

DATA VISUALIZATION AND ANALYSIS

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WHAT IS DATA VISUALIZATION?

- ❖ Looking at data comprehensively.
 - ❖ More than just numbers.
 - ❖ Understanding the processes that produced the numbers.
 - ❖ Understanding the goal of the users.
- ❖ Looking at data dynamically.
 - ❖ The visualization needs to be flexible.
 - ❖ The visualization needs to be useful.
 - ❖ The visualization needs to be accurate.

BASIC DATA ASSOCIATED WITH GRADUATE EDUCATION USING DASHBOARDS

- ❖ Recruitment, Application, Admission
- ❖ Student Records
 - ❖ Enrollment and courses
 - ❖ Employment
 - ❖ Graduation
- ❖ Comparative Data
- ❖ Quality/Performance Assessment Data

THE AUDIENCE

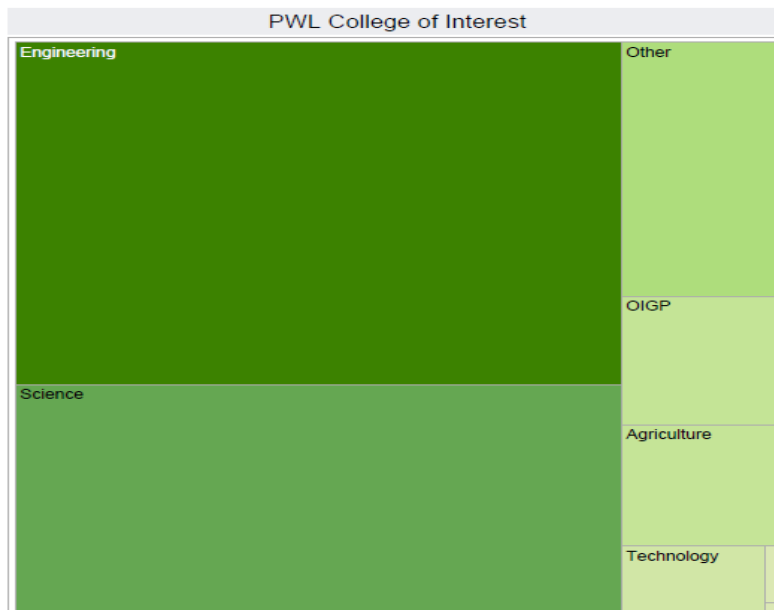
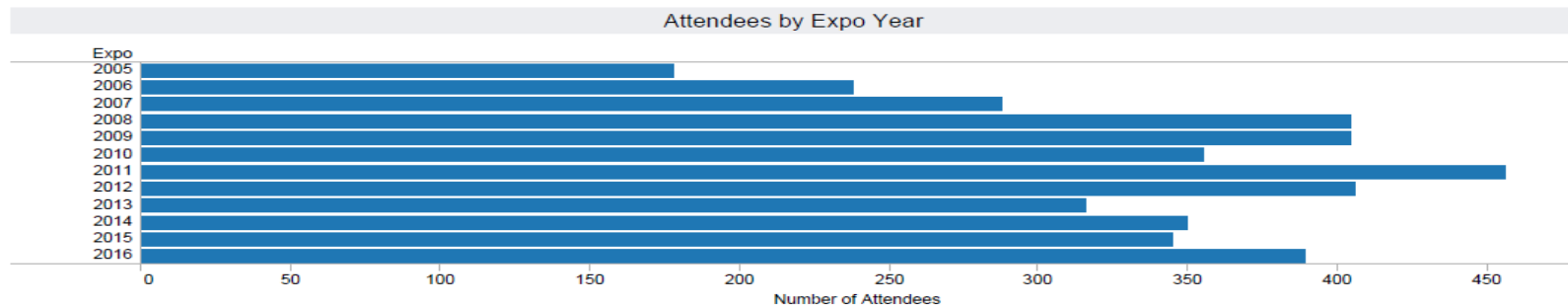
- ❖ General Public
- ❖ Faculty, Senate, BoTs, Administrators
- ❖ Campus Community
- ❖ Prospective Students
- ❖ Program Review Committees

DATA VISUALIZATION EXAMPLES

(CONTEXTS)

- ❖ Grad Expo (Recruiting Event)
- ❖ Admissions and Enrollment
- ❖ The Power of Tableau
- ❖ Comparative Data Visualization
- ❖ Discussion Facilitation
- ❖ Student Success

Grad Expo Attendance Dashboard (4)



Colleges Rep.
525

States/Terr.
54

Number of URM
289

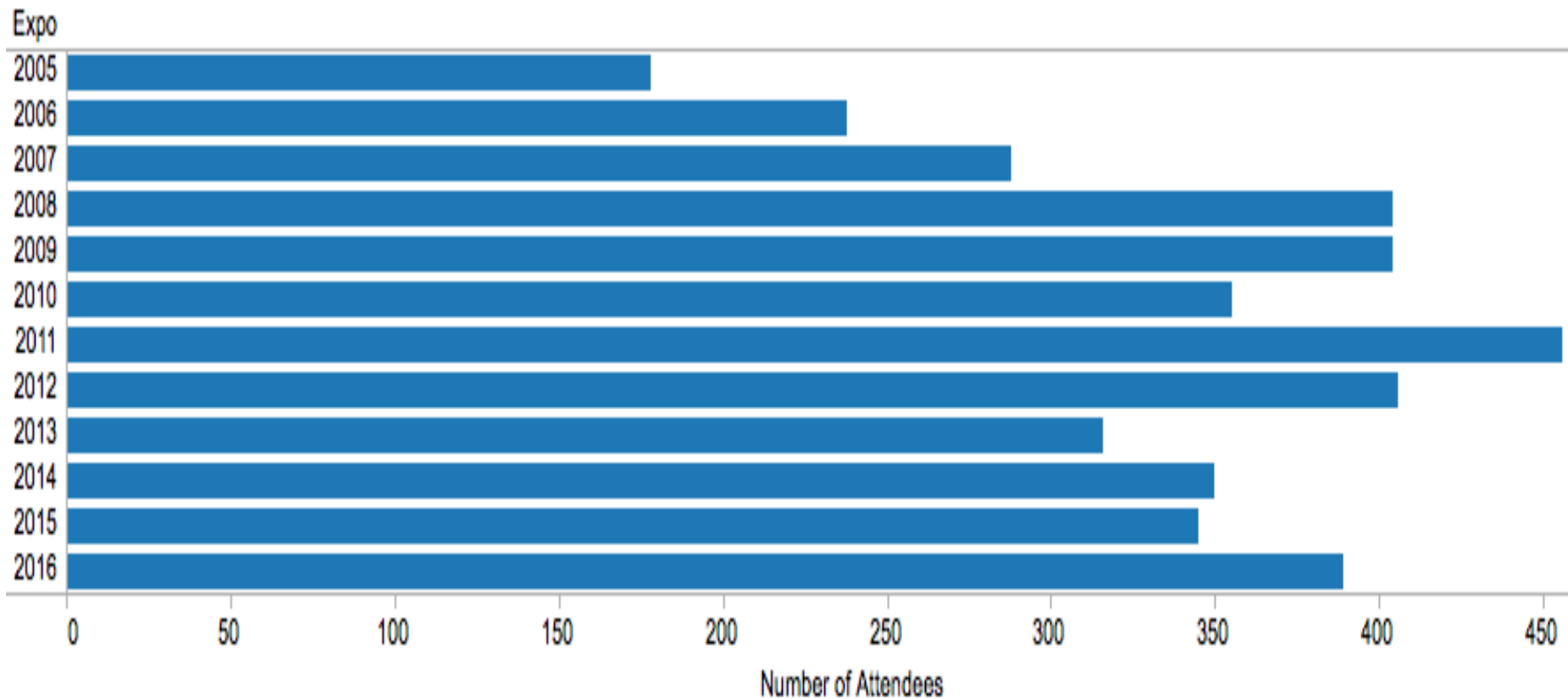
Average UGPA
3.60

- College of Interest
All
- Expo
All
- Applied
All
- Admitted
All
- Enrolled
All
- Degree
All

