



Predictive Analytics: Getting Buy-in from Key Stakeholders and Users

Allison M. Cantwell, Assistant Vice Chancellor
Institutional Research
CAIR Conference, November 16, 2016



Introduction

Why is this important?

Predictive Analytics at UCR

- *Building a tool for advisors to support proactive rather than reactive advising*

Advisor Workshop

- *Interactive Information Gathering activities*
- *Post-it notes*
- *Mark-up the mock-ups*
- *Voting with dots*

Workshop Artifacts and Information Synthesis

Post-Workshop

Why is this important?

- *Identify needs/wants*
- *Helps to focus on what's important to the user*
- *Engages people and fosters collaboration*
- *Great way to get a lot of information in a relatively short amount of time*
- *Saves time and saves you from going down the wrong path*
- *Provides direction*

Make something useful and efficient; We don't want to waste anybody's time...including our own

Context



University Innovation Alliance

- *11 public research universities nationwide*
- *Focus on accessibility and student success*

UCR Predictive Analytics Team

- *Undergraduate Education*
- *Institutional Research*
- *Associate Deans for Student Affairs*
- *Advising Managers for the colleges*
- *Computer Science faculty*
- *Computing and Communications (IT)*

Initial Questions

Home grown or vendor?

- *Home grown*

Advisor facing and/or student facing?

- *Advisor facing*

What are we predicting (outcomes)?

- *Retention year 1, 2*
- *Transfer to another university*
- *Graduation year 2, 3 & 4 / 4, 5 & 6*
- *Time to Degree*

What data and granularity?

- *High-level*
- *Quarterly student data*

Where we started: Data Exploration

Team meetings

- *Three analysis teams*
- *Many ideas from the colleges on what was important*



What is relevant to advisors?

Are we headed in the right direction?

2-hour Advising Workshop

Goals:

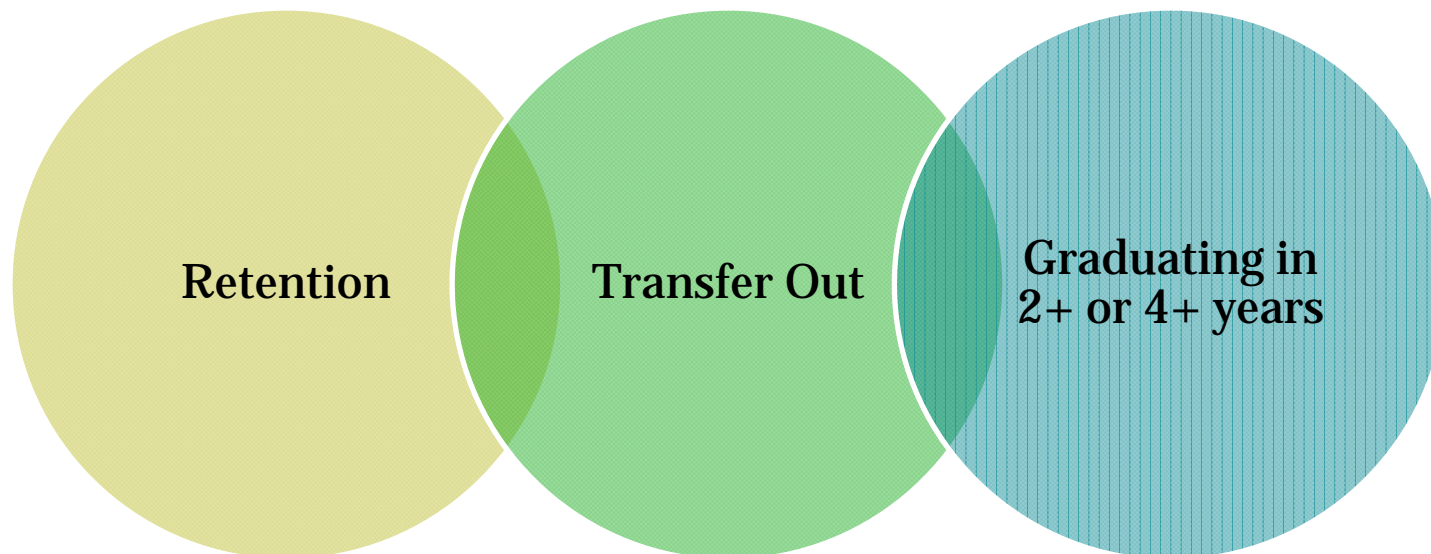
- *Ensure tool is vetted by and useful to advisors*
- *Is this information relevant?*
- *Are we missing anything?*
- *Are there additional concerns?*

