

TWD July 2019

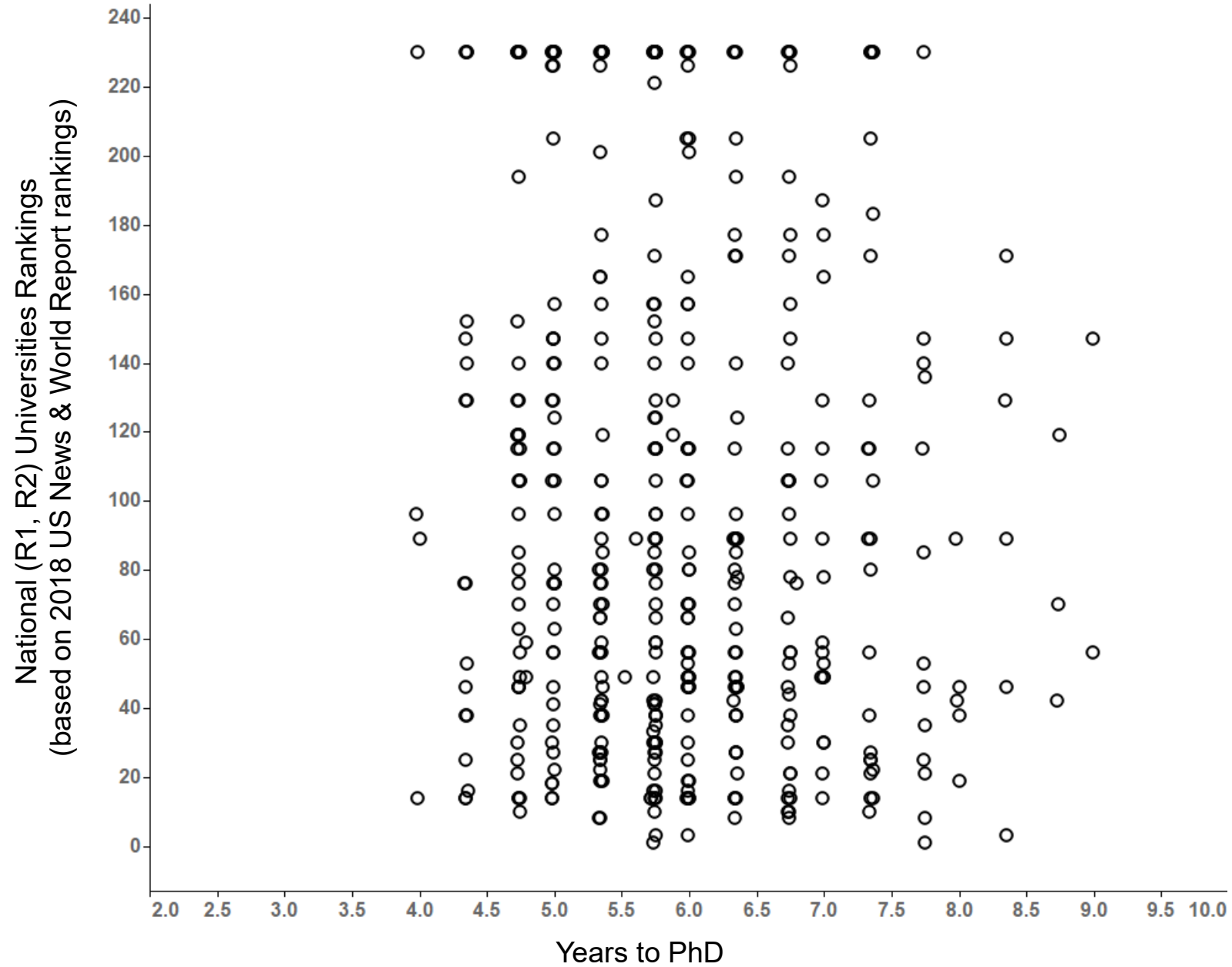
Recruiting and Admissions Post GRExit

- Word of mouth approval from applicants.
- Will you take my scores if I did take the test?
- US applicants held steady.
- Applicant diversity at highest level ever.
- International applicants continued a pre-existing downward drift.
- No complaints from those we invite for an interview.
- In the final class we see no changes from previous years in GPA, school of origin or previous research exposure.
- It will take years before we really know the outcome.

If you don't use GREs, what options have you got?