Audience:
College
Recruiters

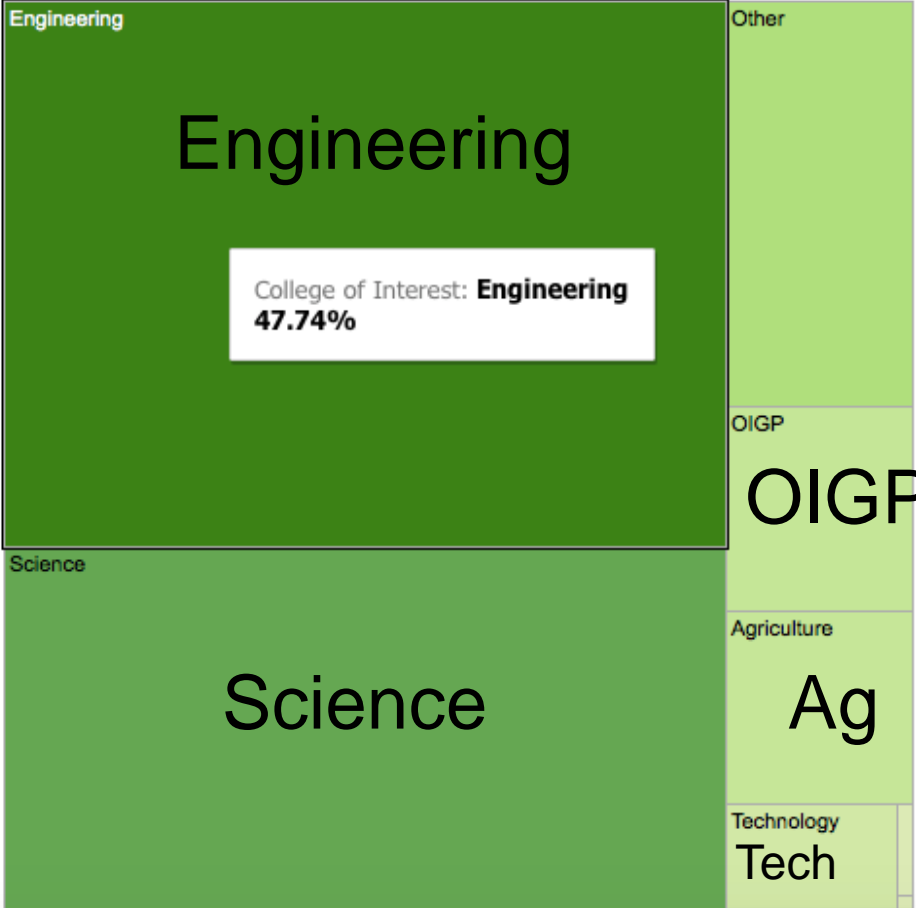
RECRUITING: EXPO ATTENDANCE

Attendees by Expo Year



RECRUITING: ATTENDANCE BY COLLEGE

PWL College of Interest



College of Interest: **Engineering**
47.74%

Att Prev Coll

Colleges Rep. 525

States/Terr. 54

Number of URM

289

Average UGPA

3.60

College of Interest

(All) ▼

Expo

(All) ▼

Applied

(All) ▼

Admitted

(All) ▼

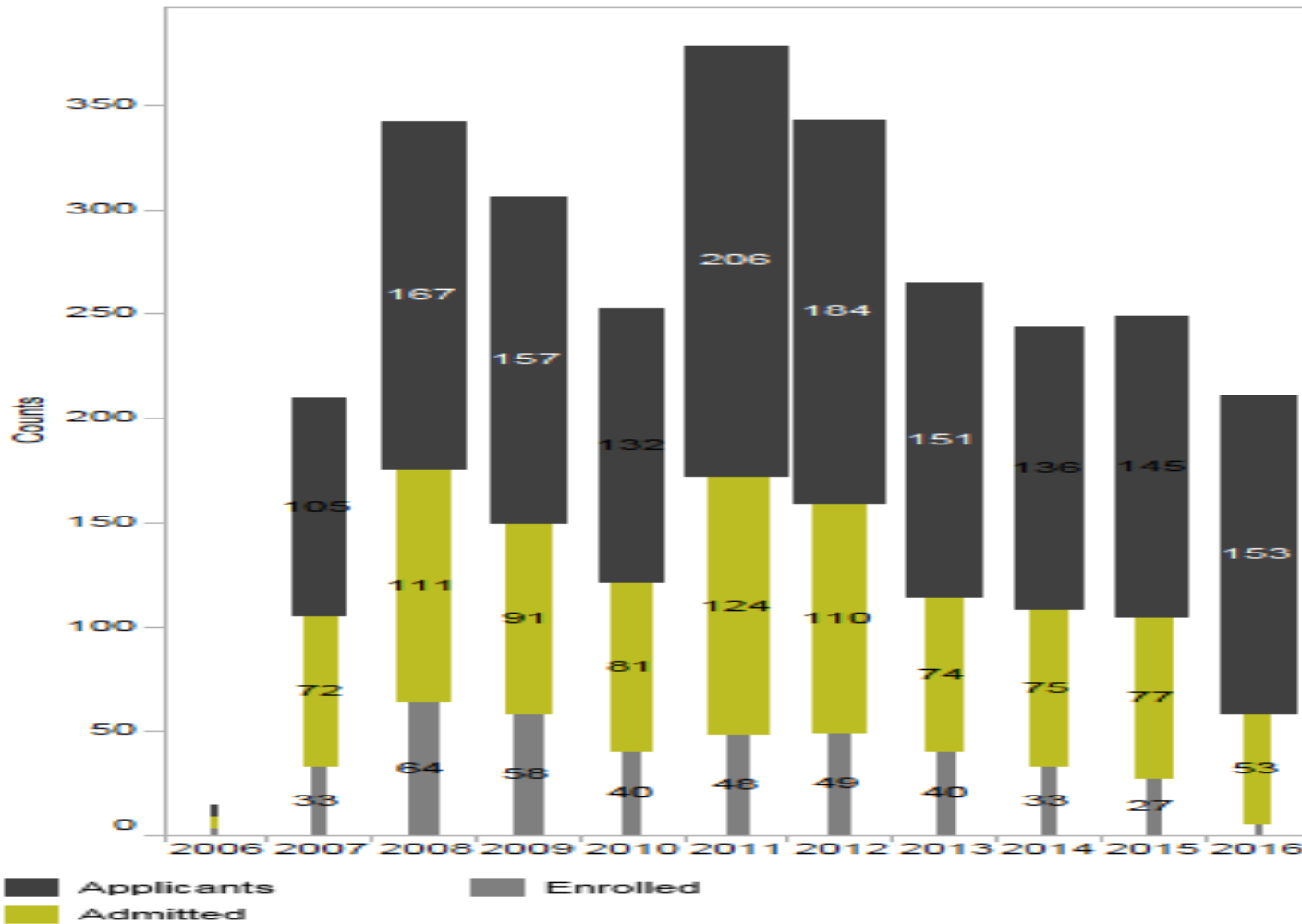
Enrolled

(All) ▼

Degree

(All) ▼

APPLICATIONS, ADMITS AND ENROLLED FUNNEL GRAPH



Can filter by
College
Major
Degree Obj
Race/Ethnicity
Gender

APPLICATION, ADMITS, ENROLLED **BAR-IN-BAR GRAPH**

Hover for Questions *

Application, Admission, and Matriculation Chart

Semester

All

Chart / table

Chart

Table

Chart

All

Column subcategories

All

Academic College

(All)

Academic_Major

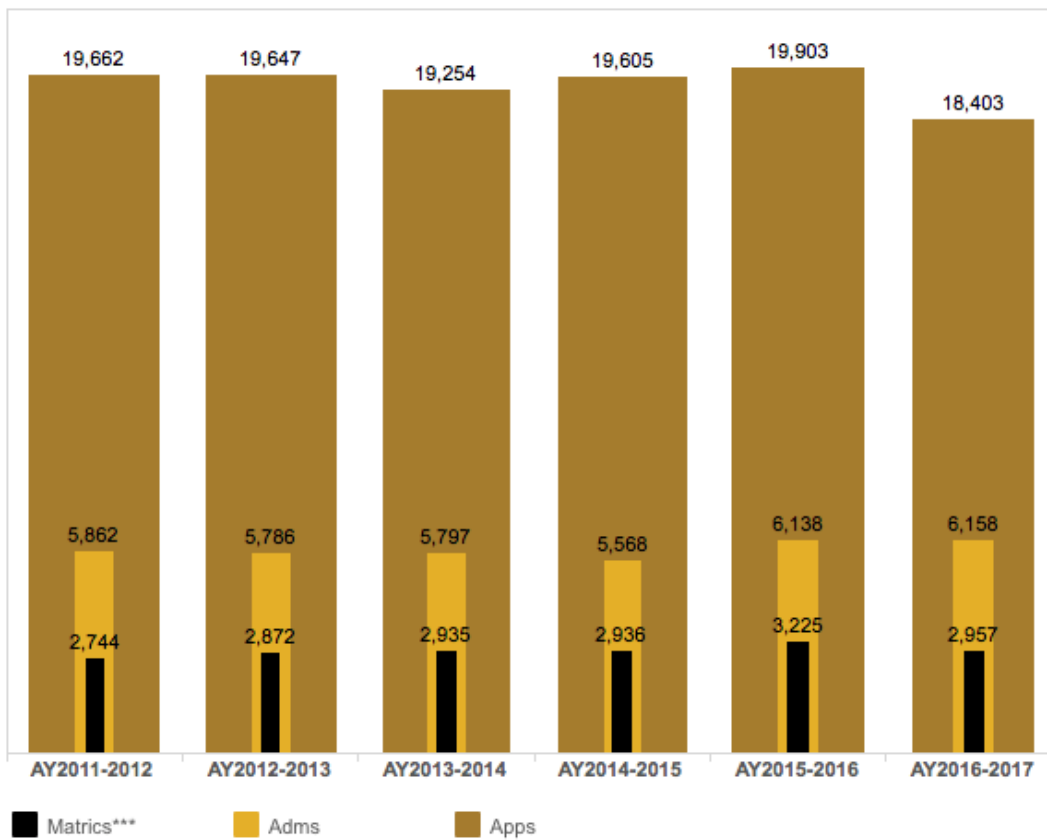
(All)

College_IGP

(All)

Major_IGP

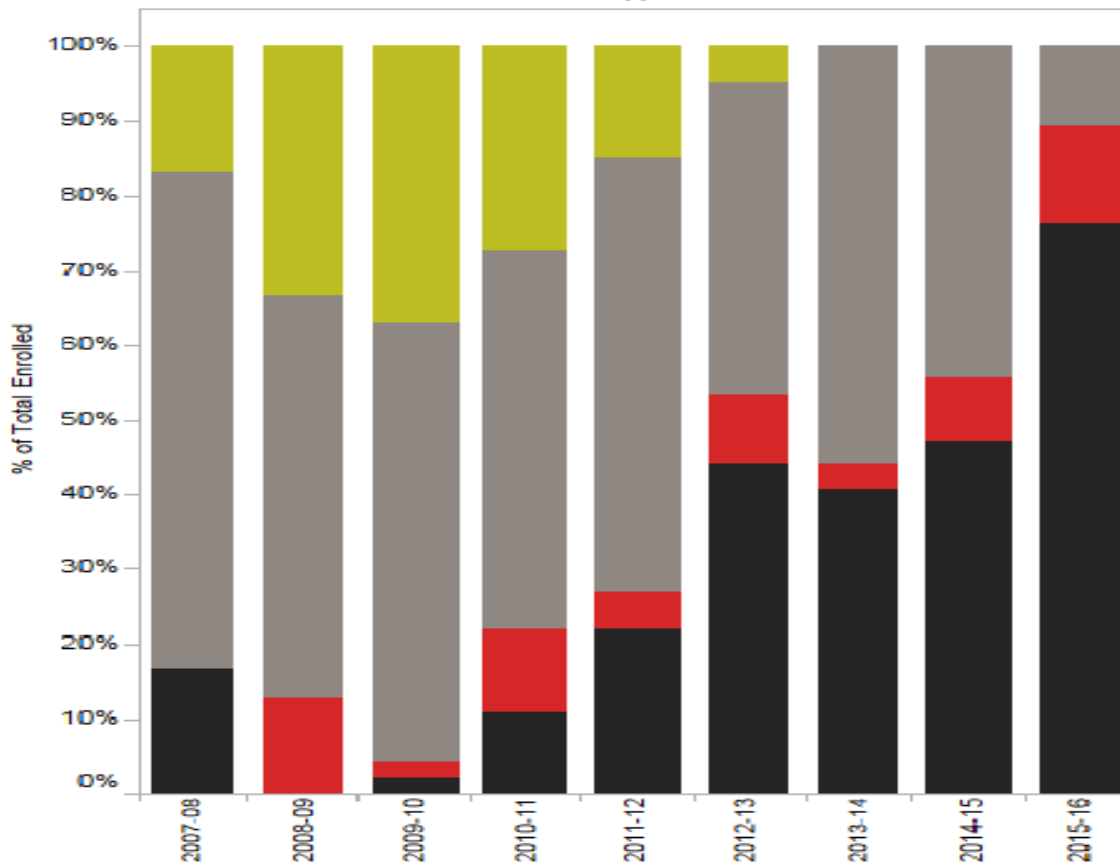
(All)



GRAD EXPO COMPLETION SUCCESS ANALYSIS

Retention Status Fall 2015

AY of Application



Degree Obj

(All)

Academic Year App

(All)

Term Applied

(All)

Grad Expo Attended

(All)

Ethnicity

(All)

URM Indicator

(All)

Retention Status

- 1. PhD Earned
- 2. Masters Degree Earned
- 4. No degree earned
- 5. Enrolled

PhD Degrees

54

MS Degrees

194

Grad Certs

2

OFFICIAL ENROLLMENT DASHBOARD, FALL SNAPSHOT (2)

Filter on session

Fall
 Spring
 Summer

Academic College*

(All) ▾

Academic Major*

(All) ▾

College with IGP**

(All) ▾

Major with IGP**

(All) ▾

Concentration

(All) ▾

URM

(All) ▾

Distance Learning IND

(All) ▾

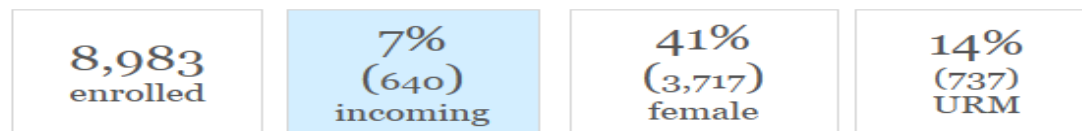
Reporting Ethnicity

(All) ▾

* Academic College (Major) reports interdisciplinary students to academic programs.

** College (major) with IGP reports interdisciplinary students to IGP programs.

A glance of Spring 2017 Enrollment



Row subcategories New Student ▾

Column Subcategories Term/Year ▾

Enrollment by New Student

	Spring 2011	Spring 2012	Spring 2013	Spring 2014	Spring 2015
New	433	459	424	435	511
Continuing	7,132	7,108	7,383	7,522	7,652
Grand Total	7,565	7,567	7,807	7,957	8,163

Enrollment by New Student Trend

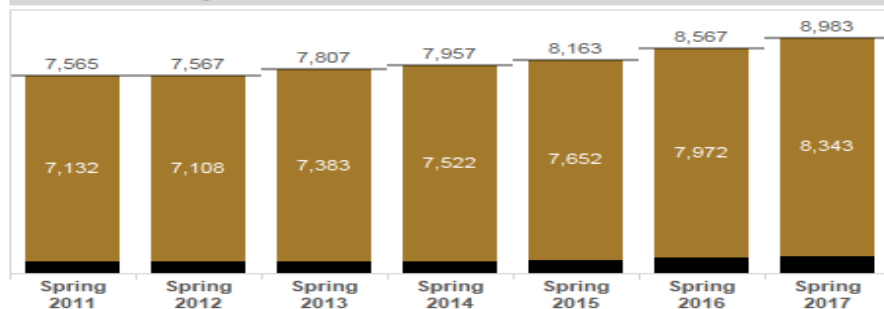


Chart display

Column Chart ▾

Continuing
 New

Click the icon to export raw data to a CSV file



	Spring 2011	Spring 2012	Spring 2013	Spring 2014	Spring 2015
New	433	459	424	435	511
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Grand Total	7,565	7,567	7,807	7,957	8,163

Enrollment by New Student Trend

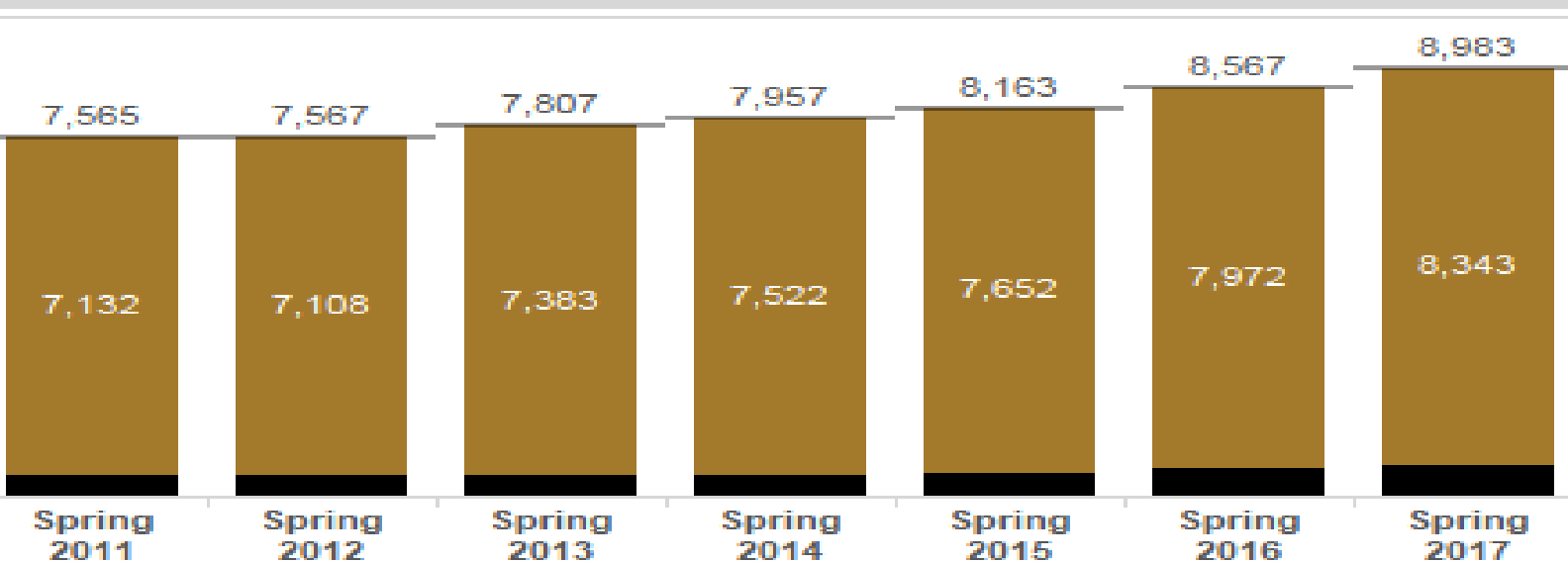


Chart display

Column Chart

- Continuing
- New

WEEKLY APPLICATION / ADMISSIONS DASHBOARD (5)