44 advisors attended (of ~50)

- *Provided snacks (very important)*
- *Overview of the project so far*
- *Communicated our interest in their feedback*
- *Focus on getting a lot of feedback in a “short” period of time*
- ***Group activities, tables of 7-8***

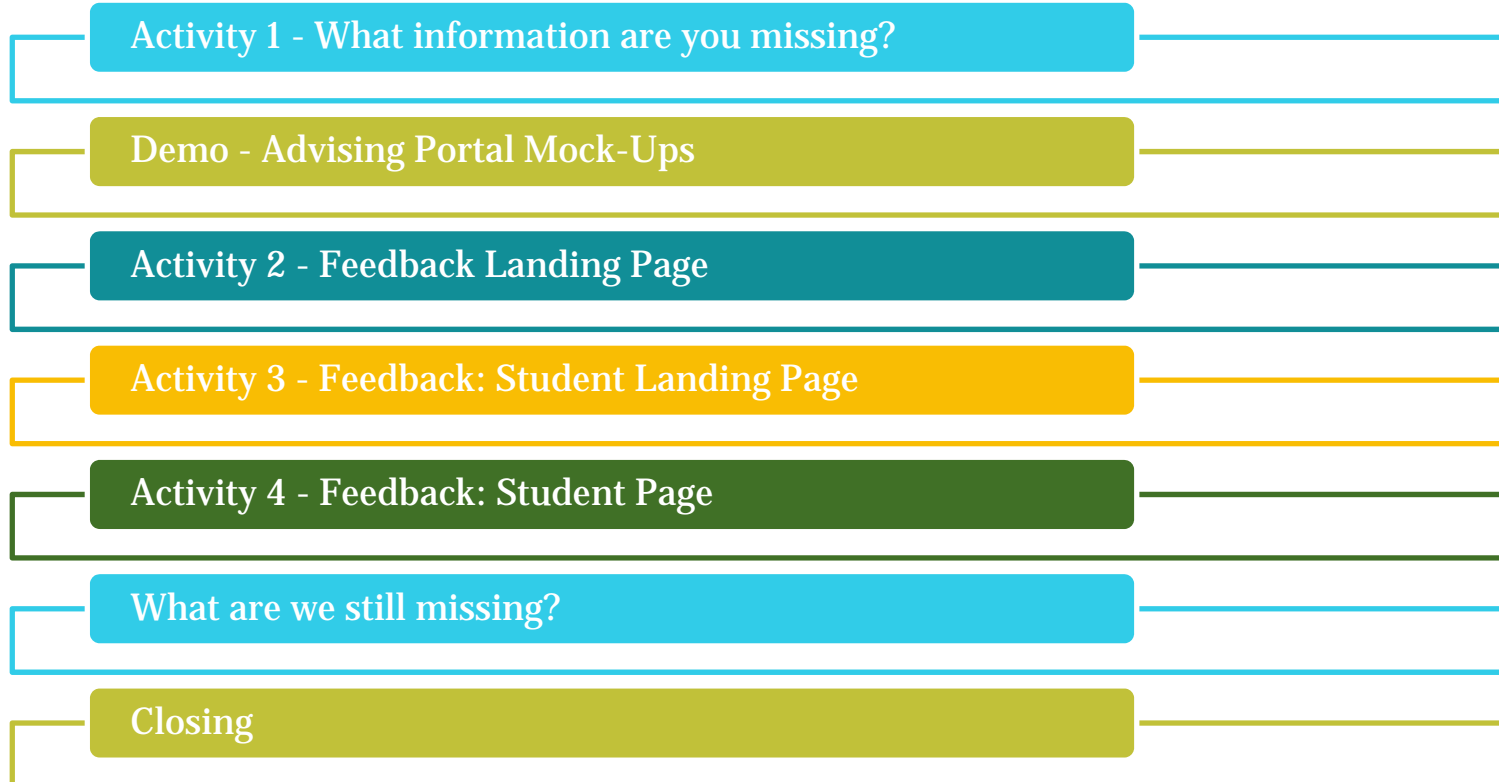
Predictive Analytics: What are our goals?

