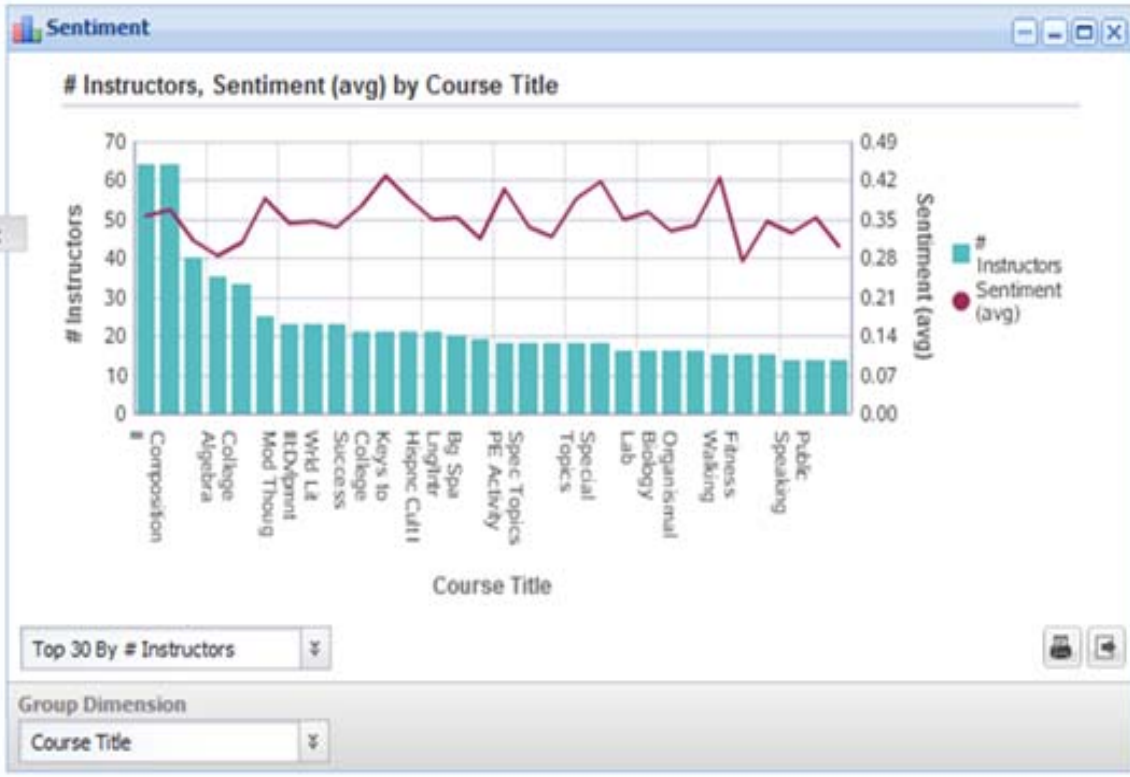


- Guided Navigation
- Student
 - Student Courses
 - Success Center
 - Student Demographics
 - Evaluation
 - Student Flags

Bookmarks

Course Metrics

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



Search Box [Settings] [Fullscreen] [Close]

[Dropdown] [Search Icon]

Search within

Course Metrics

59,207 **3,144**
Students Number of Courses

Selected Refinements [Settings] [Fullscreen] [Close]