Office of Graduate Admissions
Graduate Admissions Dashboard

Spring 2017
Week #16
as of Nov 21 2016

Academic College
(All) ▾

Major - Decode ▾
(All) ▾

Academic Period
Spring 2017 ▾

Application Week
Wk 16 - Nov 21 ▾ **Hover ***

Admitted Status
Applications ▾

Ethnicity

2 or more races	1.22%
American Indi..	0.14%
Asian	4.34%
Black or Africa..	2.85%
Hispanic/Latino	2.85%
International	56.35%
Native Hawaiia..	0.00%
Unknown	0.88%
White	31.36%

Classification

Doctoral	15.55%
Educational Spe..	0.00%
Grad Certificate	5.84%
Grad Professional	0.27%
Masters	73.59%
Non-Degree	2.38%
Teachers License	2.38%

URM

Non-URM	1,377
URM	96

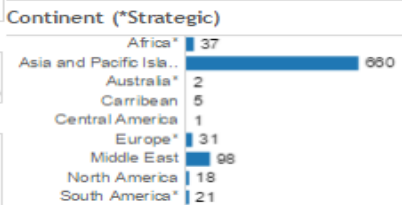
Gender

F..	37.81%
M..	62.19%

Residency

Resident	208
Non-Res..	462
Foreign	803

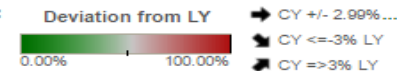
	Domestic	International	Grand Total
Agriculture	23 21.05%	26 -7.14%	49 4.26%
Education	119 63.01%	15 -8.25%	134 50.56%
Engineering	241 24.23%	429 3.13%	670 9.84%
Health and Human Sciences	26 36.84%	15 36.36%	41 36.67%
Interdisciplinary and Special Programs	6 0.00%	14 -30.00%	20 -23.08%
Liberal Arts	141 1.44%	8 -38.46%	149 -1.97%
Management	15 25.00%	53 20.45%	68 21.43%
Pharmacy	0 -100.00%	0 -100.00%	0 -100.00%
Polytechnic Institute	50 -10.71%	67 19.64%	117 4.46%
Science	21 5.00%	198 31.13%	219 28.07%
Veterinary Medicine	1	5 -16.67%	6 0.00%
Grand Total	643 19.29%	830 8.50%	1,473 12.96%



Filters - Academic Period: Spring 2017
2017 Apps/Adms: Applications Event:
Wk 16 - Nov 21
Academic College: All Major: All
Ethnicity: All URM: All Classification:
All Gender: All

Course Delivery

(All) ▾



- Filters
- College
- Major
- Semester
- Week
- Status
- Ethnicity
- Degree

THE APPLICATION SCORECARD

	Domestic		International		Grand Total	
Agriculture	↗	262 26.57%	↗	406 28.08%	↗	668 27.48%
Education	↖	226 32.16%	↘	100 -23.08%	↗	326 8.31%
Engineering	↗	1315 12.30%	↗	6184 3.10%	↗	7,499 4.60%
Health and Human Sciences	↗	790 2.20%	↗	413 0.24%	↗	1,203 1.52%
Interdisciplinary and Special Programs	↘	104 -9.57%	↘	130 -36.59%	↘	234 -26.88%
Liberal Arts	↗	645 -0.92%	↘	330 -12.47%	↘	975 -5.16%
Management	↘	299 -13.08%	↘	1031 -23.74%	↘	1,330 -21.58%
Pharmacy	↖	11 37.50%	↗	5 5.51%	↖	6 0.04%
Polytechnic Institute	↗	140 14.75%	↘	5 63.41%	↖	1 0.00%
Science	↗	769 11.29%	↘	2562 -5.77%	↗	3,331 -2.32%
Veterinary Medicine	↗	20 11.11%	↗	27 22.73%	↗	47 17.50%
Grand Total	↗	4,581 7.26%	↗	11,819 -1.12%	↗	16,400 1.08%

Citizenship: **International**
 Academic College: **Management**
 Previous Year Count: 1352
 Selectivity: 22.11%
 Acceptance Yield: 47.81%

EXPANDED VIEW

Ethnicity	
2 or more races	0.92%
American Indi..	0.03%
Asian	3.07%
Black or Africa..	1.43%
Hispanic/Latino	2.40%
International	72.07%
Native Hawaiia..	0.01%
Unknown	0.52%
White	19.55%

Classification	
Doctoral	43.47%
Educational Spe..	0.01%
Grad Certificate	0.52%
Grad Professional	0.40%
Masters	54.92%
Non-Degree	0.37%
Teachers License	0.32%

URM		Gender	
Non-URM	15,685	F..	36.26%
URM	715	M..	63.74%

Residency	
Resident	956
Non-Res..	3,840
Foreign	11,604

Programs	
Liberal Arts	➔
Management	➔
Pharmacy	➔
Polytechnic Institute	➔
Science	➔
Veterinary Medicine	➔
Grand Total	➔

Continent (*Strategic)	
Africa*	291
Asia and Pacific Isla..	10,505
Australia*	11
Caribbean	29
Central America	32
Europe*	304
Middle East	570
North America	125
South America*	180

Filters
College
Major
Semester
Week
Status

STUDENT QUALITY DASHBOARDS [4]

Academic College*
(All)

Academic Major*
(All)

College with IGP**
(All)

Major with IGP**
(All)

Filter on admit status
 (All)
 Admitted
 Rejected

Filter on gender
 (All)
 Null
 Female
 Male
 Not Reported

Filter on Int'l/Dom
 (All)
 Domestic
 International

Filter on URM
 (All)
 N
 Y

Filter on classification
 (All)
 Doctoral
 Masters

Data is based on students who sent the GRE/TOEFL score to the Graduate School. It does not include all students coming/applying to the department. Data is reported based on academic year. i.e. 2012 refers to Fall 2011, Spring 2012, and Summer 2012. Category items are identified by selecting significant factors in a regression model which took UGPA as the dependent variable.

* Academic College / Academic Major reports interdisciplinary students to their academic programs based on major code only.
 ** College with IGP / major with IGP reports interdisciplinary students to their IGP programs based on program code first, then report them back to academic programs based on major code.

Average GRE Score and Count

	2012	2013	2014	2015	2016	2017
GRE Quantitative	156	156	157	157	157	157
GRE Verbal	153	153	153	153	153	153
GRE Writing	3.8	3.8	3.7	3.7	3.7	3.8
GRE total	309	309	310	310	309	310
Count	14,778	18,601	16,052	16,356	16,253	14,846

Average TOEFL Score and Count

	2012	2013	2014	2015	2016	2017
Listening Score	24	24	24	24	25	25
Reading Score	25	25	25	25	25	26
Speaking Score	22	22	22	23	23	23
Writing Score	24	24	24	24	24	24
Total Score	95	95	96	96	96	97
Count	11,428	11,867	11,666	11,765	11,681	10,610

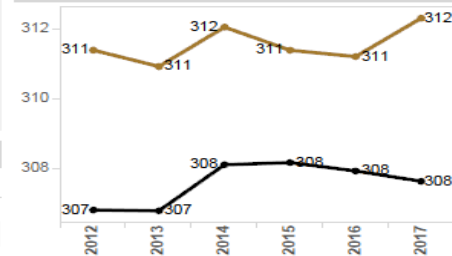
UGPA Score and Count

	2012	2013	2014	2015	2016	2017
UGPA	3.45	3.46	3.45	3.43	3.45	3.47
COUNT	8,134	8,789	10,207	9,991	9,435	5,725

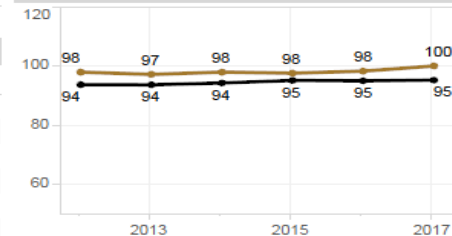
Select to view comparison by category:

Admit Status

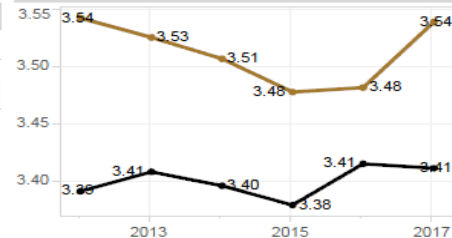
Average GRE Total Score by Admit Status



Average TOEFL Total Score by Admit Status



Average UGPA by Admit Status



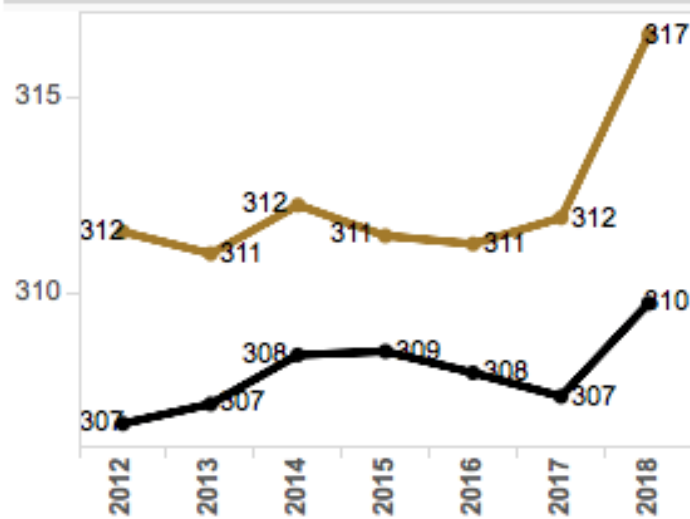
Category

Admitted

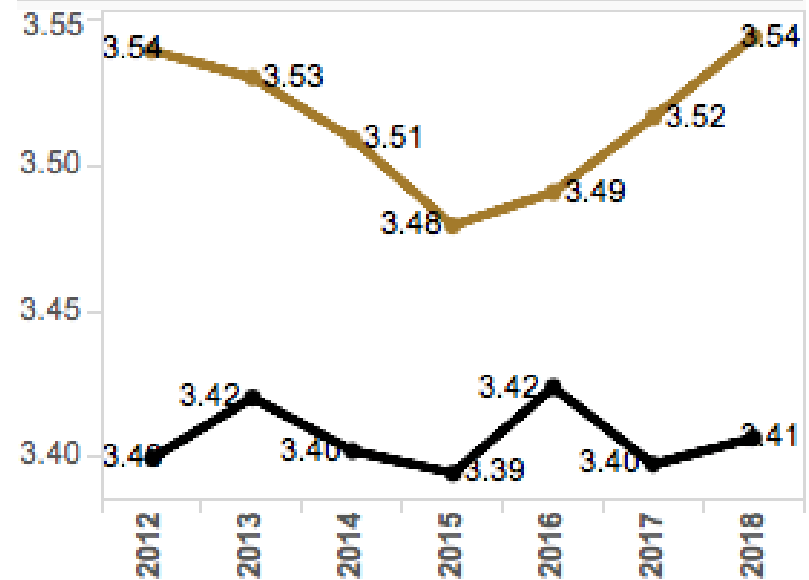
Rejected

EXPANDED VIEW: ADMITTED AND DENIED APPLICANTS

Average GRE Total Score by Admit Status



Average UGPA by Admit Status



Category

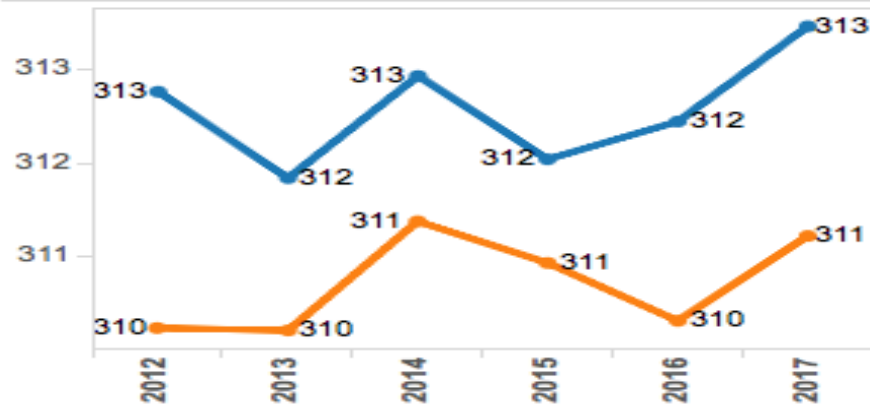
- Admitted
- Rejected

ADMITTED SCORES BY DEGREE CLASSIFICATION

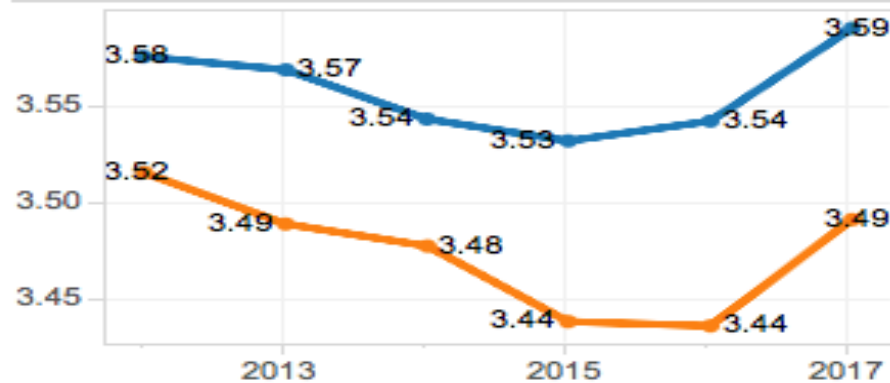
Filter on admit status

- (All)
- Admitted
- Rejected

Average GRE Total Score by Degree Classification



Average UGPA by Degree Classification



Category

- Doctoral
- Masters

GEOGRAPHICAL DATA-DOMESTIC

Session

Fall
 Spring
 Summer

Academic Period

Spring 2017

Academic College*

(All)

Academic Major*

(All)

College with IGP**

(All)

Major with IGP**

(All)

Concentration

(All)

URM

(All)

* Academic College (Major) reports interdisciplinary students to academic programs.