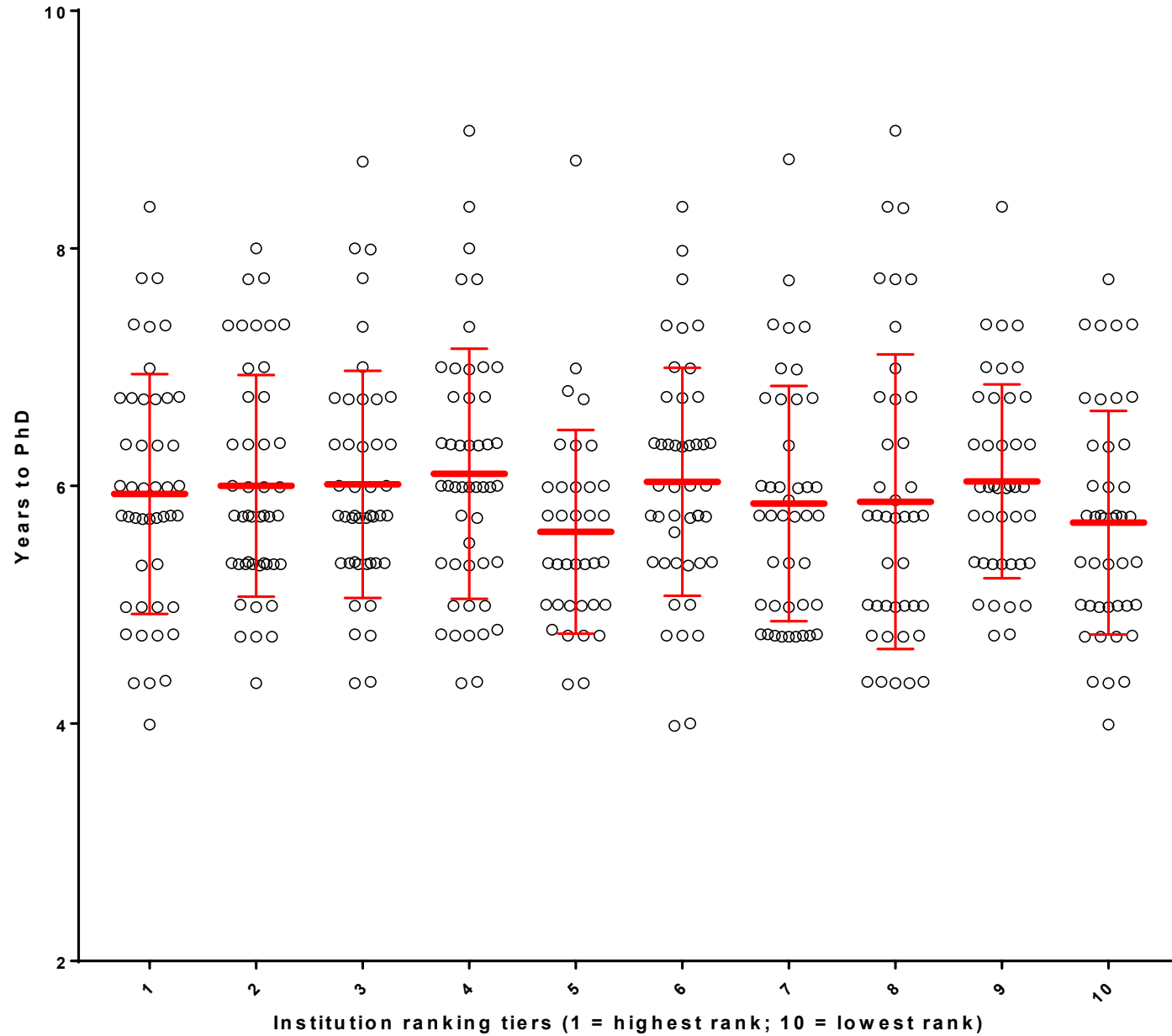
- School of origin?
- GPA?
- Types of undergraduate classes taken?
- Personal Statements?
- All rec letters?
- Rec letters from research advisor?
- Interviews? Does this depend on personality types?

National (R1, R2) Universities Rankings vs Graduate Students' Time to PhD

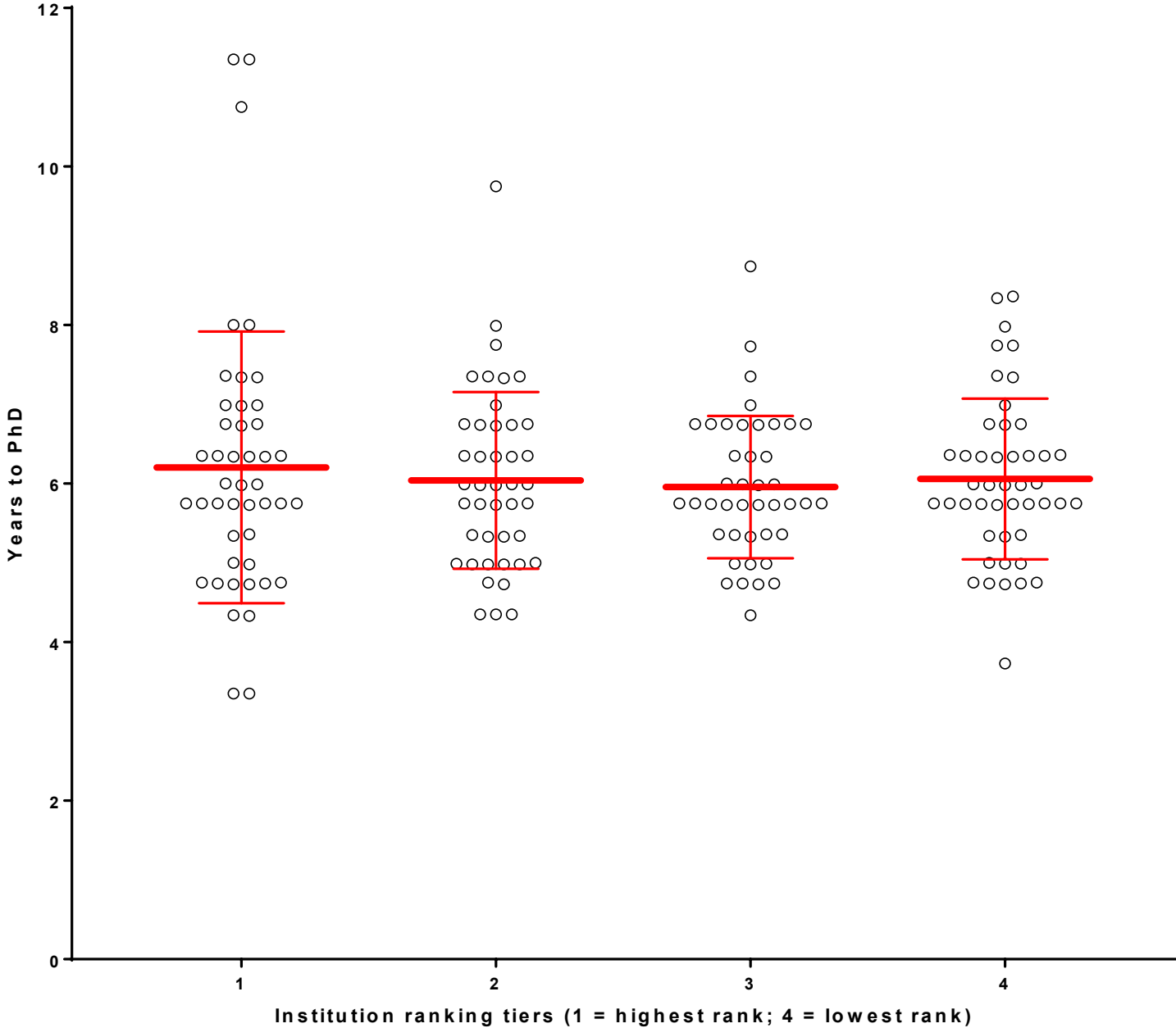


N = 430

National (R1, R2) Universities Rankings vs Graduate Students' Time to PhD



Liberal Arts Colleges Rankings vs Graduate Students' Time to PhD



Holistic Admissions

- So it looks as though holistic admissions might be worth a shot.
- But how do we know it will work?
- We recalled that we have done holistic admissions previously!
- We used the entire range of GRE scores. The experiment was internally controlled. And it worked!