Identifying students at risk for:



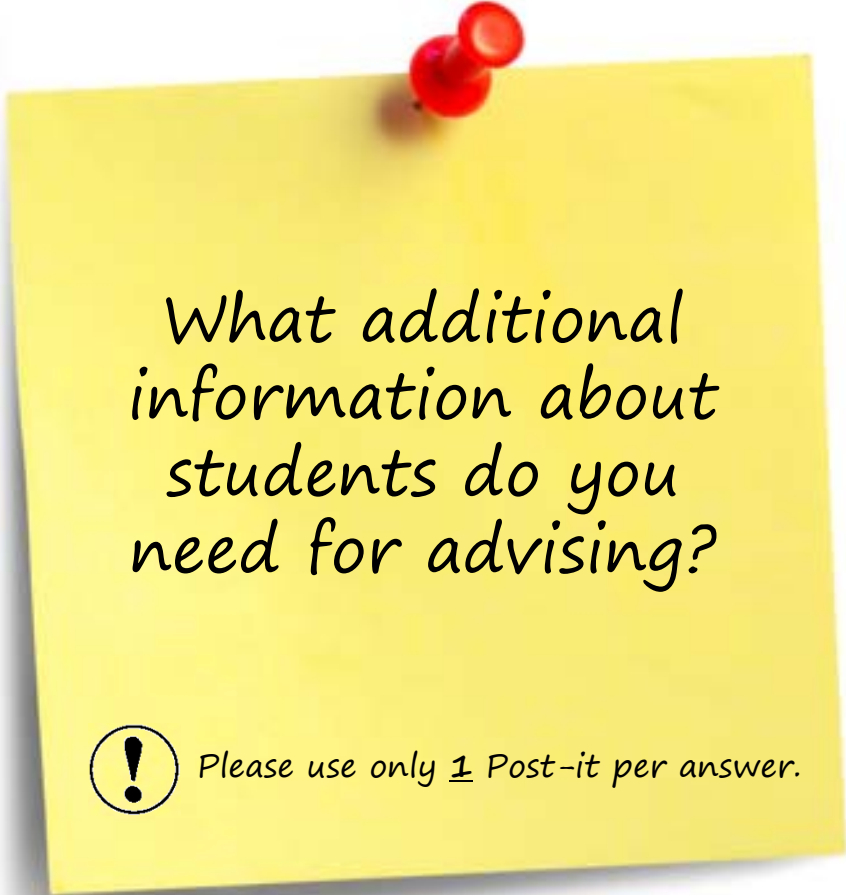
Using historical data from UCR.

Agenda & Activities Summary



Overall Goal: Receive candid feedback about data that you want & need.

Activity 1: What are you missing? (5 min)