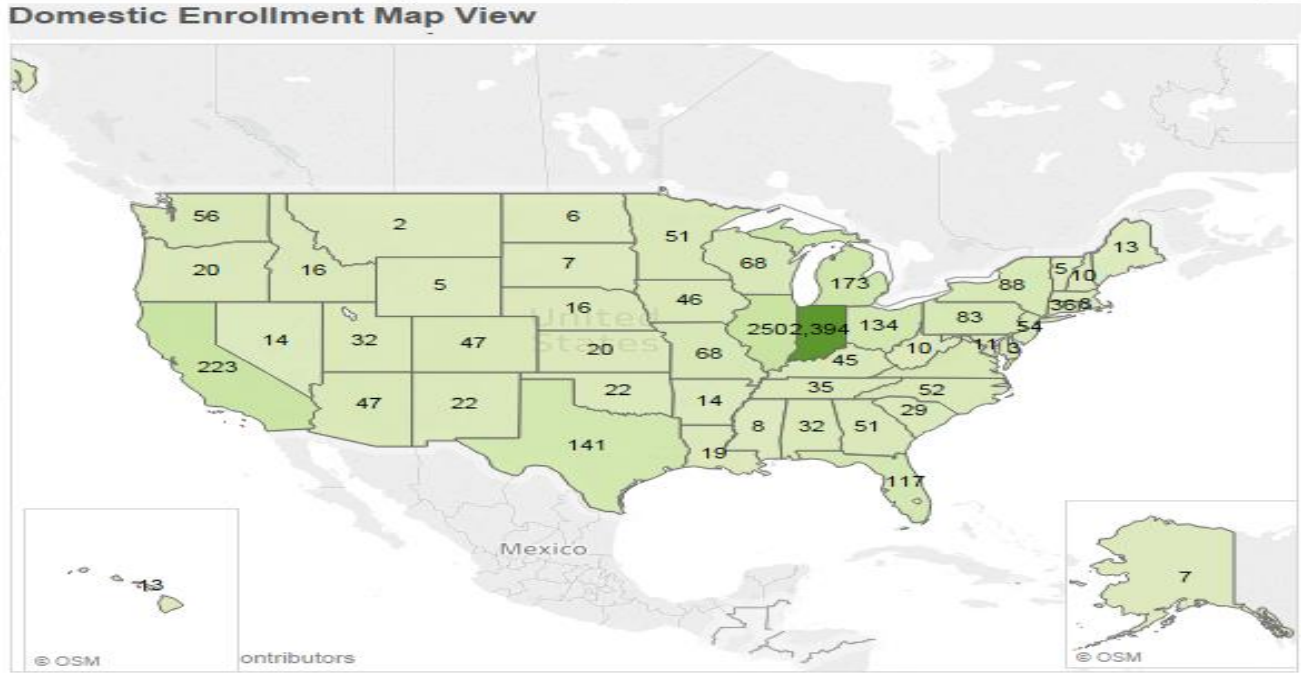
** College (major) with IGP reports interdisciplinary students to IGP programs.

***The state information uses state_province_desc field from ODS. The country information uses nation_of_citizenship_desc fiel...

Select a map view **Domestic Listing*** for Enrollment** *Click an item to filter on map*

Domestic

Indiana	2,394
Unknown	283
Illinois	250
California	223
Michigan	173
Texas	141
Ohio	134
Florida	117
New York	88
Virginia	84
Pennsylvania	83



FILTERING BY GEOGRAPHY-EXAMPLE

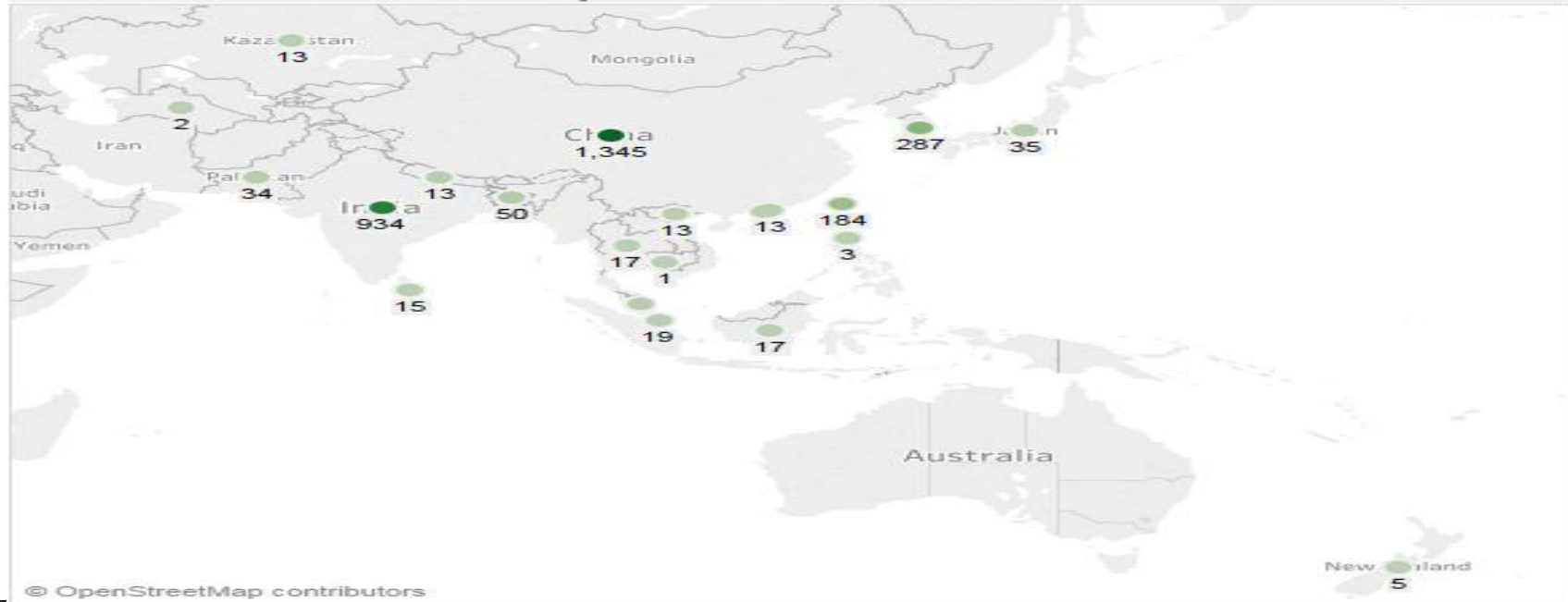
Select a map view

International ▼

International Listing*** for Enrollment *Click an item to filter on map*

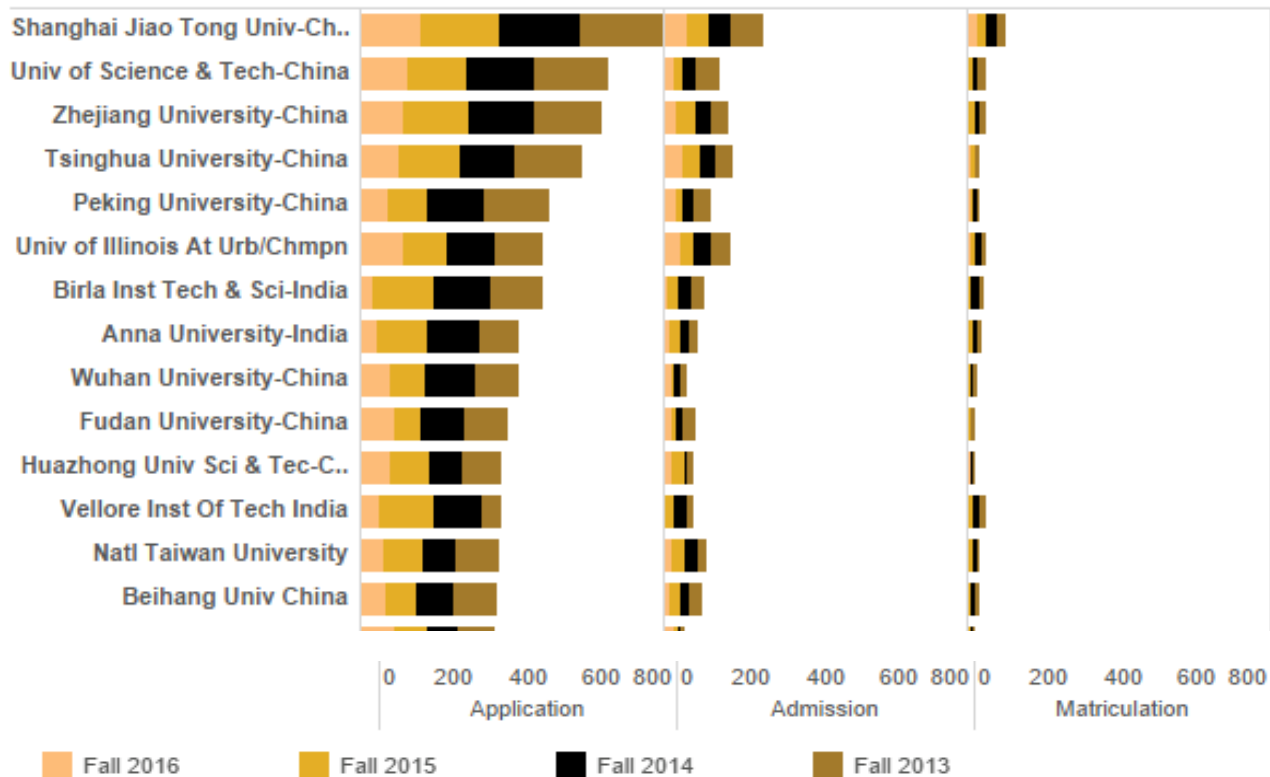
Asia	3,029
South America	191
Europe	190
Middle East	183
Africa	164
North America	63
Central America	31
Carribean	19
Australia	3

