

# *Campus Conversations*

## *Beyond the Baccalaureate: A Look at Rutgers Graduate Education*

**December 6, 2017 | 4:30 p.m. to 6:00 p.m.**

*Rutgers Academic Building, Lecture Hall 4225 | 15 Seminary Place, New Brunswick*

How do our programs, especially Ph.D. offerings, measure up against our Big Ten peers? Where are we excelling? Where is there room for improvement?

*Campus Conversations* is an interactive series where discussion and data come together to shed light on areas of strength, challenges, and opportunities for growth at Rutgers University–New Brunswick.



**RUTGERS**  
UNIVERSITY | NEW BRUNSWICK



# Agenda

- Overview of Graduate Education at Rutgers–New Brunswick
- Graduate Education Enrollment
- The Importance of PhD Education for Rutgers–New Brunswick
- PhD Education and Key Indicators
  - Metrics
  - Applicant/Matriculant Demographics
  - Financial Support
  - Fellowships and Awards of Distinction
  - Completion/Attrition and Time to Degree
  - Diversity and Inclusion
  - Outcomes/Placement
- Going Forward/iJOBS

## Graduate Education at Rutgers–New Brunswick

got off to a slow start in the 19th Century . . .

**1865** – Francis Cuyler Van Dyck (RC 1865) enrolls in the Rutgers Scientific School as a graduate student in chemistry, the **first graduate student** at Rutgers. “At that time there were no formal courses for graduate students, and provision had not yet been made for ‘earned’ graduate degrees.”

**1876** – Reluctantly, the **faculty agrees to offer postgraduate courses**, but only if they do not “interfere in any degree with the efficiency of the undergraduate courses of study.” Students can take courses leading to the master of arts, master of science, doctor of philosophy, and doctor of science.

. . . but today, graduate education is thriving

In **Fall 2016**, a total of **13,978 students** enrolled in graduate/professional programs at Rutgers–New Brunswick and Rutgers Biomedical and Health Sciences.

# **An Overview of Graduate Education at Rutgers–New Brunswick**

## **A Diverse Array of Graduate Programs Are Available**

Graduate-level degrees are currently conferred by the following schools at Rutgers–New Brunswick.

**Edward J. Bloustein School of Planning and Public Policy, 1992**

- MCRP, MCRS, MHA, MPAP, MPH, MPP, DPH

**Graduate School of Applied and Professional Psychology, 1974**

- PsyD

**Graduate School of Education, 1924**

- EdM, EdD

**Mason Gross School of the Arts, 1976**

- MFA, MM, DMA

**School of Communication and Information , 2009**

- MCM, MI

**School of Graduate Studies, 2017**

- MA, MS, MAT, MBS, ME, MLA, MPL, MST, PhD

**School of Management and Labor Relations, 1994**

- MHRM, MLER

**School of Social Work, 1954**

- MSW, DSW



# **An Overview of Graduate Education at Rutgers–New Brunswick And Through Rutgers Biomedical and Health Sciences (RBHS)**

Graduate-level degrees are currently conferred by the following schools at Biomedical and Health Sciences (RBHS). RBHS is aligned with Rutgers–New Brunswick and began in 2013 as a result of the New Jersey Medical and Health Sciences Education Restructuring Act.