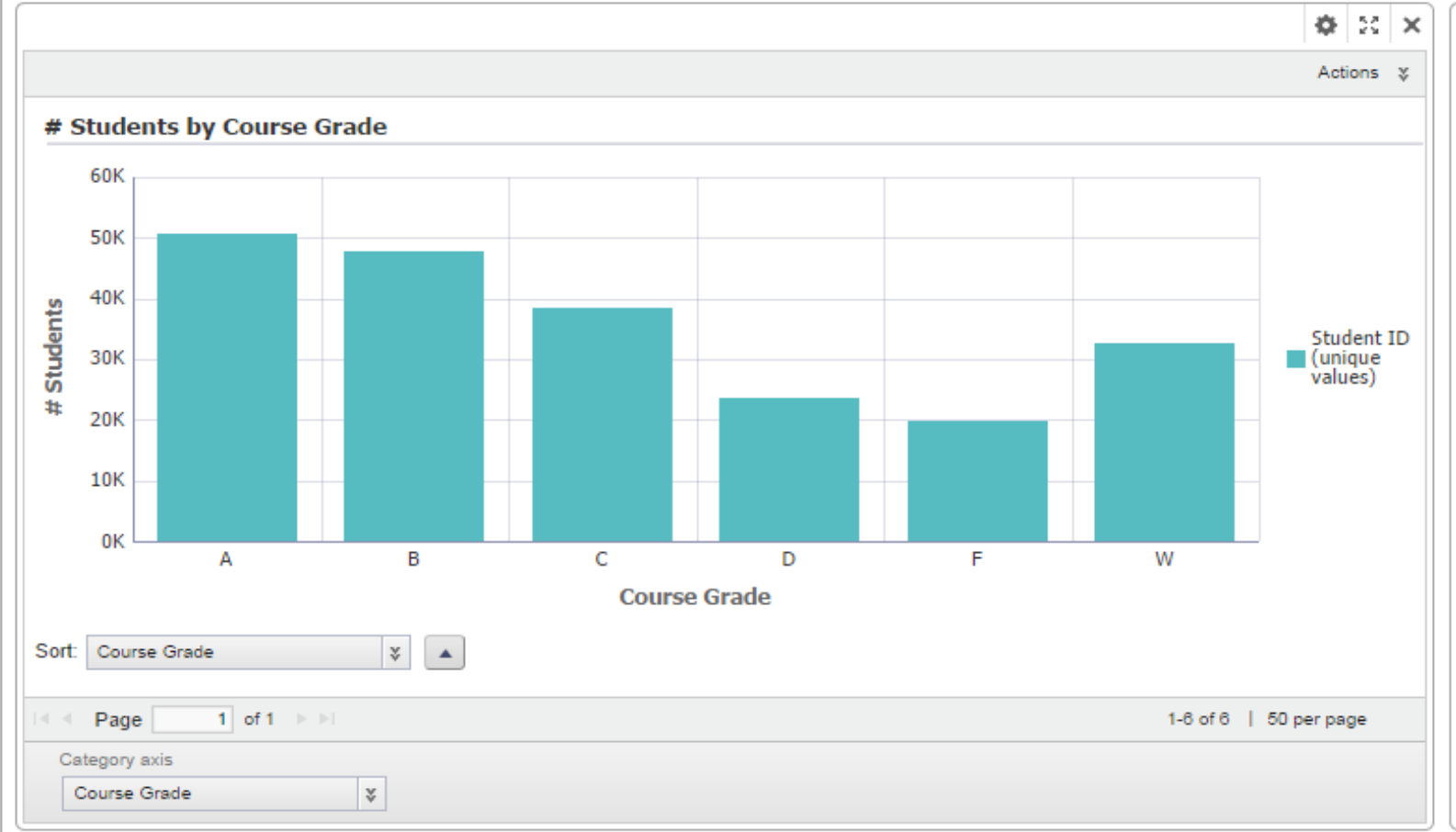
▶ **Course Grade (6 Values)** [Close]