International Enrollment Map View



WHERE ARE STUDENTS COMING FROM? APPL., ADMISSION, ENROLLMENT

Undergraduate Institutions *Click to filter on a semester or apps/adm/matrics*



Avg. GRE Total

314.9

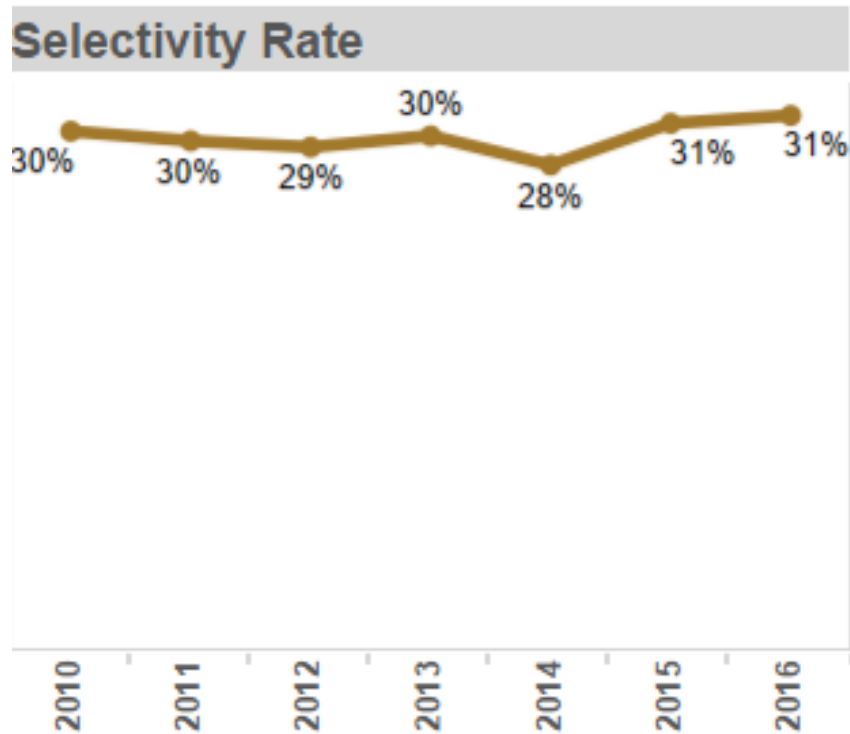
Avg. TOEFL Total

99.30

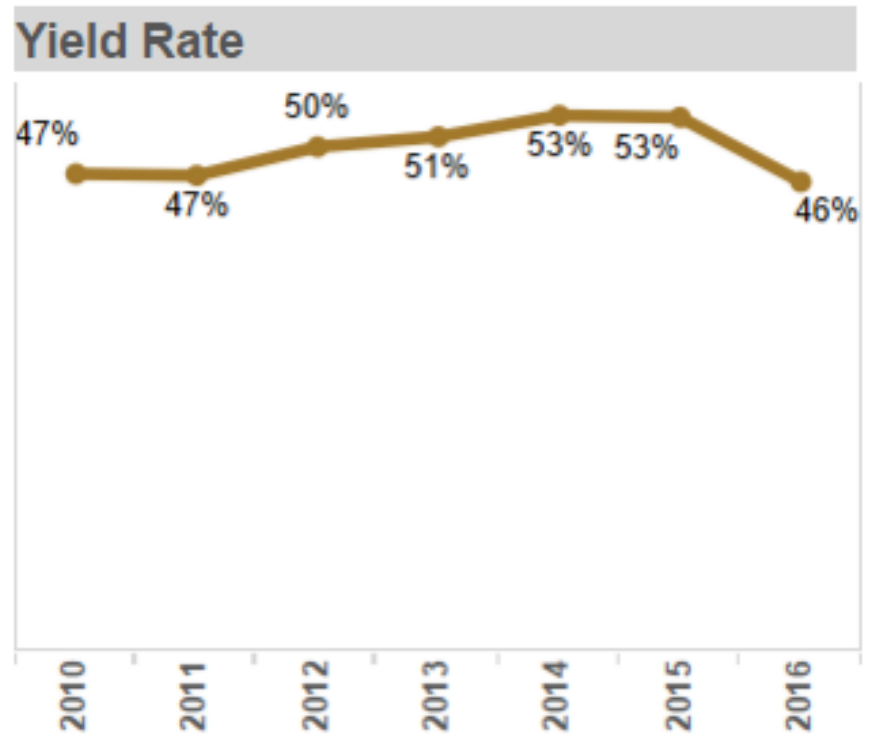
Avg. UGPA

3.52

APPLICATION AND ADMISSIONS



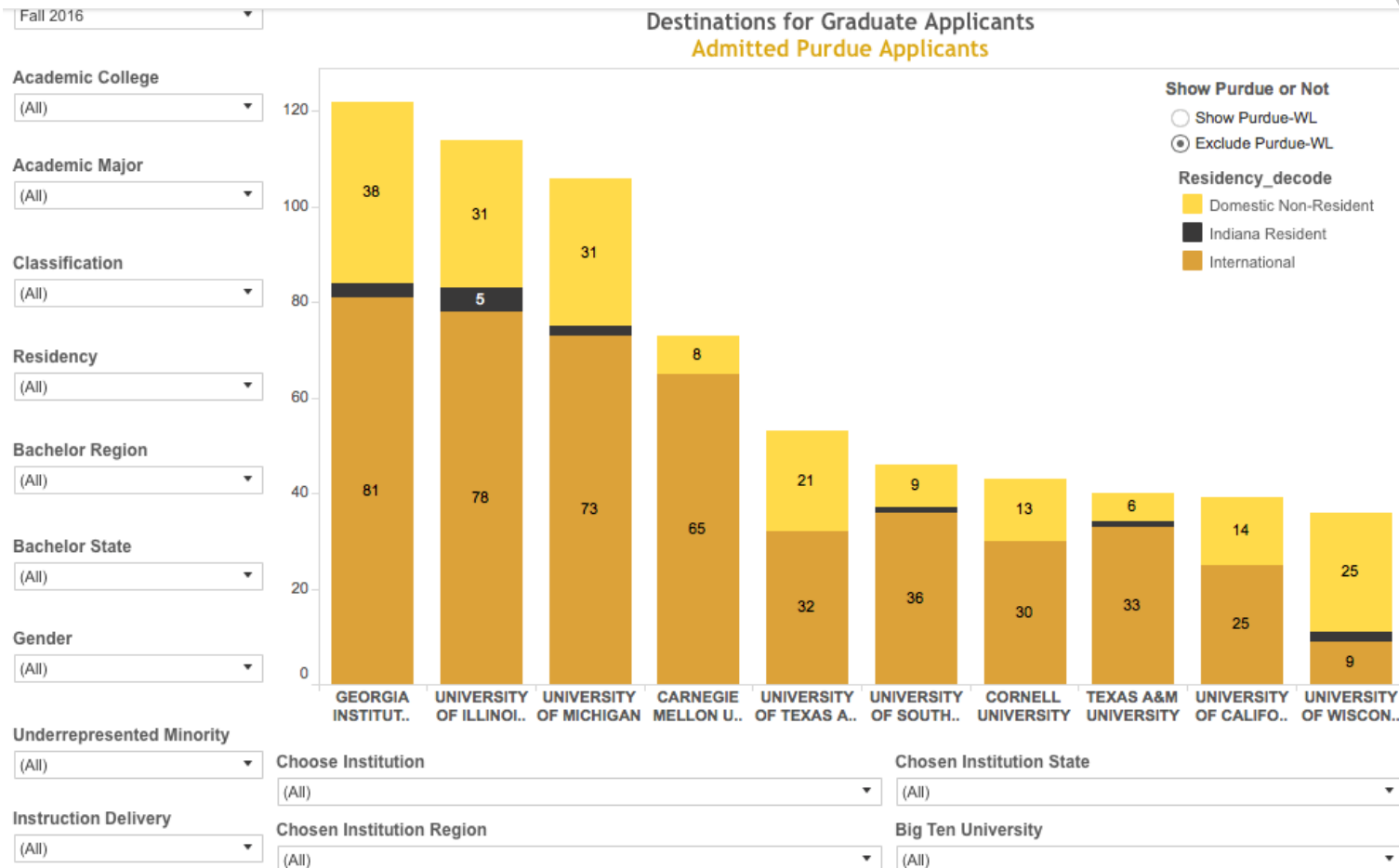
% of applicants admitted



% of admits who enroll

**PROGRAMS ARE SOMETIMES INTERESTED IN
COMPARATIVE DATA AND NATIONAL DATA**

WHERE DO ADMITTED AND DENIED STUDENTS GO? NATIONAL COLLEGE CLEARINGHOUSE DATA



Example: Anonymous display of peer data

DEPARTMENT HEADS ASSOCIATION

Data Entry

Query Data

My Account

View Peer Data: 2011-12

Select a question to examine. Questions are written in blue.

- 2011-12 ECEDHA DEPARTMENT SURVEY
- I. Faculty Demographics (Fall Term)
 - A. Full-time university faculty (FTE) **Full time faculty**
 - B. Part-time faculty (FTE)
- II. Faculty Numbers, Salaries, and Diversity
- III. Department Head's Compensation
- IV. Research Staff
- V. Faculty support
 - A. Department funded travel expenditures
 - B. Clerical employees
 - C. Number of technicians (FTE)
 - D. Number of graduate assistants (RAs and TAs)
 - E. Average Graduate Stipends (in \$ per month)
 - F. Average faculty office size
 - G. Department space
 - H. Space breakdown in terms of percent of total space
- VI. Laboratory Equipment Expenditures and Donations
- VII. Productivity Measures
 - A1. Degrees Completed
 - A2. Degrees completed by women and underrepresented minorities
 - A3. Undergraduate Student Enrollments
 - A4. Undergraduate Student Enrollment Diversity
 - A5. Graduate Student Enrollment
 - A6. Graduate Student Enrollment Diversity
 - B. External federal, state, and industrial research funds
 - C. Research-active faculty teaching load in semester courses per year
 - D. Non-research active teaching load
 - E. Percent of salary per term needed to buy out of teaching one course.
- Comments

Your Peer Group

- 00. Upper State University
- 01. Golden State University
- 02. Orange State University
- 03. Mellon State University
- 04. Lower State University
- 05. Out-of-State University
- 06. In-State University
- 07. Private University
- 08. Eastern Canada University
- 09. Western Canada University
- 10. Richie Rich University
- 11. Sunshine Institute of Technology
- [Modify Peer Group](#)

averages.

Subpart D, titled "New Assistant Professors" refers to the subset of Assistant Professors counted in subpart C who were hired in the last 12 months.

Faculty: (select one or more)

- A. Professor
- B. Associate Professor
- C. Assistant Professor
- D. New Asst Profs hired within 1 yr

Measures: (select one)

- Number of faculty members
- Average Salary
- Number of African-American, Hispanic-American, and Native American faculty (FTE)
- Number of women faculty

- 02. Orange State University
- 03. Mellon State University
- 04. Lower State University
- 05. Out-of-State University
- 06. In-State University
- 07. Private University
- 08. Eastern Canada University
- 09. Western Canada University
- 10. Richie Rich University
- 11. Sunshine Institute of Technology

Charting options:

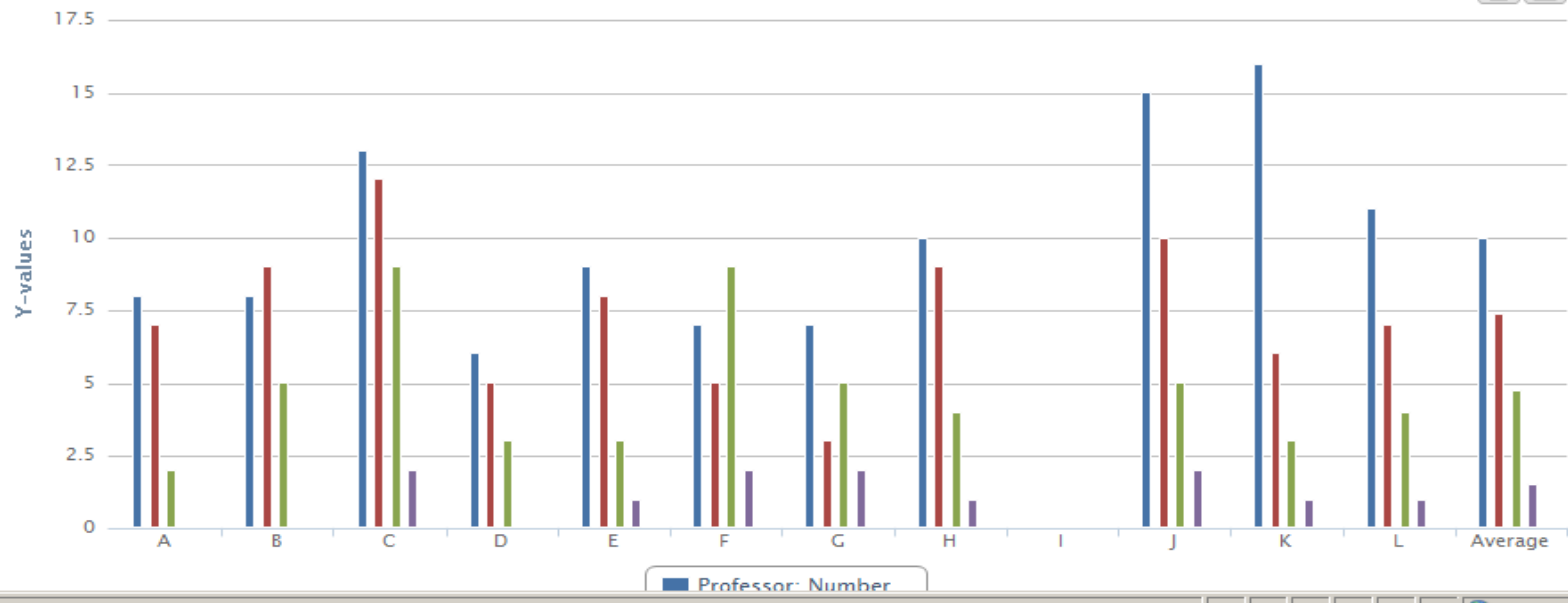
- Include explicit zero responses in average calculations
- Normalize applicable values per faculty

Update Chart

The chart below shows data from your peer group. To assure anonymity, peers are assigned a random letter on each chart generation. The most recent data from each peer data shown. If data were collected before the most recent survey session, it is noted.

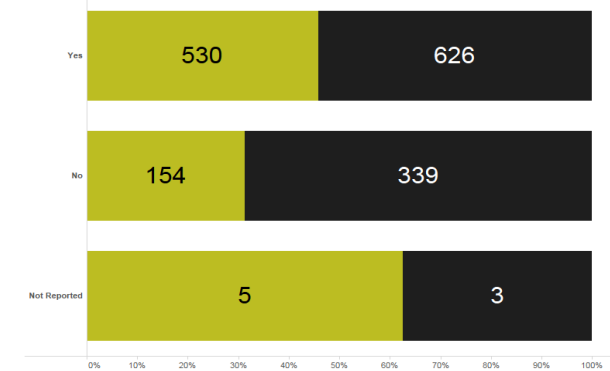
Zoom in on a portion of the chart by clicking and dragging your mouse to select a region of the chart. **Print** or **download** the chart using the icons in the upper right corner of the chart.