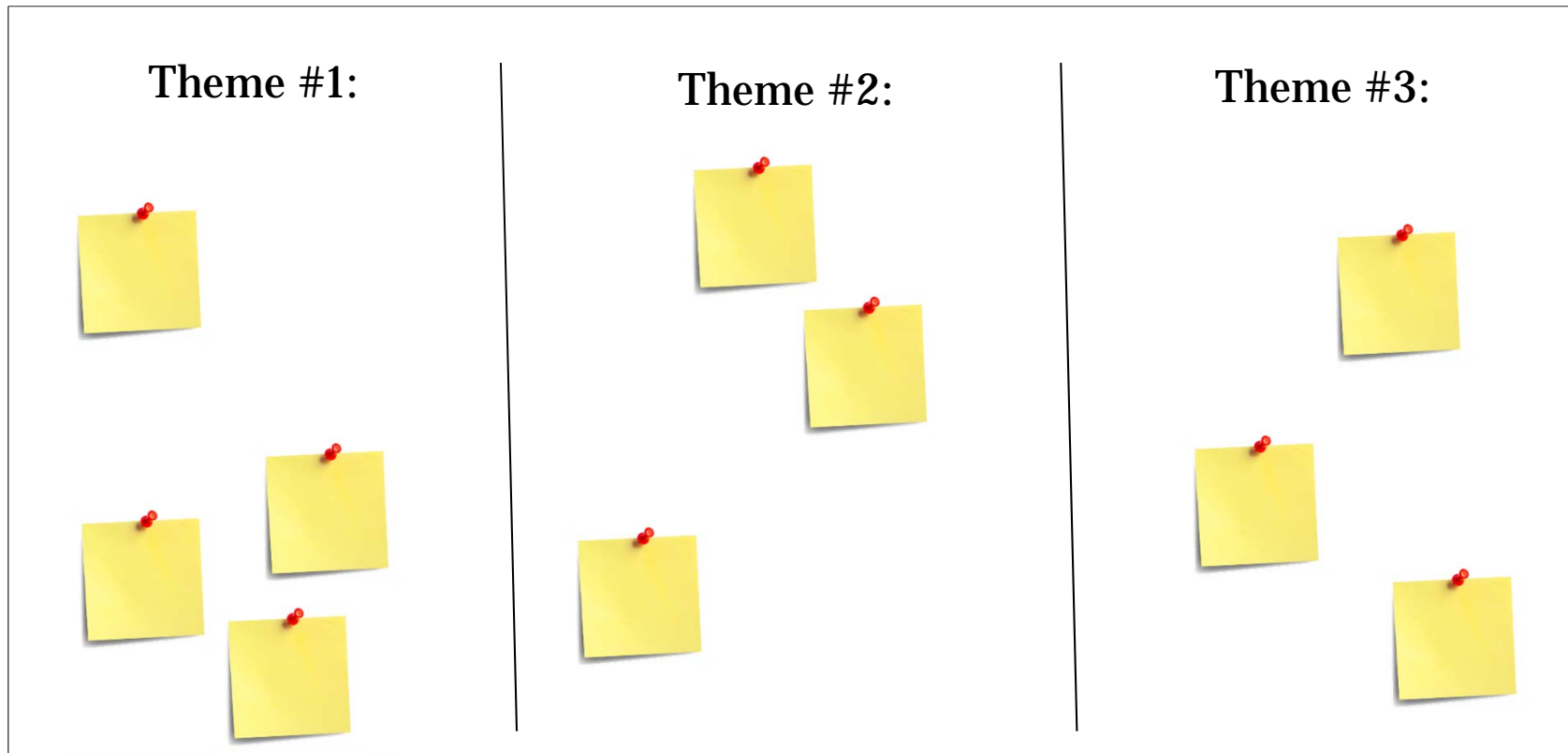
What additional
information about
students do you
need for advising?



Please use only 1 Post-it per answer.

Activity 1 – Part 2:

Group your answers by theme (5 min)



Resulting Themes (10 min report out by group)

Student Academic

- *Mid-term grades*
- *Major GPA*
- *High School GPA and Transcripts*
- *Upper Division GPA*

Resources

- *Interactions with Special Services*
- *Student Conduct and Issues*

Course

- *Courses outside of the Major*

Student Life

- *Student activity participation*
- *Financial Aid*
- *Student Background Characteristics*

Career Goals

Other

Activity 2: Landing Page Feedback & Report Out

Mark up the mock-ups (15 min)

1 Thing You Like

The screenshot shows the 'Insight @ UCR' Administrative Overview dashboard. At the top, there is a navigation menu with 'Home', 'My Students 27', 'Alerts 2', 'Search Students', 'My Queries and Groups', 'Collaborate', 'Resources', and 'Exit'. The main content area is divided into several sections:

- NEWS and NOTES:** Contains three news items with 'VIEW MORE...' links. The first is about Sendai High School students visiting UCR for STEM research. The second is about UCR Physics and Astronomy events. The third is a reminder to view second-term student performance.
- My STUDENTS DASHBOARD:** Features a 'GPA Distribution' pie chart, 'Graduates with GPA of 3.5 or greater' (with a 2x2 grid of small charts for years 2008, 2010, 2012, 2014), and an 'Overall Student GPAs above 3.0' gauge showing 78%.

Three callout boxes provide feedback:

- 1 Thing You Like:** Points to the 'My Students 27' navigation item.
- 1 Thing You Don't Like:** Points to the 'Academic Senate notification regarding Biology program evals!' news item.
- 1 Thing We're Missing:** Points to the 'GPA Distribution' pie chart.