Reset

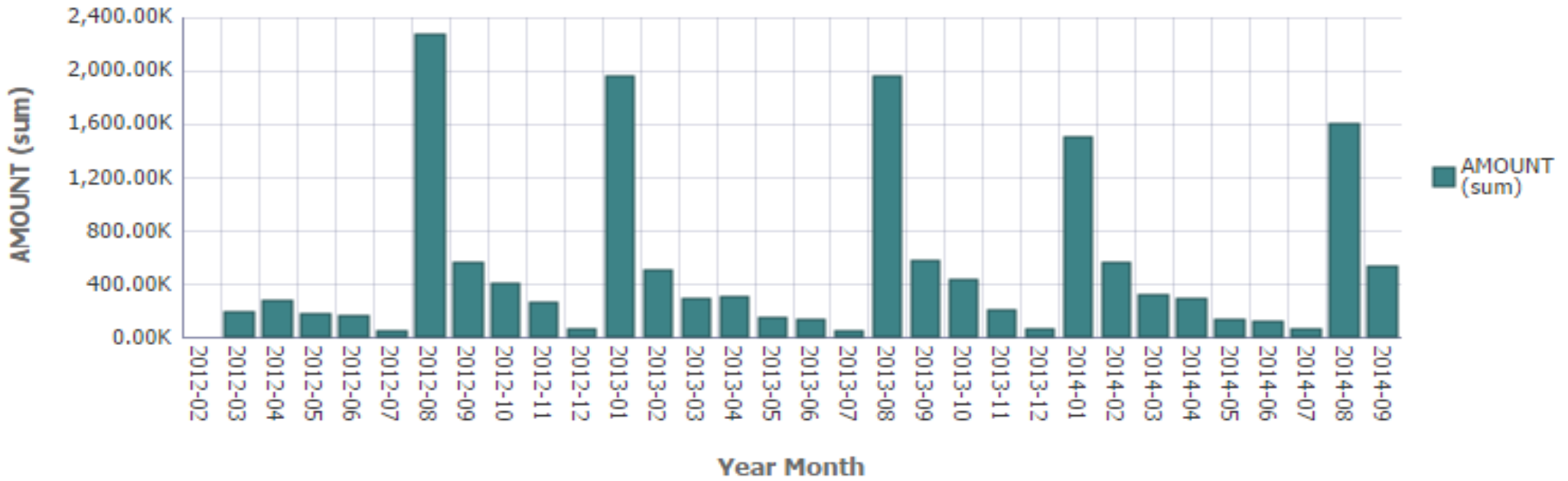
Component Container

Available Refinements [Settings] [Fullscreen] [Close]

- ▶ Student Demographics
- ▶ Student Flags
- ▶ Success Center
- ▶ Student
- ▼ Student Courses
 - ▶ Course Attributes
 - ▼ Course Campus
 - Search for specific value... [Search Icon]
 - Main Campus (1362680)**
 - Online Campus (105756)
 - Off Campus (31128)
 - Kingsbay Campus (29291)
 - Georgia on my Line (20870)
 - eCore Campus (12509)
 - Military Base Campus (8462)
 - Study Abroad (6285)
 - eMajor Campus (5264)
 - MPA online (3117)
 - WebMBA Campus (1400)