II. Faculty Numbers, Salaries, and Diversity




ADMITTED STUDENT SURVEY

Purdue Attendance



ADMITTED STUDENT SURVEY: ATTENDANCE FACTORS

Count of Importance Factors
2,829  4,501

Admitted College
(All)

Admitted Major
(All)

Instructional Delivery
(All)

Degree Objective
(All)

Factors for Choosing Schools to Apply for Admission
All

Attending Purdue?
(All)

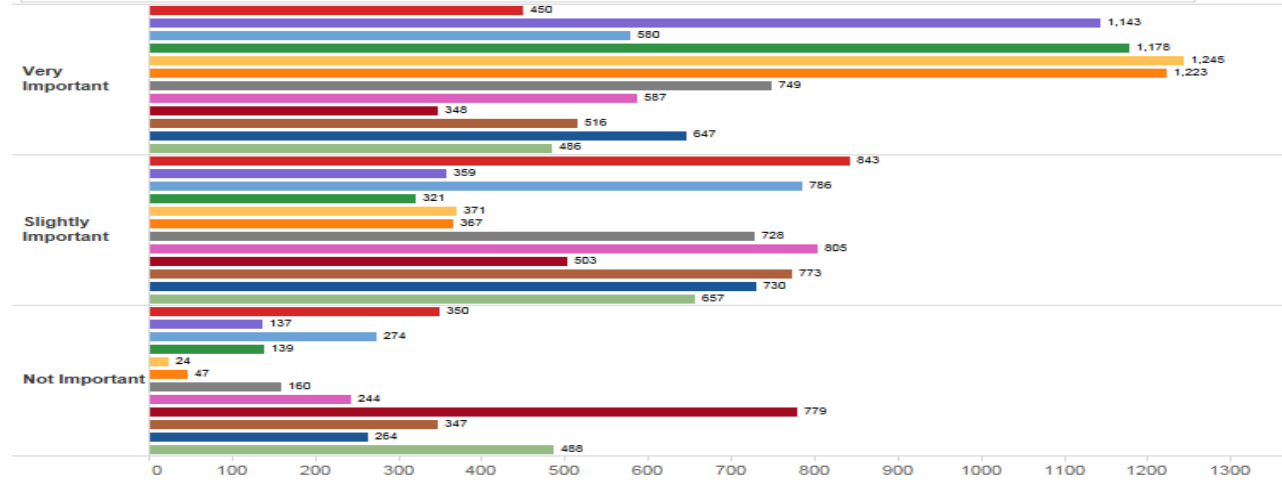
Reasons for Not Enrolling
(All)

Financial Aid Offer
(All)

Citizenship
(All)

Importance Factors

- Campus Location
- Financial support/funding offered
- Local community's cost of living
- Research facilities
- Ranking and Reputation
- Interaction with professors
- Interaction with graduate students
- Interaction with staff
- Campus Visit
- Graduate School website
- Department website
- Email or postal mail received



WORD CLOUD REPRESENTATION

A word cloud visualization showing various terms related to university experiences. The terms are arranged in a roughly rectangular shape, with 'Ranking and Reputation' being the largest and most central. Other prominent terms include 'Interaction with professors', 'Research facilities', and 'Financial support/funding offered'. Smaller terms include 'Email or postal mail received', 'Interaction with staff', 'Department website', 'Campus Visit', 'Campus Location', 'Graduate School website', and 'Local community's cost of living'. The colors of the text vary, with green and red being the most frequent.

Email or postal mail received

Research facilities

Interaction with staff

Department website

Campus Visit

Interaction with professors

Ranking and Reputation

Campus Location

Financial support/funding offered

Graduate School website

Interaction with graduate students

Local community's cost of living

BY COLLEGE, COLLEGE OF AGRICULTURE FROM ADMITTED STUDENT SURVEY

Email or postal mail received

Research facilities Ranking and Reputation

Campus Location

Interaction with graduate students

Financial support/funding offered

Interaction with staff

Campus Visit

Interaction with professors

Local community's cost of living

Department website

Graduate School website

OTHER UNIVERSITIES THAT ADMITTED THE STUDENTS ADMITTED STUDENT SURVEY

Other Schools Admitted to

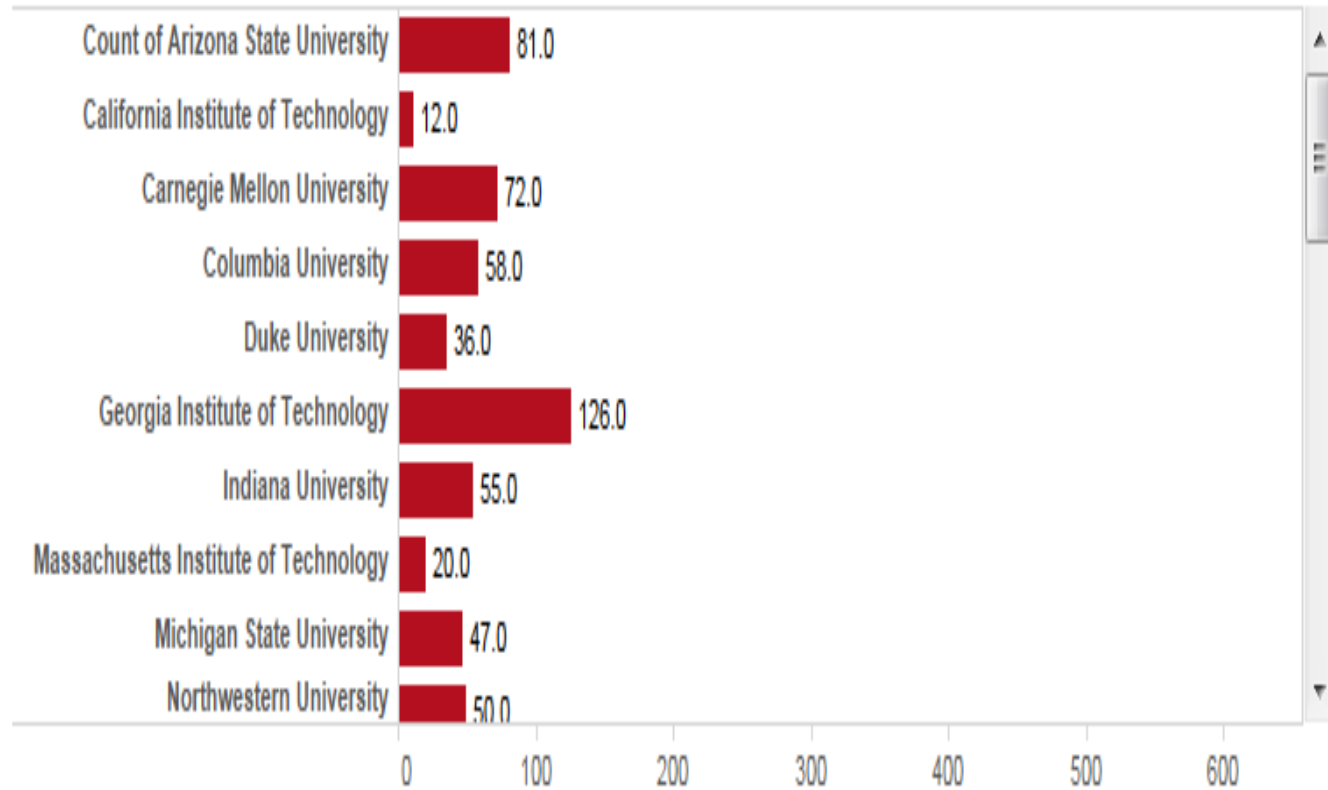
Admitted College

Admitted Major

Instructional Delivery

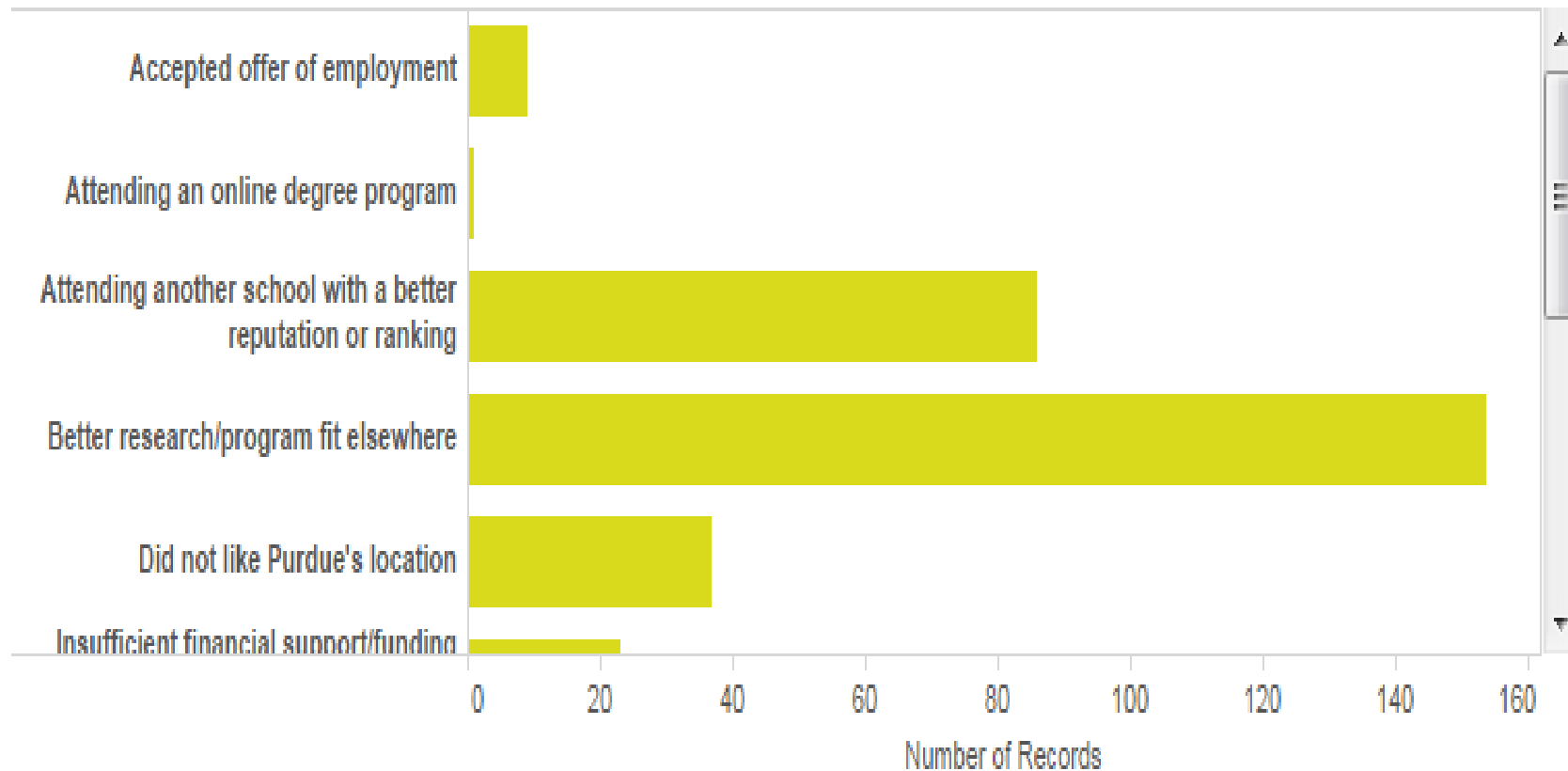
Degree Objective

Factors for Choosing Schools
to Apply for Admission



REASON FOR SELECTING ANOTHER SCHOOL ADMITTED STUDENT SURVEY

Why Other School Selected



STUDENT RECORDS DASHBOARDS MAINLY USED FOR PROGRAM REVIEWS

- ❖ Official Enrollment
 - ❖ Basic and comparative enrollment
 - ❖ Geographic demographics
- ❖ Student Employment
 - ❖ Average salaries
 - ❖ Types of employment
- ❖ Student Outcome
 - ❖ Degrees awarded
 - ❖ Retention and Time to Degree
- ❖ Exit Survey
 - ❖ Student satisfaction
 - ❖ Employment post-degree

GRADUATE STUDENT STAFF DATA (3)

Hover for Questions * **Graduate Staff Head Count**

SAP Department

(All) ▼

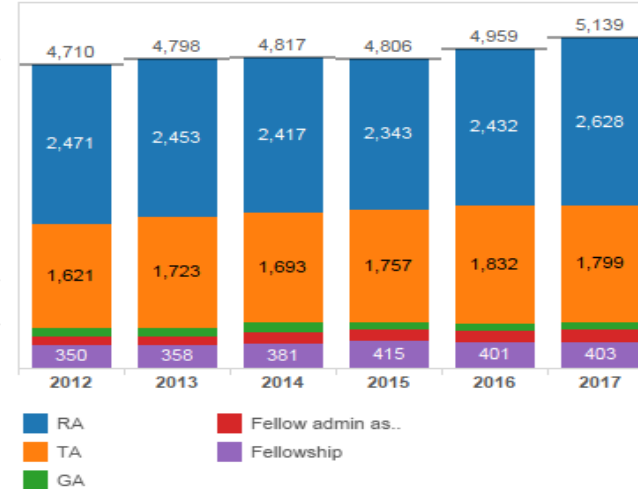
Session

- Fall
- Spring
- Summer

Graduate Staff Head Count

	Snapshot Fiscal Year					
	2012	2013	2014	2015	2016	2017
RA	2,471	2,453	2,417	2,343	2,432	2,628
TA	1,621	1,723	1,693	1,757	1,832	1,799
GA	128	137	164	115	128	125
Fellow admin as assist	140	127	162	176	166	184
Fellowship	350	358	381	415	401	403
Grand Total	4,710	4,798	4,817	4,806	4,959	5,139