1 Thing We're Missing

1 Thing You Don't Like

Activity 3: Student List Page Feedback & Report Out

Mark up the mock-ups (15 min)

1 Thing You Like

1 Thing You Don't Like

1 Thing We're Missing

Advisor Insight @ UCR | My STUDENTS GRID

SEARCH

STUDENT NAME Group

UCR NetID

Alert Type

Legend

- IN GOOD STANDING
- SATISFACTORY
- ASSESS IN MORE DETAIL
- SUGGEST LEARNING RESOURCE
- IMMEDIATE ACTION REQUIRED

Understanding this report

MANAGE COLUMNS

- STUDENT ID
- NAME
- MAJOR
- CLASS
- GRAD
- TRANS OUT
- FIRST TERM
- STOP WITHOUT
- TIME TO DEG

Add Columns

STUDENT ID	NAME	MAJOR	CLASS	GRADUATION	TRANSFER OUT	STOP OUT w/o TRANSFERING	GRADUATING	FIRST TERM GPA < 2.0	TIME TO DEGREE	ADD/MANAGE GROUP	COMMENT
423785683756	Gary Lawson	Mathematics	Sophomore	●	●	●	●	●	●	MY GROUP <input type="checkbox"/>	Check with registrar regarding financial aid req
345347856834	Joe Lombardy	Biology	Junior	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Suggested Learning Center
543785683756	Elvin Lopper	Economics	Sophomore	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Private Tutor
683755437856	Trudy Vincent	English	Senior	●	●	●	●	●	●	SENIORS 2 <input type="checkbox"/>	Check to see if additional courses are available to meet...
423785683756	Jim Quagmire	Mathematics	Sophomore	●	●	●	●	●	●	MY GROUP <input type="checkbox"/>	
456347856834	Kali Maradthu	Psychology	Junior	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Join reading group for next term Seniors
543785683756	Bala Martin	Engineering	Sophomore	●	●	●	●	●	●	SENIORS 2 <input type="checkbox"/>	Excellent progress!
683755437856	Tanner Tran	Music	Junior	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Tentative meeting with Dean to review status
423785683756	Mary LittleLamb	Mathematics	Sophomore	●	●	●	●	●	●	MY GROUP <input type="checkbox"/>	Possible Transfer
345347856834	Rachel Duntz	Ethnic Studies	Freshman	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Excellent performance eval.
		Art	Sophomore	●	●	●	●	●	●	GROUP 2 <input type="checkbox"/>	Fill out survey 2
		English	Senior	●	●	●	●	●	●	SENIORS 2 <input type="checkbox"/>	
		Mathematics	Senior	●	●	●	●	●	●	GROUP A <input type="checkbox"/>	No class available!

Activity 4: Student Page Feedback & Report Out

Mark up the mock-ups (15 min)


1 Thing You Like

1 Thing You Don't Like

@UCR | My Student Details CLOSE THIS STUDENT'S

Student ID# 2374 3243 4234 6564 | CURRENT TERM: FALL 2017 | CURRENT GPA: 3.74 | GRADUATION DATE: ON TIME SPRING 2019

STUDENT BIO



Mary had a little lamb, and its fleece was white as snow, and everywhere that Mary went the lamb was sure to go. But then one day she strayed too far and the lamb got tired, so she decided to use her cell phone to Uber her way back to campus where the lamb could lounge under the shade of a giant oak with excellent wi-fi reception near Sprout Hall. She managed to save time by utilizing technology to help the poor lamb and avoid the risk of injuring her back. The lamb had a propensity to eat leftover scraps from random students at the HUB.

CONTACT INFO
 EMAIL: Mit004@ucr.edu
 VOICE: (310) 867-5309
 Mary Little Lamb
 5740 Everywhere Lane
 Meadow Vally, CA 94352

SPRING REGISTRATION Begins in 30 days

Financial Aid
 7 days to complete FAFSA filing.