AMOUNT (sum) by Year Month



Sort: Year Month

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



Purchase Metrics

14,603

Students

\$16,054,431

Total \$ Amount

1,912,588

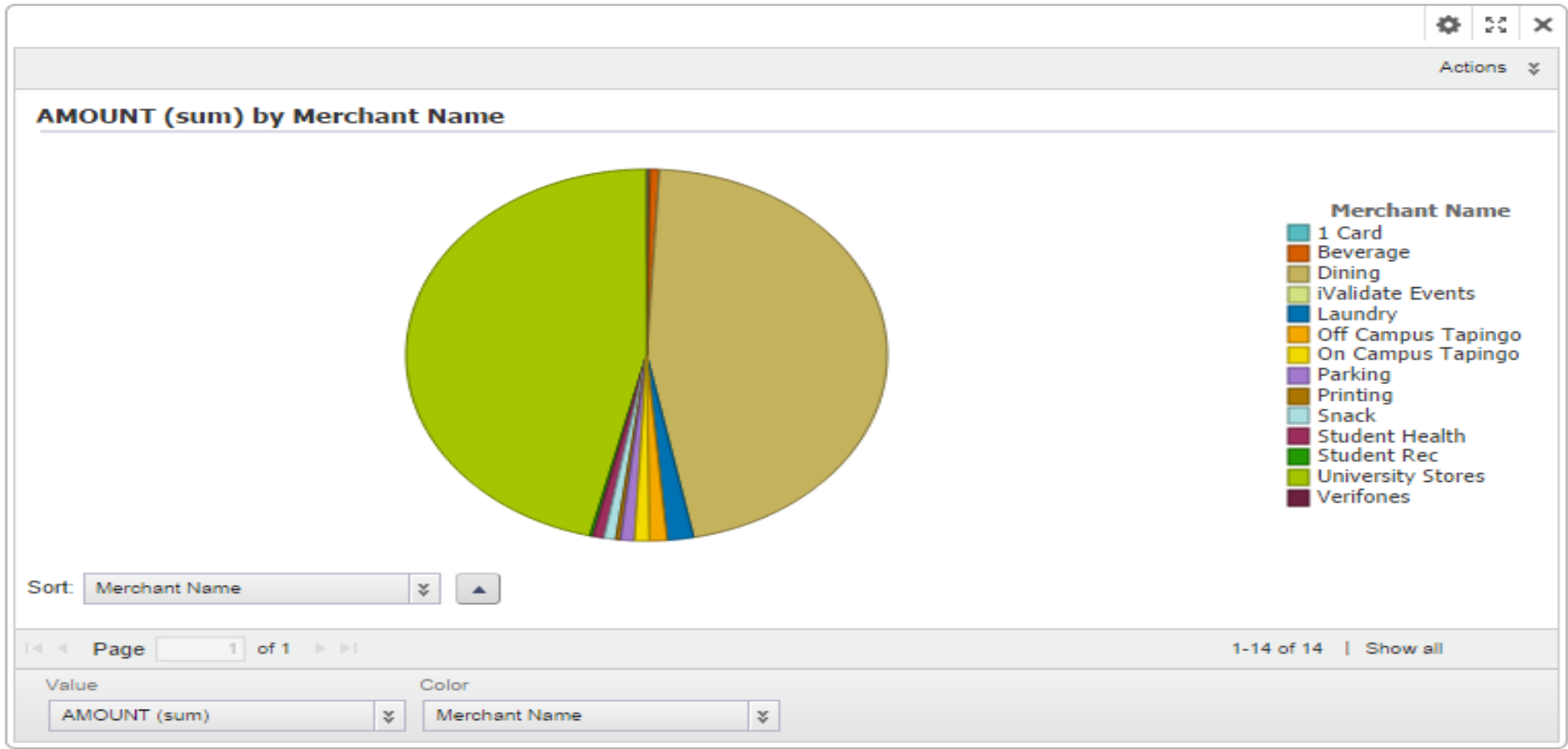
Total Transactions

\$8.39

Avg \$ per Transaction

2,035

Transactions Per Day



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

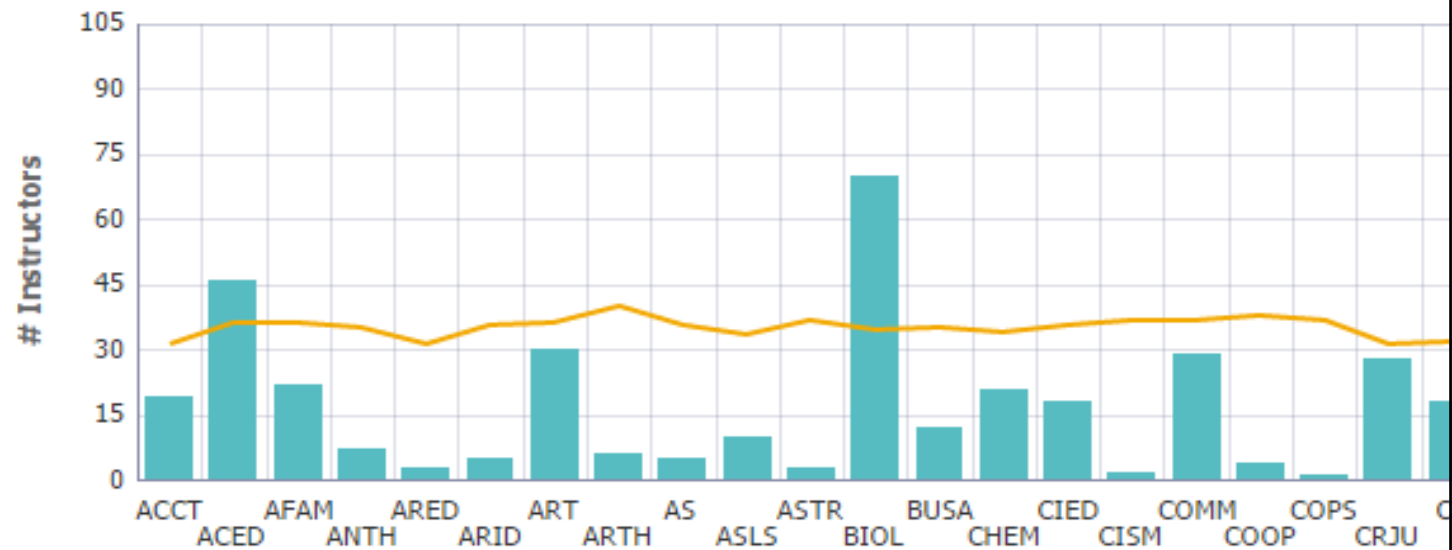


Explore Themes by Number of records

Sentiment

Chart

Instructors by Course Subject



Sort: Course Subject

Page 1 of 3

Positive



always available always prepared **always willing** answering questions busy work class discussion

class discussions class fun class period **class time** course content

course material course work due dates enough time entire class everyday life excellent job

excellent teacher explained everything explained things explaining things extra credit extremely helpful good teacher

good work great class great course great professor **great teacher** Great teacher group work little bit

office hours online class online course positive attitude power points professional manner real life real life examples

real life situations really good study guide study guides **subject matter** sure everyone teaching style

Negative

asking questions **busy work** class discussion cla

course content course material critical thinking due dates e

extremely hard final exam final grade grading criteria

homework assignments homework problems l

much information much mater

online class online course power point power points

study guides subject matter teaching style **test ques**



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