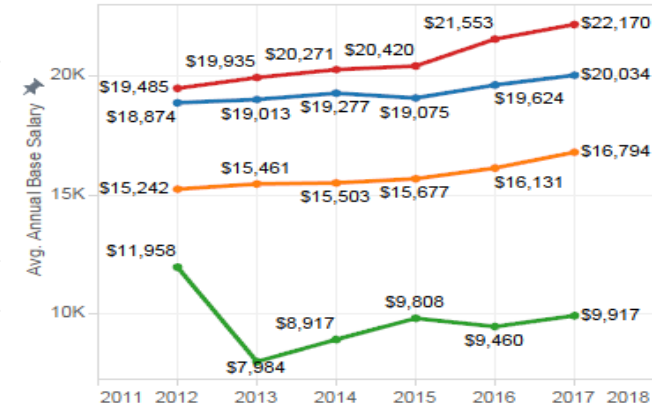
Graduate Staff Head Count



Graduate Staff Average Annual Salary

	Snapshot Fiscal Year					
	2012	2013	2014	2015	2016	2017
RA	18,874	19,013	19,277	19,075	19,624	20,034
TA	15,242	15,461	15,503	15,677	16,131	16,794
GA	11,958	7,984	8,917	9,808	9,460	9,917
Fellow admin as assist	19,485	19,935	20,271	20,420	21,553	22,170
Grand Total	17,300	17,285	17,442	17,478	17,956	18,572

Graduate Staff Average Annual Salary

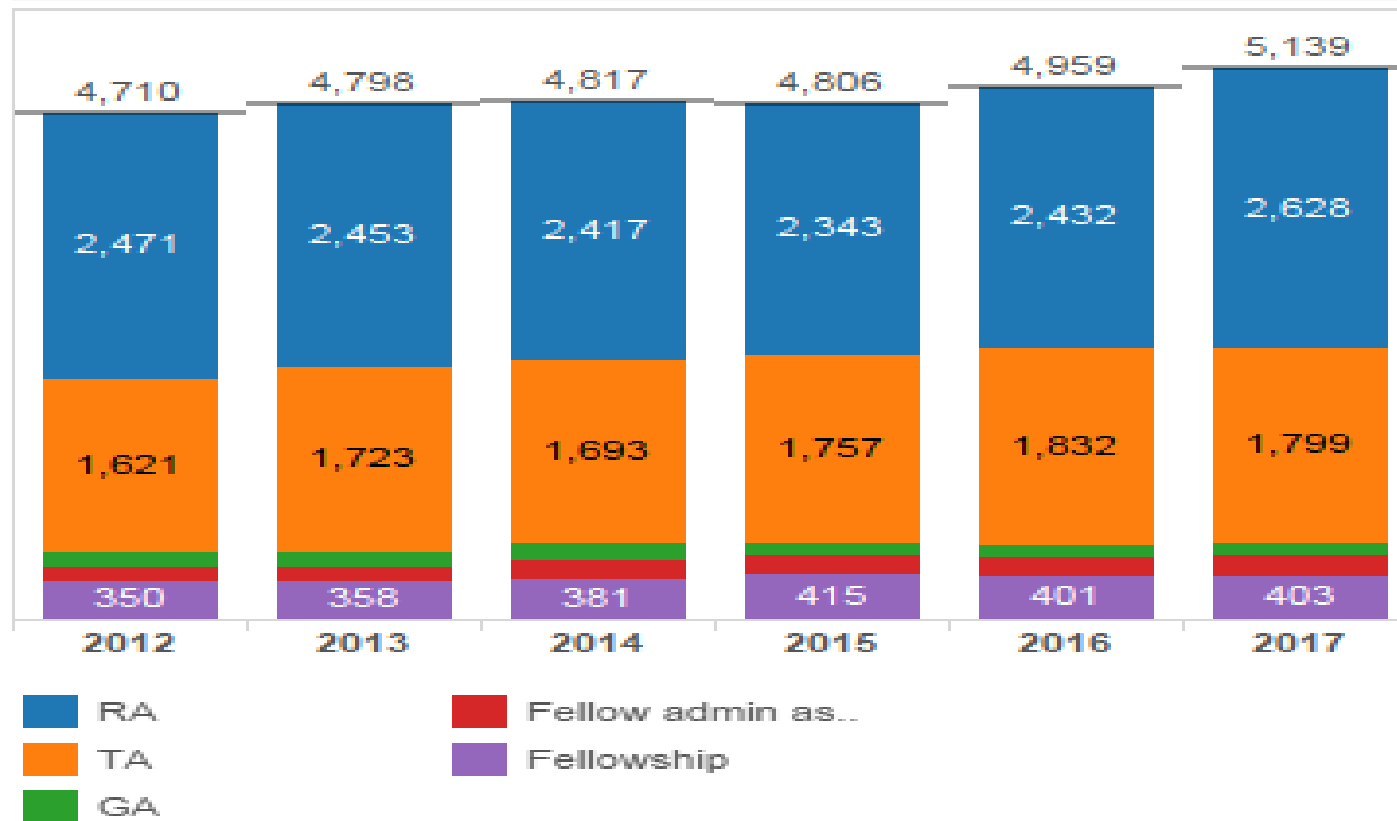


Click the icon to export raw data to a CSV file



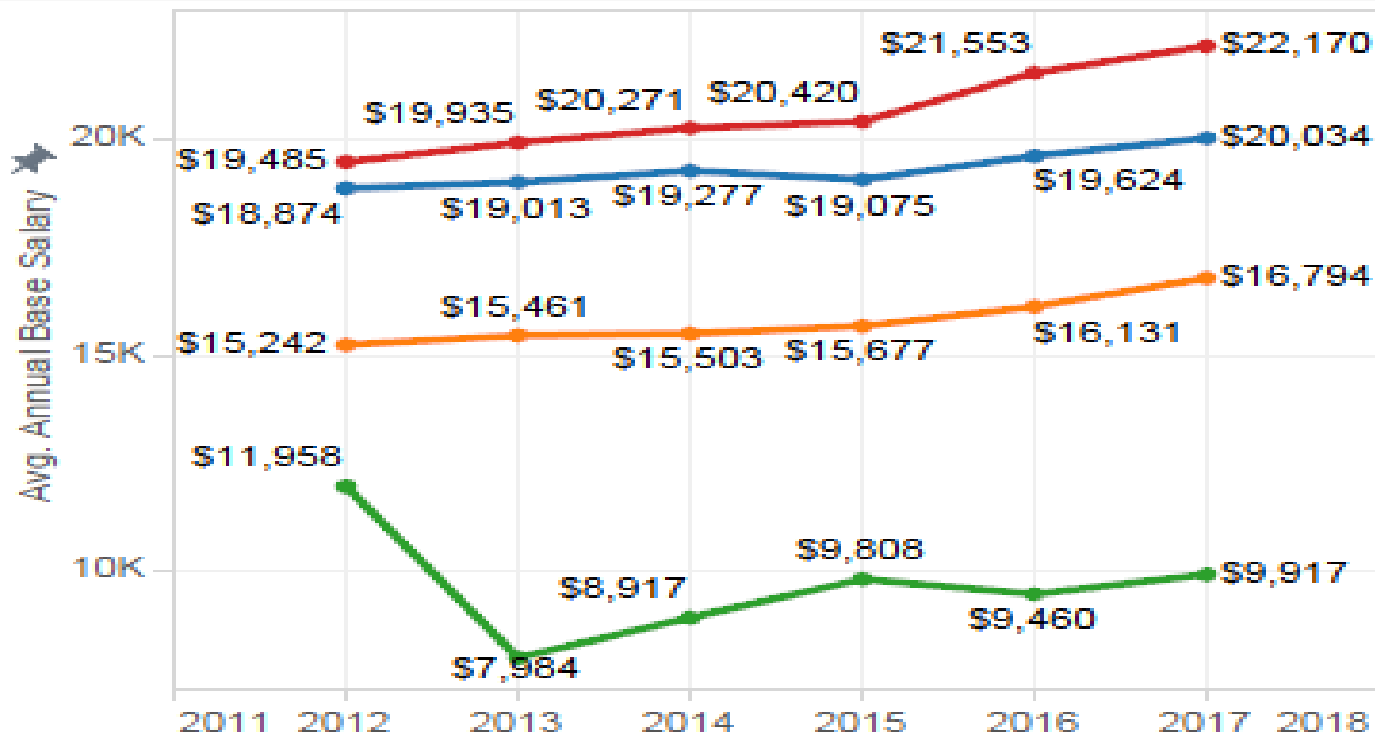
TYPES OF EMPLOYMENT

Graduate Staff Head Count



TRENDS IN SALARIES FOR GRADS

Graduate Staff Average Annual Salary



Fellows
RAs
TAs
GA

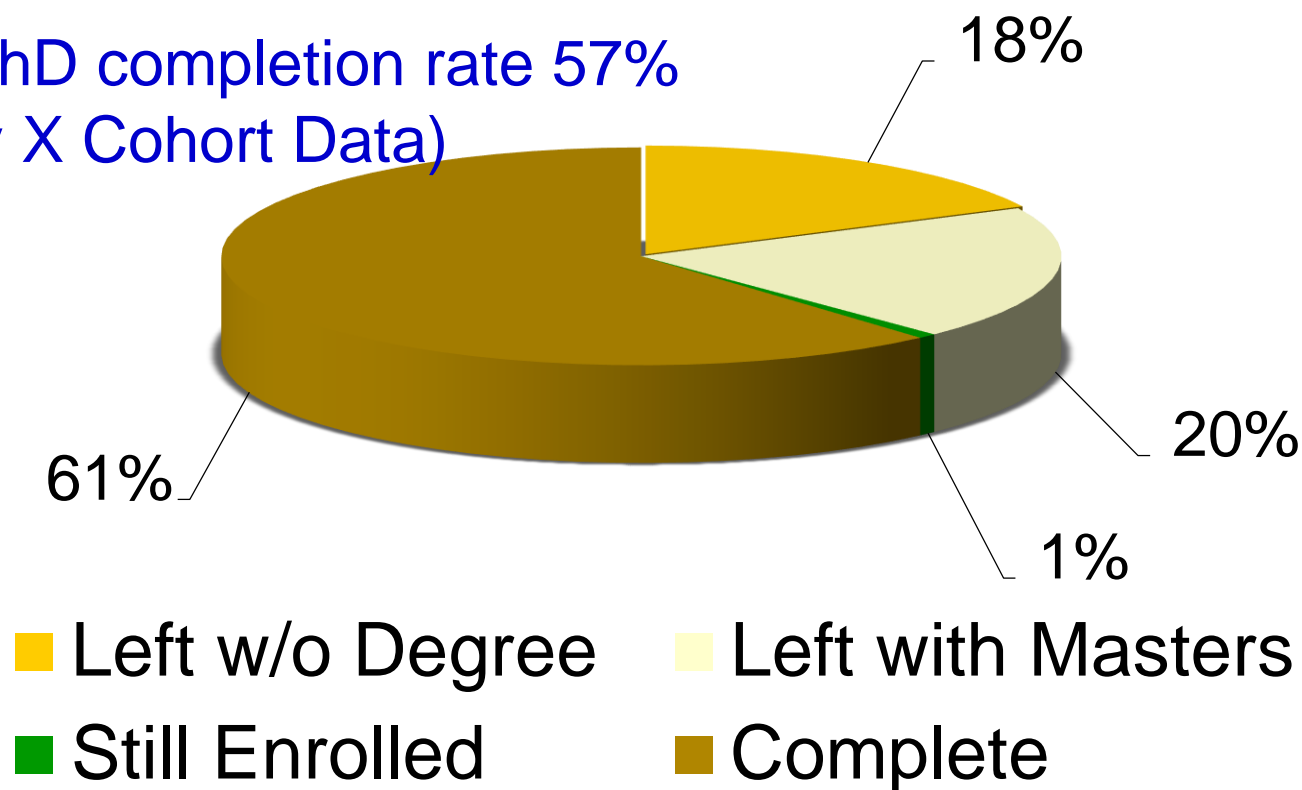
Visualizing Completion Data

Consider PhD completion as an example

- 1) Conventional Cohort Representation
- 2) Alternative Annual Completion Representation