The Vanderbilt IMSD has recruited holistically since 2007

Research experience

Letters of recommendation

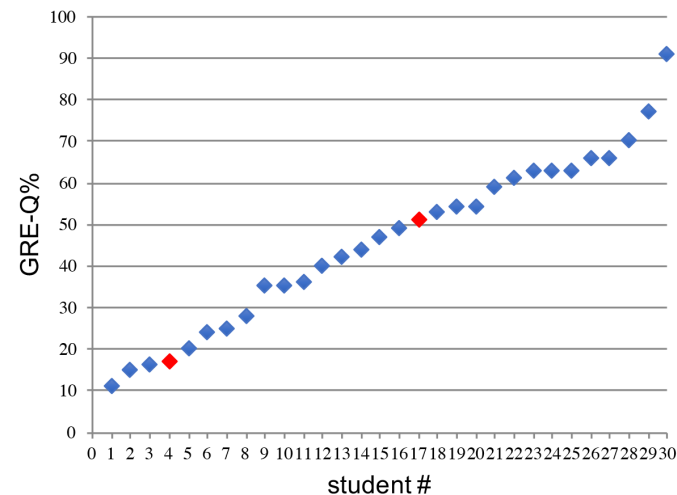
Interview

~~GRES~~

~~GPA~~

Select trainees based on attributes/
experiences that may be more significant
to success in research based careers.

What are the lessons learned?



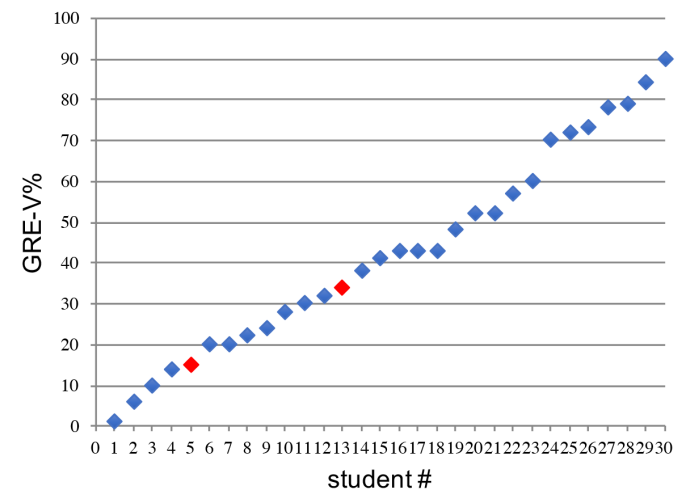
32 IMSD students
matriculated
2007-2011

outcomes:

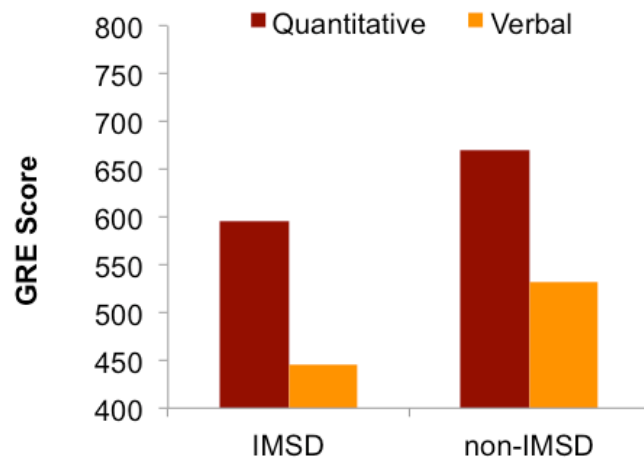
28 PhDs

2 Masters

2 withdrew (for
medical reasons, not
shown)



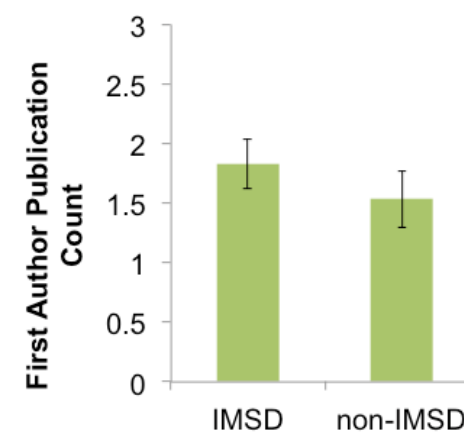
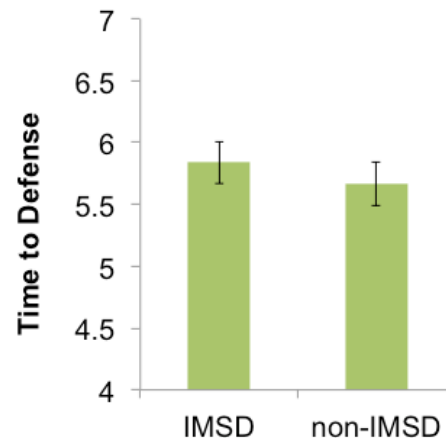
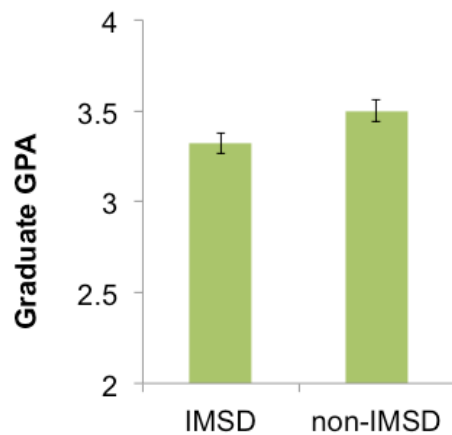
Impact of Holistic Admissions and IMSD



From 2007-2011, 32 URMs were admitted via holistic admissions to the IMSD program and 26 URMs were admitted via traditional admissions approaches as non-IMSD students.