FALL Academic Program Summary

College:	Course/Section	Description	Activity	Attempted Units	Earned Units	Grade	Status
NA-Natural and Agricultural Sciences	ECON-006-001	INTRO. ENVIRONMENTAL ECONOMICS	LEC	4			NG Enrolled
Masters of Science	ECON-006-022	DISCUSSION	LEC	4			NG Enrolled
MATH-Mathematics	MATH-133-001	GEOMETRY	LEC	4			NG Enrolled
	MATH-133-003	DISCUSSION	LEC	4			NG Enrolled
	MATH-149A-001	PROB & MATH STATISTICS	LEC	4			NG Enrolled
	MATH-149A-001	LABORATORY	LEC	4			NG Enrolled

STATISTICS

	Stop Out Without Graduating/Transferring	Graduation	Transfer Out	First Term GPA < 2.0	Time To Degree
	1 Year	2 Year	3+ Year	4 Year	5 or 6 Year
Predictions					
Current Student	0.5%	0.9%	1.4%	83.0%	3.7%
Average in Major	11.7%	5.7%	5.4%	50.5%	21.0%
Difference	-11.3%	-4.8%	-4.1%	32.3%	-17.2%
Difference Decomposed					
SAT/ACT Score	-1.7%	-0.4%	2.4%	1.0%	-2.0%
HS GPA	-3.6%	-2.3%	-4.6%	12.8%	-4.1%
Gender	-0.3%	-0.1%	-0.8%	1.5%	-0.8%
Low Income	-0.3%	-0.5%	1.2%	1.8%	-0.5%
High School	-3.4%	-1.6%	-0.4%	4.6%	-1.9%
Writing Placement	-1.0%	-0.4%	-0.3%	1.5%	-0.3%
Math Placement	0.1%	0.0%	0.0%	-0.4%	0.1%
AP Category	-2.6%	-1.3%	0.5%	11.2%	-6.7%
Location	1.5%	1.6%	0.2%	-1.5%	-1.3%

COMMENTS

ATTACHMENTS

BROWSE **NAME**

- Sunil Evelevs 01/23/2016 Transcript0348234739.pdf
- Roger Lake 01/23/2016 reviewLttlelamb_m23.doc
- Mary Droser 01/23/2016 Award_aca_exc_ml.pdf
- Sunil Evelevs 01/23/2016 Transcript0348234739.pdf
- Roger Lake 01/23/2016 reviewLttlelamb_m23.doc
- Mary Droser 01/23/2016 Award_aca_exc_ml.pdf
- Sunil Evelevs 01/23/2016 Transcript0348234739.pdf
- Roger Lake 01/23/2016 reviewLttlelamb_m23.doc

1 Thing We're Missing

Report Out



What else do we need to consider in developing this portal

Voting by dots (alternative method)

- *List suggestions*
- *Give participants 3-5 dots*
- *Participants place dots next to the most important issues*
 - *Good method for evaluating squeaky wheels and silent sufferers*

Artifacts

Post-it notes by theme (what are advisors missing)

3 marked-up mock-ups

List of other issues/considerations

Notes from table facilitators

Notes from reporting out

Keep in mind, you have not yet captured everything

Group information by theme

- *Immediate Changes and Phase 1 considerations*
- *Phase 2, 3, 4....*
- *Wish list/feasibility assessment*
- *Out of scope*

Post-Workshop and Next Steps

Recruited an Advising Advisory Group

- *Advisors from the undergraduate colleges*
 - *Recommended by their supervisors, interested in this*
- *Ongoing review of interface as it develops*
- *Keeps us pointed in the right direction*

Post-Workshop

Mock-ups of changes suggested using Balsalmiq

Advisor Insight @ UCR | My STUDENTS GRID SIGN OUT

My Students Alerts 532
My Queries & Groups
Collaborate
Resources
Exit

Student Search

Student Name: Group:

UCR NetID:

Alert Type:

Legend

- In Good Standing
- Satisfactory
- Immediate Action Required

Manage Grid Columns

- Student ID
- Name
- Major
- Class
- Grad
- Trans Out
- First Term
- Stop Without
- Time to Deg

Student ID	Name	Major	Class	Graduation	Transfer Out	Stop Out w/out Transfer/Grad	First Term GPA	Time to Degree	Add/Manage Group	Comments
423256789146	Gary Lawson	Mathematics	Sophomore	<input checked="" type="checkbox"/>	😊	😊	😊	😊	My Group	Check w/ Registrar for reqs. <input type="button" value="+"/>
789456123789	Joe Lombardy	Biology	Junior	😞	😞	😞	😊	😊	Group 2	Suggested learning Center <input type="button" value="+"/>
456123789456	Elvin Lopper	Economics	Sophomore	😞	😊	😊	😊	😊	Group 2	Private tutor recommended <input type="button" value="+"/>
654987321123	Trudy Vincent	English	Senior	😊	😊	😊	😊	😊	Seniors 2	Check to see if additional... <input type="button" value="+"/>

Annotation 1: All red smiley faces should match the other smileys and be block. (Points to the 'Immediate Action Required' status in the legend and the red smiley faces in the table.)