COHORT MODEL EXAMPLE-10 YR WINDOW

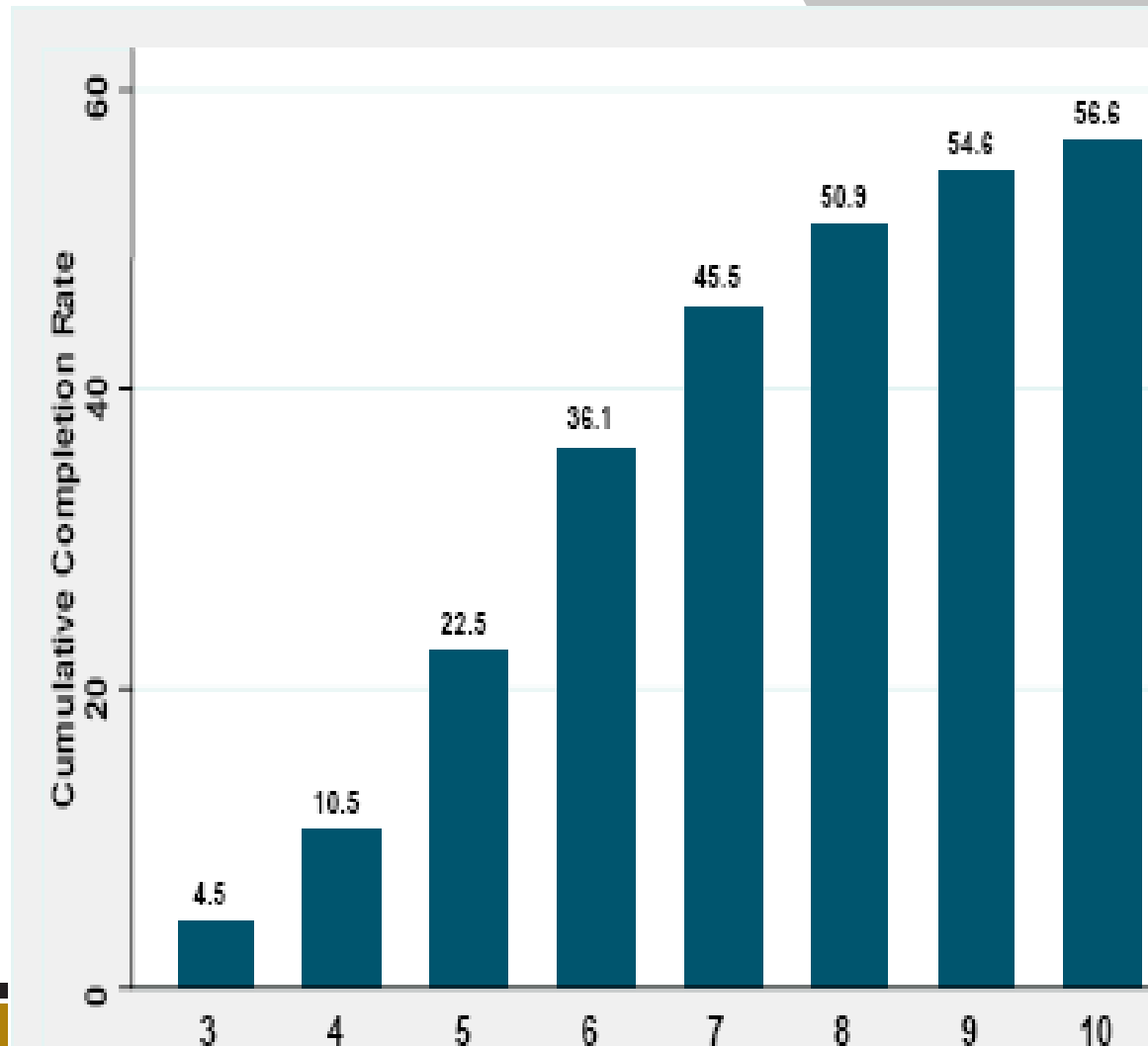
National PhD completion rate 57%
(University X Cohort Data)



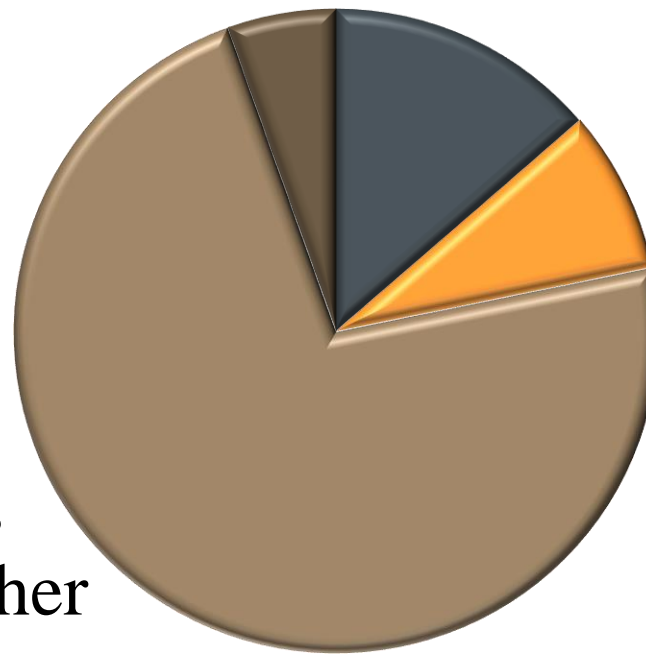
Cohort starting in 2007

10 YR. PH.D. COMPLETION RATE

University X
Class starting 2007



Alternative representation—attrition/completion model



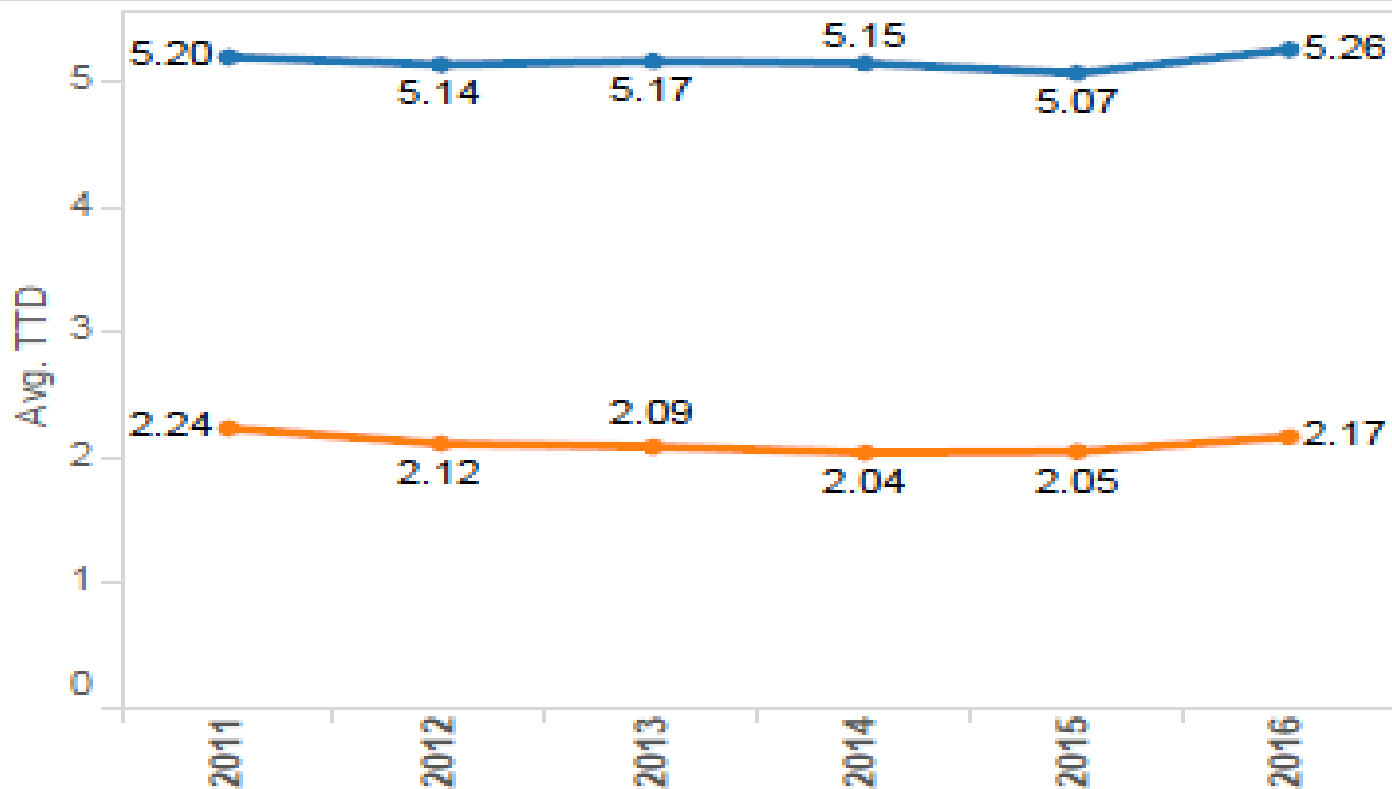
- PhD students who completed
- PhD students who left program
- PhD students who returned
- PhD students who left with MS degree

For a given year,
students will either

- complete
- leave without degree
- leave prematurely with MS
- continue

TIME TO DEGREE BY YEARS

Time to degree by degree type



USING DIGITAL CLICKERS

❖ Provides real-time graphic visualization

USING DIGITAL CLICKERS

❖ Provides real-time graphic visualization



Examples:

- 1) Using clickers at conferences and in meetings
- 2) Using clickers to facilitate discussion

ECE Department Heads Association Annual Conference

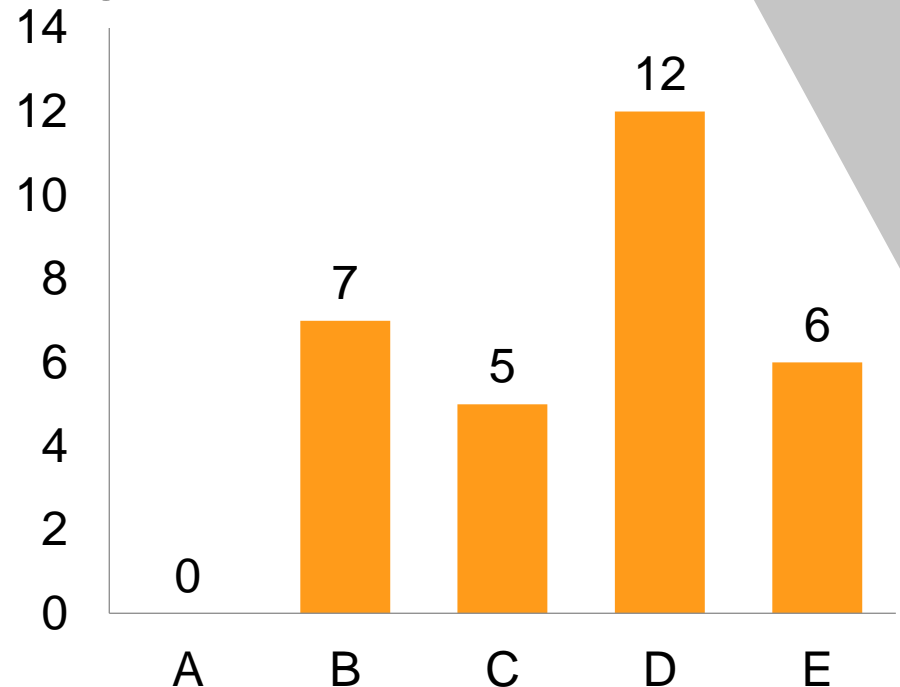
Are you interested **now** in having your Master's program accredited by ABET?

- A. Yes
- B. Possibly
- C. Very unlikely
- D. No way
- E. N/A

ECE Department Heads Association Annual Conference

Are you interested **now** in having your Master's program accredited by ABET?

- A. Yes
- B. Possibly
- C. Very unlikely
- D. No way
- E. N/A



Examples:

- 1) Using clickers at conferences
- 2) Using clickers to facilitate discussion

USING DATA ANALYTICS TO HELP STUDENTS

WHAT IS SIGNALS

- Signals is an interactive student feedback device that allows us to identify and intervene when students are at risk of performing poorly in a course.
- Instructors can utilize signals to send personalized emails to students to inform them of poor performance, direct them to campus resources for assistance, and can even remind them of office hours.
- Signals is convenient for faculty and students, it can even be accessed via mobile device.

USING DATA TO HELP STUDENTS



MOBILE VIEW

- Students have mobile access increasing the likeliness of their using signals.
- Information is readily available for consultation with instructor.

The screenshot shows the Signals mobile app interface. At the top, the status bar displays AT&T, signal strength, and the time 8:49 PM. The app header features the 'Signals' logo and three menu options: 'Detailed Report', 'Effort Tracker', and 'Help Resource'. Below this, the user's name 'Mary Major' and 'Fall Semester' are displayed. A table lists the student's courses and their progress across three intervals (Int 1, Int 2, Int 3). The courses are BIOL 101, GS 101, SPAN 310, STAT 303, and COM 150. Each course row includes an envelope icon and a progress indicator (a green circle for completed, a yellow circle for in progress, and a grey circle for not started).

Course	Int 1	Int 2	Int 3
BIOL 101	●	●	●
GS 101	●	●	●
SPAN 310	●	●	●
STAT 303	●	●	●
COM 150	●	●	●

At the bottom of the app, the Purdue University logo is displayed, along with the text 'Purdue University, West Lafayette, IN 47907 USA (765)'. The bottom navigation bar contains icons for back, forward, home, and a notification badge showing the number 3.

USING DATA TO HELP STUDENTS

- Mining non-traditional data sources
- Employing statistical analyses and machine learning
- Presenting patterns and correlations visually to students
- Suggesting interventions

THANK YOU!

Questions and Comments