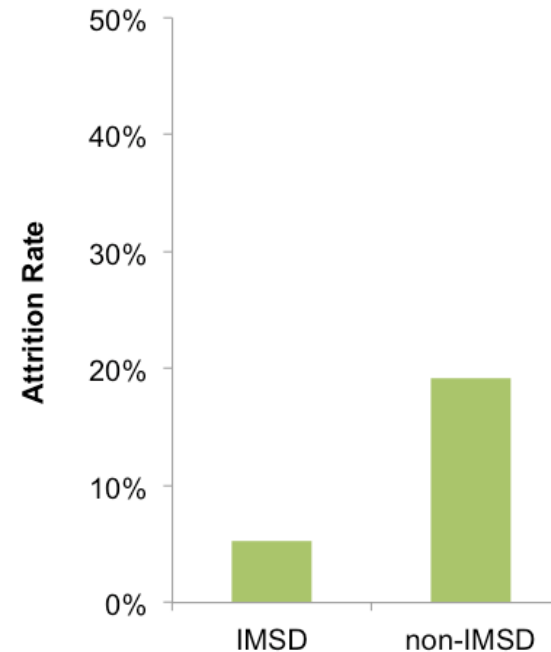
Welch's two sample t-test revealed that the IMSD students who were admitted via holistic admissions had significantly lower GRE scores than the non-IMSD students, $t(56.70) = -3.48, p < 0.001$ for Quantitative and $t(44.74) = -3.37, p < 0.01$ for Verbal.

However, there were no differences in Graduate GPA, Time to Defense, or First Author Publication Count.



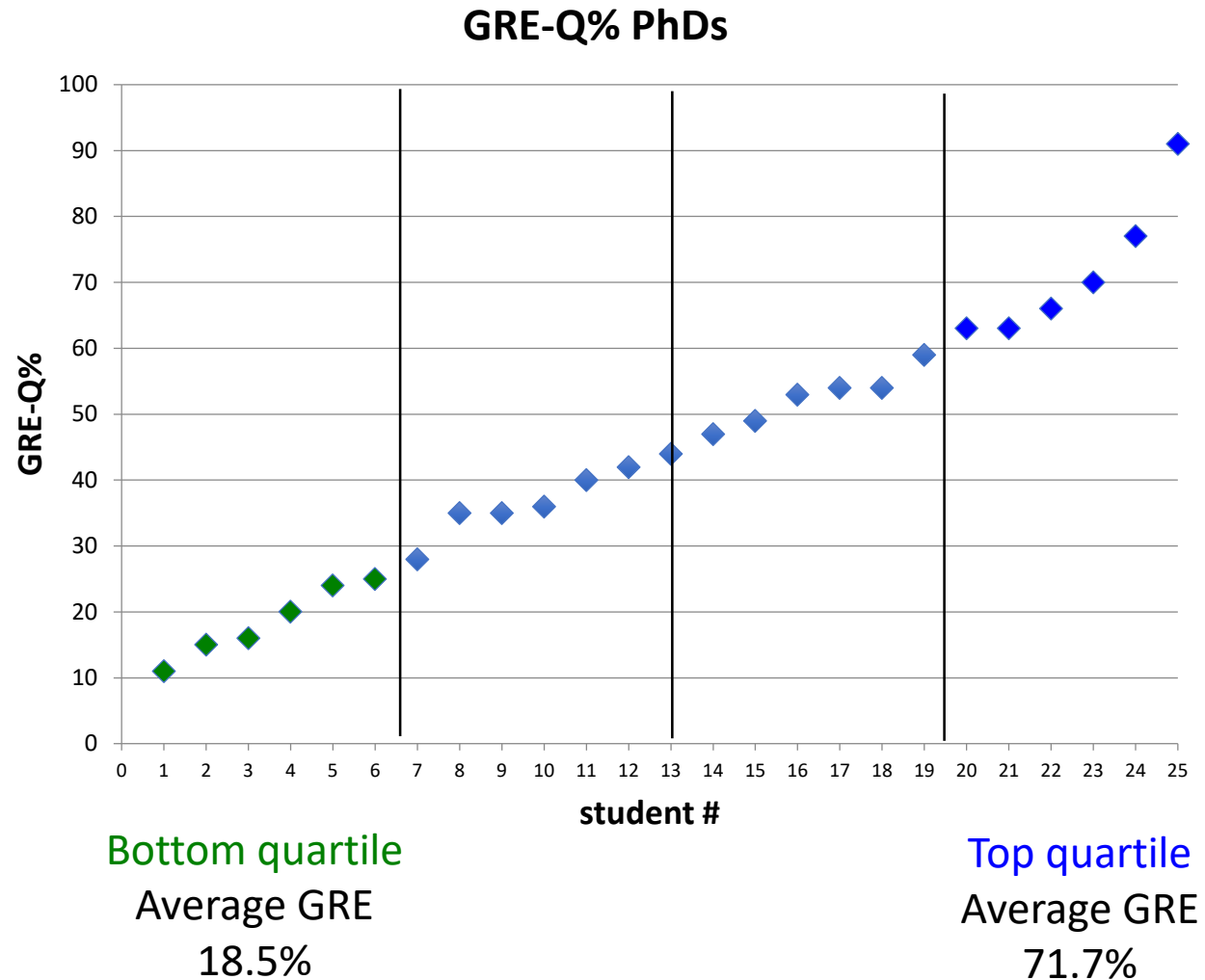
Significantly lower attrition among URM students in IMSD

Of the URMs who matriculated from 2007-2011, 26 IMSD students and 16 non-IMSD students graduated with a PhD. Pearson's chi-squared test revealed a trend toward a lower attrition rate for IMSD students than the non-IMSD students, $X^2(1) 3.09$, $p = 0.09$.