Annotation 2: Ability to expand or shrink the student list column based on columns the Advisor selects here to view. (Points to the 'Manage Grid Columns' panel.)

Post-Workshop

A Web Page

http://predictiveanalytics/ucr/edu

Advisor Insight @ UCR | My Student Details

CLOSE THIS STUDENT'S PROFILE X

My Students 532
Alerts 2
My Queries & Groups
Collaborate
Resources
Exit

PROFILE GARY LAWSON ID# 423256789146 << CURRENT TERM: FALL 2017 >> CURRENT GPA: 3.74 TARGET 4 YEAR GRAD DATE: SPRING 2019

Fall Academic Program Summary

College:	Course/Section	Description	Activity	Attempted Units	Earned Units	Grade	Status
NA - Natural Agricultural Sciences	ECON-006-001	INTRO ENVIRO ECON	LEC	4		NG	Enrolled
Bachelor of Sciences	ECON-006-022	DISCUSSION	DIS	0		NG	Enrolled
Major: MATH - Mathematics	MATH-133-001	GEOMETRY	LEC	4		NG	Enrolled
	MATH-133-003	DISCUSSION	DIS	0		NG	Enrolled
	MATH-149A-001	PROB & MATH STAT	LEC	4		NG	Enrolled

	Stop Out Without Transferring/Graduating		Graduation		Transfer Out	Time to Degree
	1 Year	2 Year	4 Year	5 or 6 Year		
Current Student	0.5%	0.9%	83.0%	3.7%	10.5%	3.59
Average in Major	11.7%	5.7%	50.5%	21.0%	5.7%	4.21
Difference	-11.3%	-4.8%	32.5%	-17.2%	4.8%	-0.66

Difference Decomposed

SAT/ACT Score	-1.7%	-0.4%	10%	-2.0%	2.1%	-0.04
HSGPA	-3.6%	-2.3%	12.8%	-4.1%	0.2%	-0.19
Gender	-0.3%	-0.1%	15%	-0.8%	0.0%	-0.02
AP Category	-0.3%	-0.5%	18%	-0.5%	0.2%	-0.03
College	-3.4%	-1.6%	4.6%	-1.9%	3.0%	-0.14
Mean Attempted Units/Term	-1.0%	-0.4%	15%	-0.3%	0.5%	-0.01
Cumulative % Lower Div. Units Attempted	0.1%	0.0%	-0.4%	0.1%	0.1%	0.00
Cummulative Units Earned	-2.6%	-1.3%	11.2%	-6.7%	-0.5%	-0.25
Cummulative UCR GPA	15%	16%	-1.5%	-1.3%	-0.9%	0.02

COMMENTS

ATTACHMENTS

Cummulative Units Earned **Peter Atkinson** 01/23/2016

Mary has demonstrated an uncanny ability to find resources using technology provided by the EMPOWER program. [VIEW MORE...](#)

BROWSE

NAME	DATE	FILE
Sunil Erevelies	01/23/2016	Transcript0348234739.pdf
Roger Lake	01/23/2016	reviewLittlelamb_m23.doc
Mary Droser	01/23/2016	Award_aca_exc_mi.pdf

Post-Workshop

Consideration of how this feedback can inform the selection of a Customer Relationship Management tool (CRM)

- *Recall initial advisor feedback pointed toward a need to unify information*

Summary of Group Exercises

Post-it note exercise

1. *Ask for 1 idea per post-it note*
2. *Ask teams to group ideas by theme*

Mark-up the Mock-up

1. *Print your mock-up and stick it to a large piece of paper*
2. *Ask teams to write all over it*
 - a. *Crossing things off*
 - b. *Adding information and comments*
3. *Report on likes, dislikes, missing*
 - a. *Ensures positive and negative feedback*

Voting by Dots

1. *Start with a list of options/issues/pain points*
2. *Give 3-5 stickers per person*
3. *Stick dots next to most important issues*
 - a. *More dots means more of an issue*
 - b. *Allows checking of the squeaky wheels and quiet sufferers*