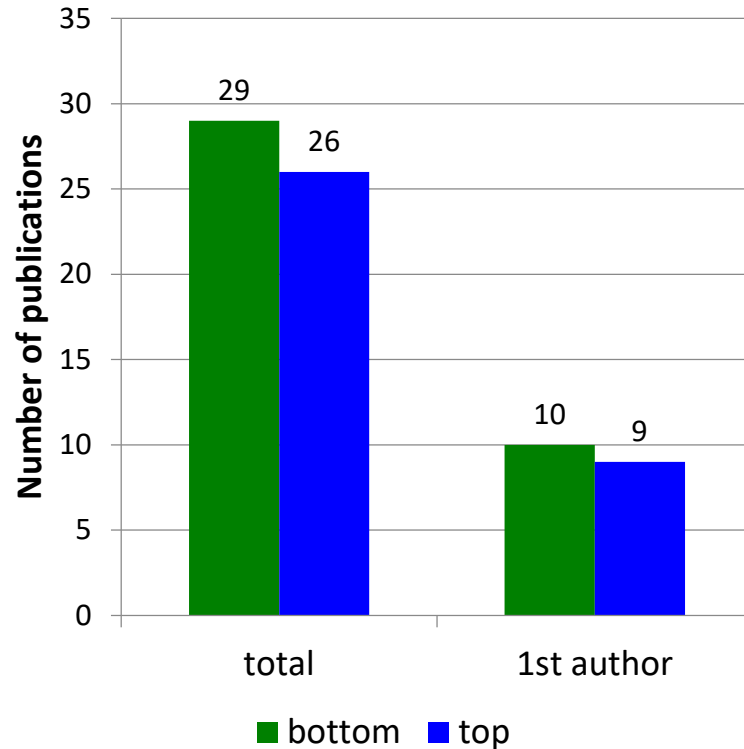
URM students admitted with lower GRE scores via holistic admissions were just as successful as those admitted through traditional means. In fact, they appear to have a lower attrition rate. These results may be due to holistic admissions, the programmatic and social support in the IMSD program, or both.

How do students with really bad GREs perform in Biomed Research Graduate Programs?



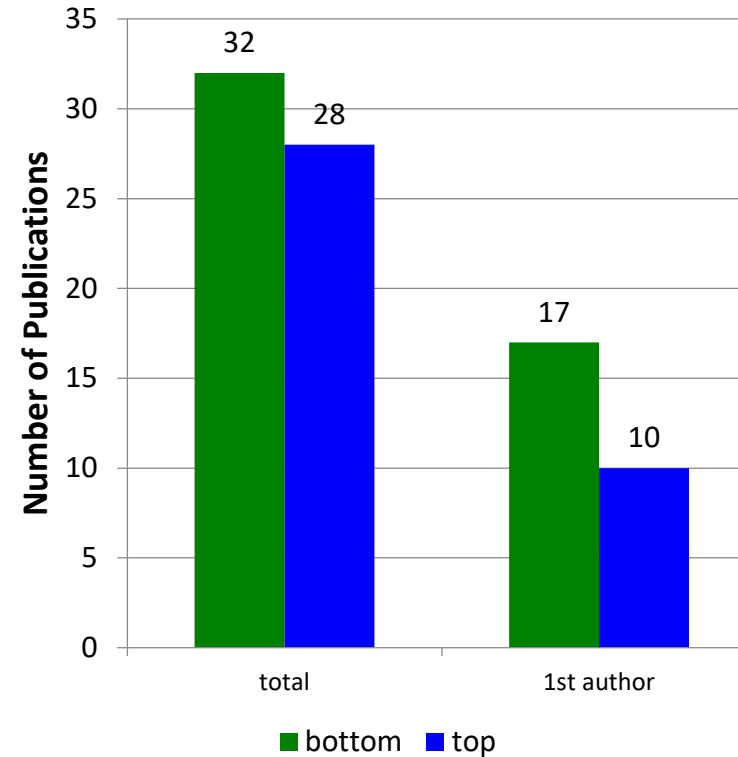
Bottom vs Top Quartile outcomes by GRE

GRE-Q%



Ave GRE-Q
Bottom = 18.5% (11-25)
Top = 71.6% (63-91)

GRE-V%



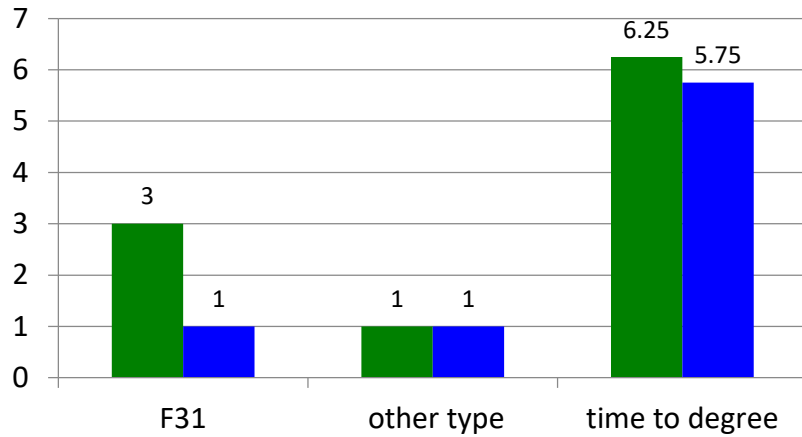
Ave GRE-V
Bottom = 11.8% (1-20)
Top = 77% (70-90)

Bottom vs Top Quartile outcomes by GRE

Ave GRE-Q

Bottom = 18.5% (11-25)

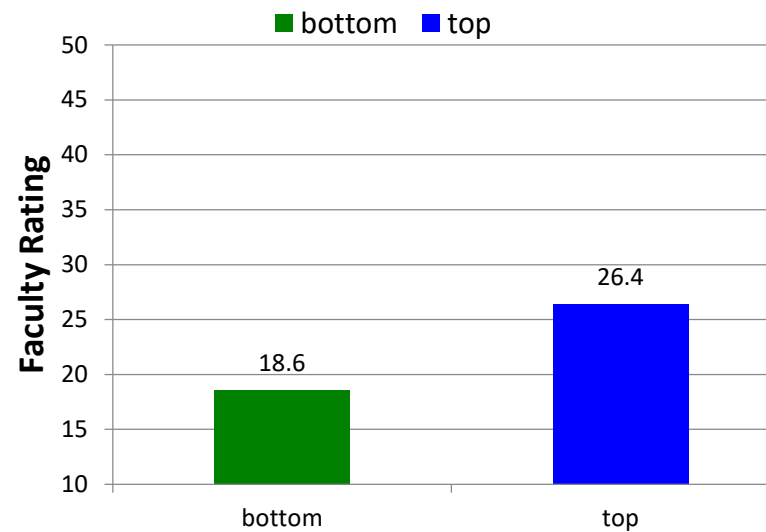
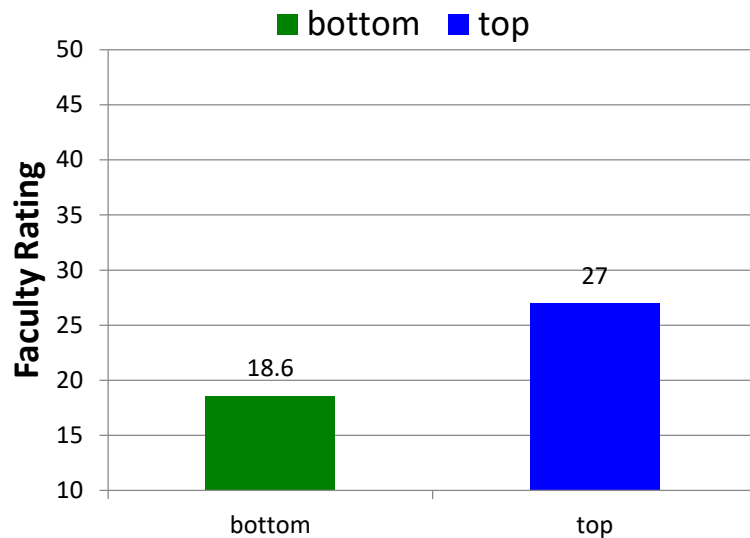
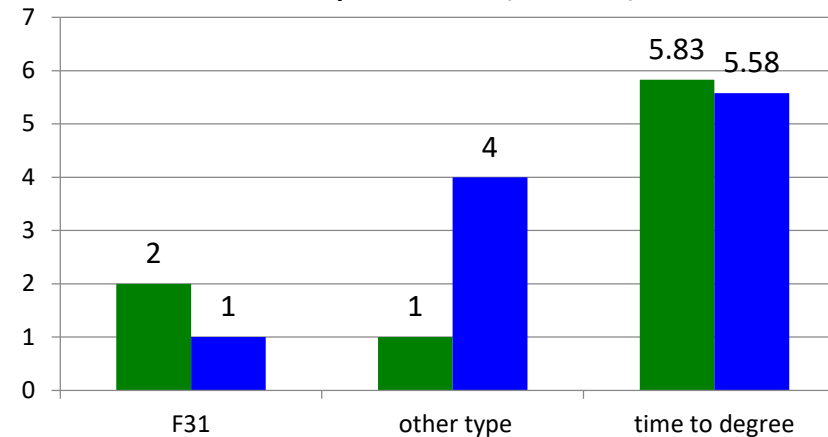
Top = 71.6% (63-91)



Ave GRE-V

Bottom = 11.8% (1-20)

Top = 77% (70-90)



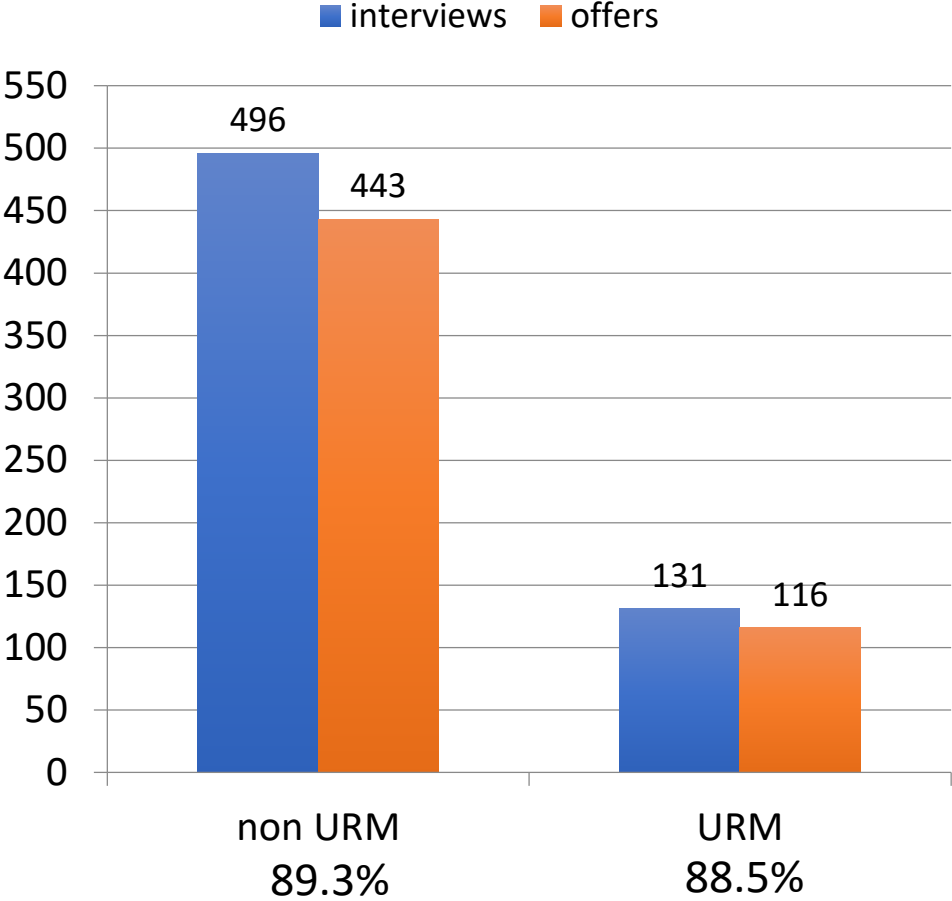
IMSD Graduates by the numbers:

PhDs completed (March 2019)	41
Average time to degree	5.8yrs
Number of papers published	213
F31 type fellowship awards	18
Supported by T32 training grants	26
Academic postdoc	31
Industry	3
Other careers/undecided	7
Faculty	1

Outcomes of IMSD PhD Graduates

Postdoctoral institutions	Biotech/consulting or start ups	Academia	Post-postdoc positions
Northwestern (2)	Covance	Asst. Professor, tenure track	Global Informatics Specialist - Illumina
Mt Sinai (2)	Analyst -Proactive Worldwide	Xavier University	Achaogen, San Francisco
John Hopkins	High performance computer engineer - IonQ		Microbiologist USDA
Univ. of Washington			Communications NIH-Cancer Genetics
MIT			SciX, LLC* startup
Harvard			Fellow @Novo Nordisk
Yale			Denmark
UT Health Sciences Houston			Editor, Wiley Publishing
Case Western			Bristol Myers Squib, Medical Liason
UCLA			
Univ of Pittsburgh			
Michigan State			
Univ. of Florida (2)			
Univ.of Colorado			
St. Judes			
Baylor			
UCLA – Charles Drew			
NIH (2)			
Vanderbilt (5)			
Fred Hutchison Cancer Center			

nonURM and URM interview success rate is the same (2014-17)



The IMSD Class of 2015

- 13 1st year students - 9 Interdisciplinary Graduate Program (IGP) and 4 Quantitative Chemical Biology (QCB)
- From the following institutions:

Harvard University

Brown University

Cornell University

Ohio State University

University of Kentucky

Hanover College

York College of Pennsylvania

University of Arizona

University of Texas Austin

Virginia Commonwealth

Fisk University

University of Tennessee

University of Missouri,
Columbia

Some details of how we do “Holistic”

Know what you are looking for!

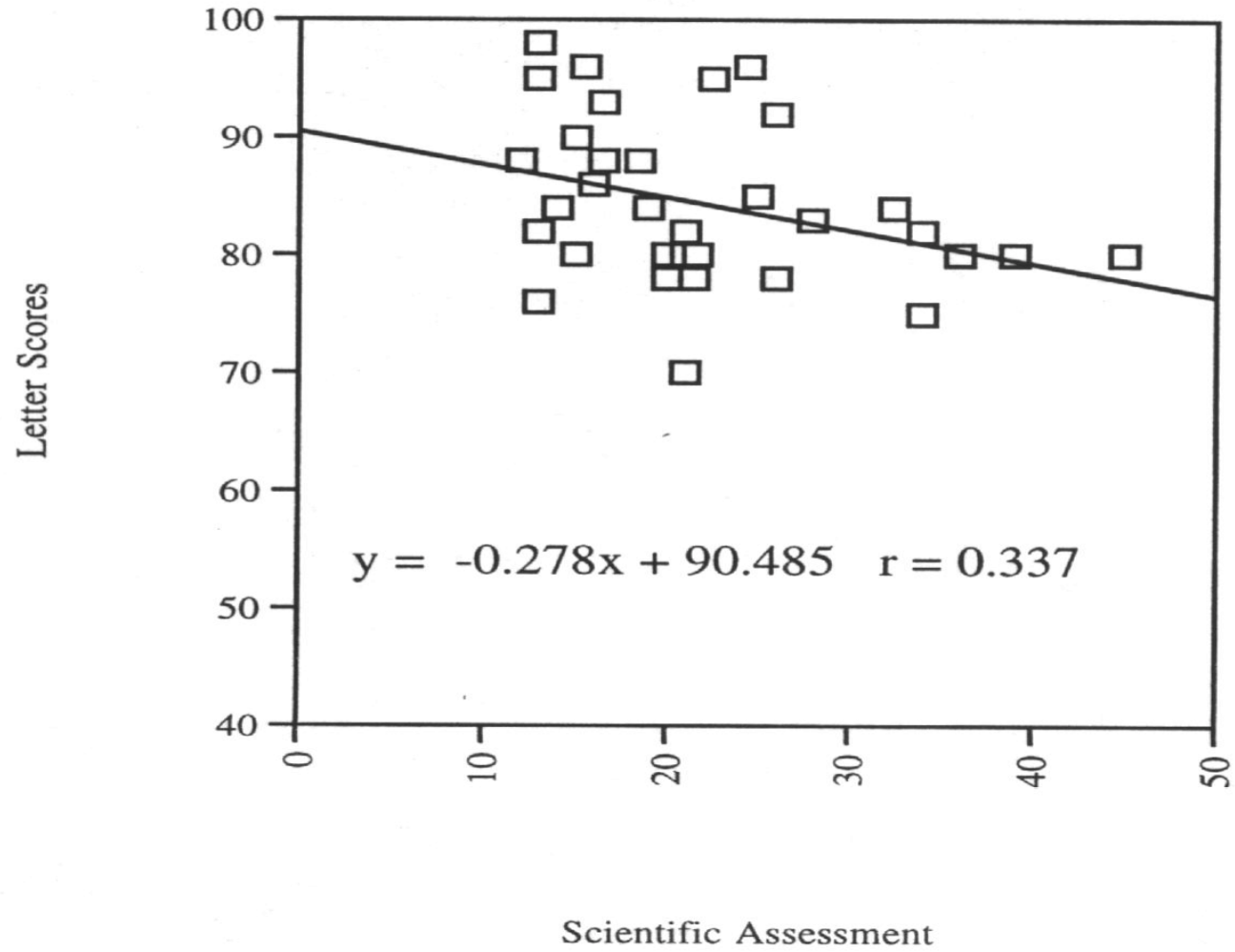
- Hard working
- Creative, imaginative
- Focused, determined and productive
- Smart
- Technically competent
- Withstands bad luck, resilient
- Team player, but can lead
- Well read
- Good communicator
- Loves science
- Grew up in Lake Wobegon

You can find this!

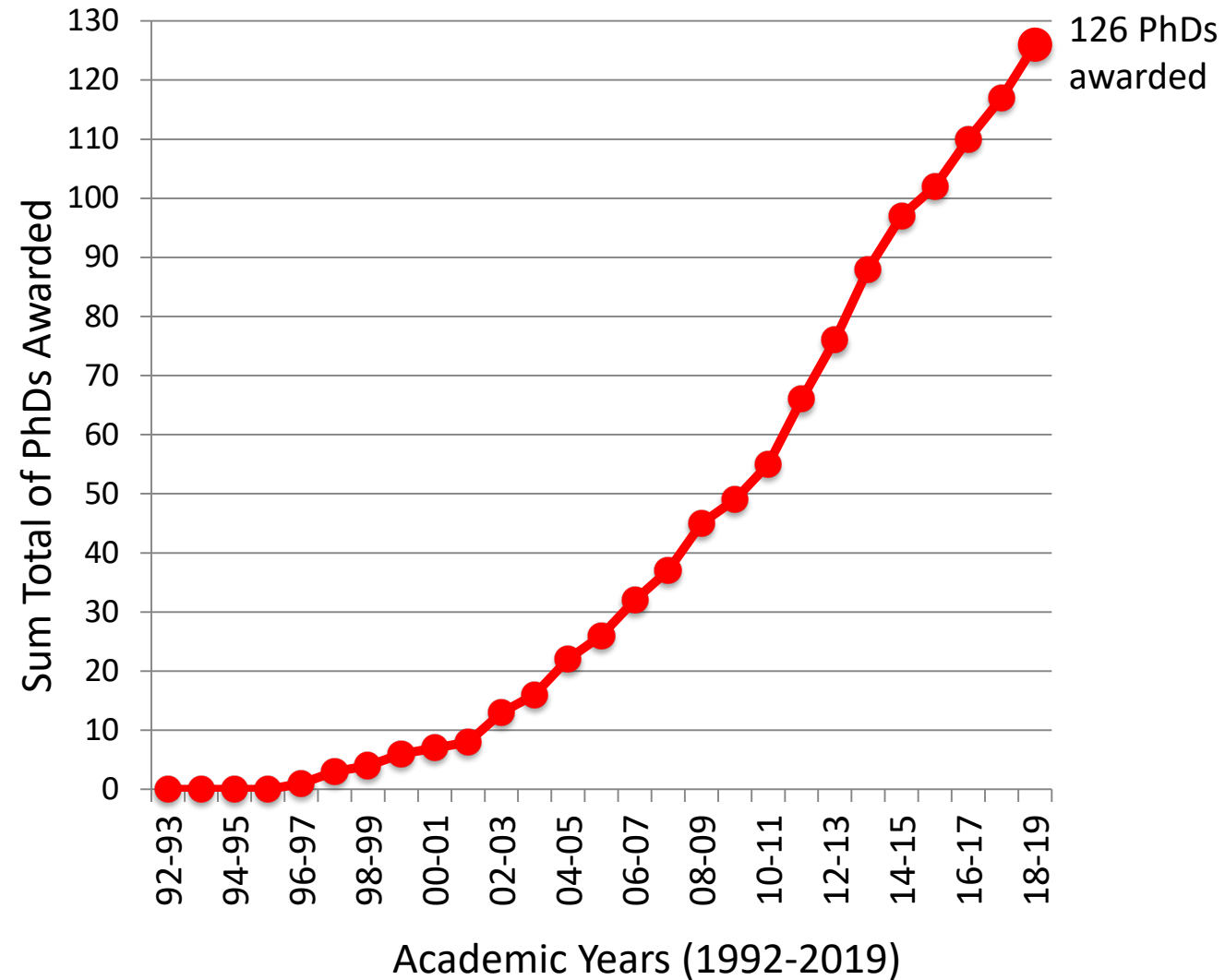
All the points in the previous slide can be found in a good letter of recommendation from a faculty member who is familiar with the student.

A careful reader can in fact identify and mine this information. We use this extensively in our admissions processes

Relation between Recommendation Letters and Scientific Assessment.



URM PhD Graduates in Biomedical Sciences at Vanderbilt



Acknowledgements

- Abby Brown....Data collection and analysis
- Jan Varadarajan.....Data presentation
- Kim Petrie.....Data definition/identification
- Lindsay Meyers....Data Manager
- Linda Sealy.....IMSD Co-Director, Co-anti-GRE crusader and partner

So, how should you choose the best graduate student?

- Not by grades or GREs.
- Not by how affable the student applicant is.
- Personal statement is not much use.
- Not by a letter from his/her English teacher.
- Not by a letter from a leader from the scouts/girl guides.
- Not by a spiritual leader.
- And not from Mom or Dad.
- Personal statement can sometimes point to an oddball.