## **Ernest Mario School of Pharmacy**

- MS, PharmD

## **New Jersey Medical School**

- MD

## **Robert Wood Johnson Medical School**

- MD

## **Rutgers School of Dental Medicine**

- MS, MDSc, DMD, PhD

## **School of Health Professions**

- MS, DCLS, DCN, DPT, PhD

## **School of Nursing**

- MSN, DNP, PhD

## **School of Public Health**

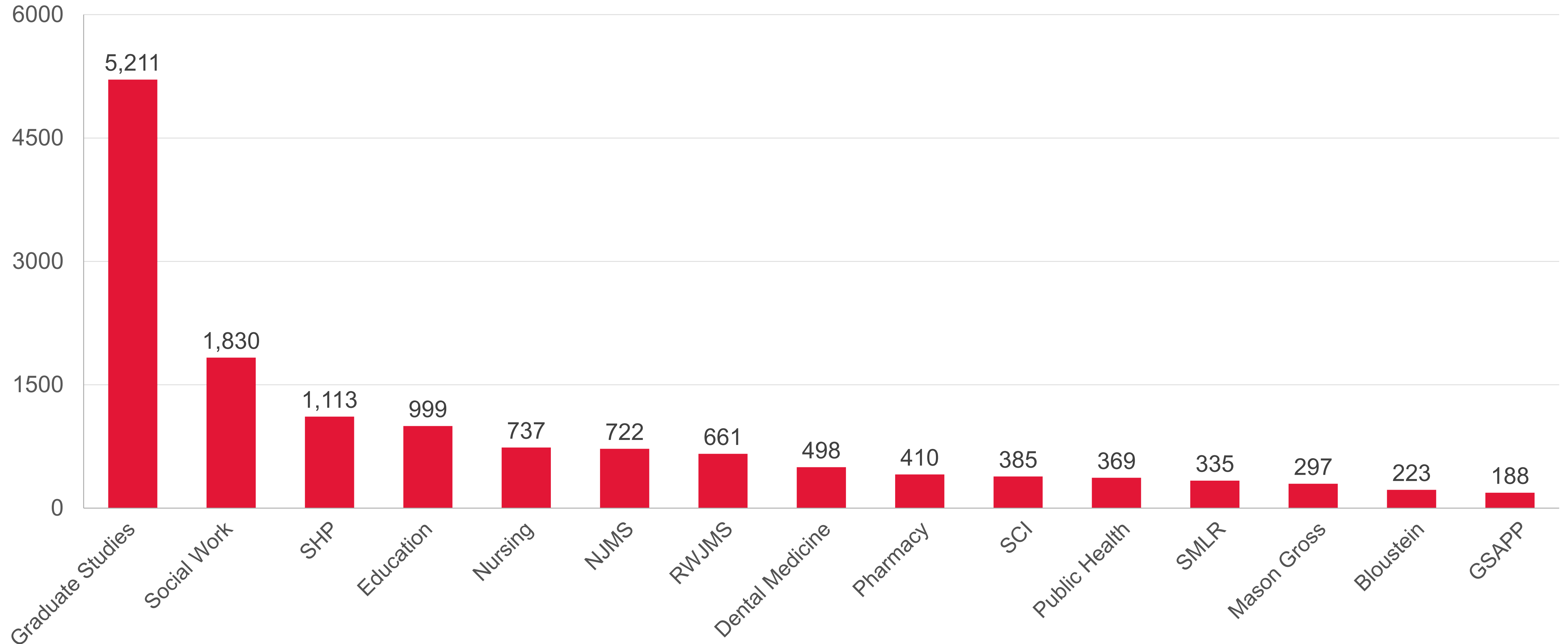
- MPH, MS, DPH, PhD



# Graduate Enrollment

## Graduate Schools Affiliated with Rutgers-New Brunswick and RBHS

Fall 2016 Headcount Enrollment



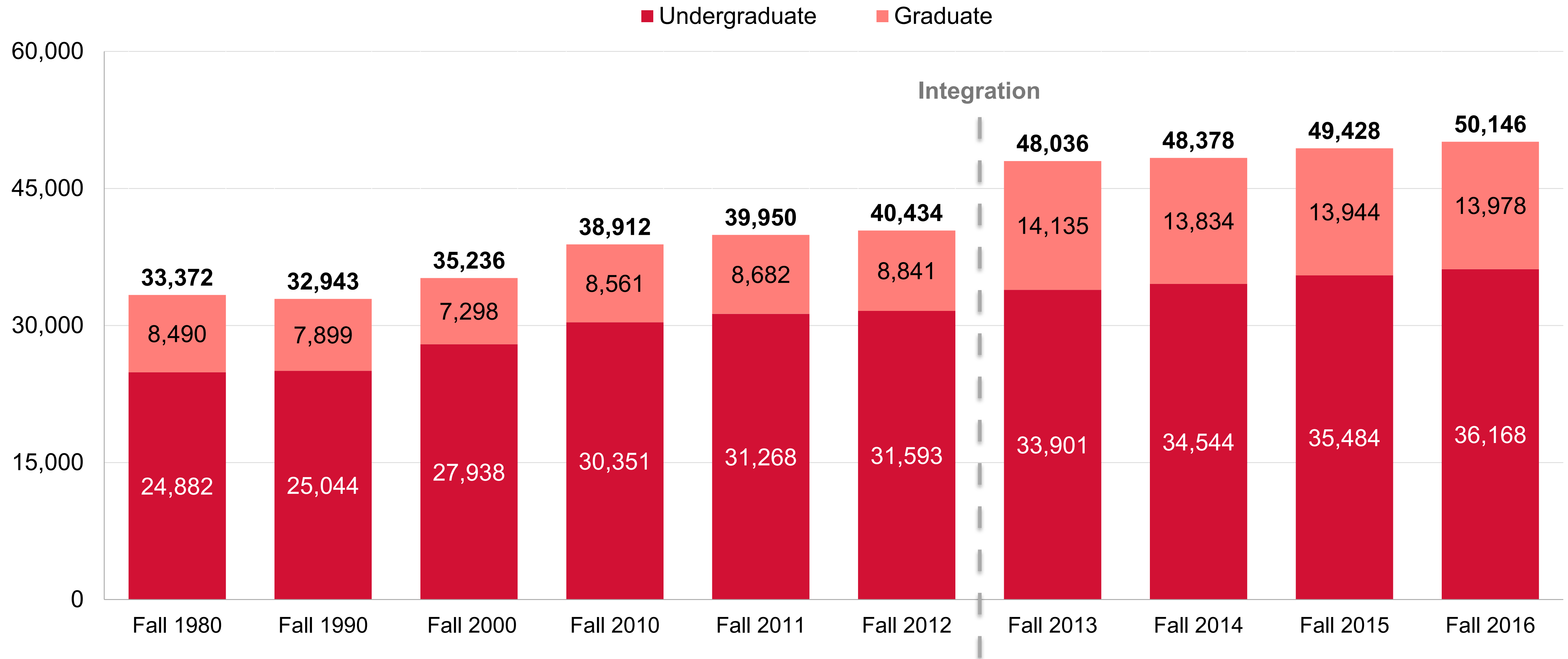
Source: Office of Institutional Research and Academic Planning

Note: Total enrollment headcount includes degree seeking and non-degree seeking students.



# Graduate Enrollment as Percentage of Total Enrollment

## Rutgers–New Brunswick and RBHS



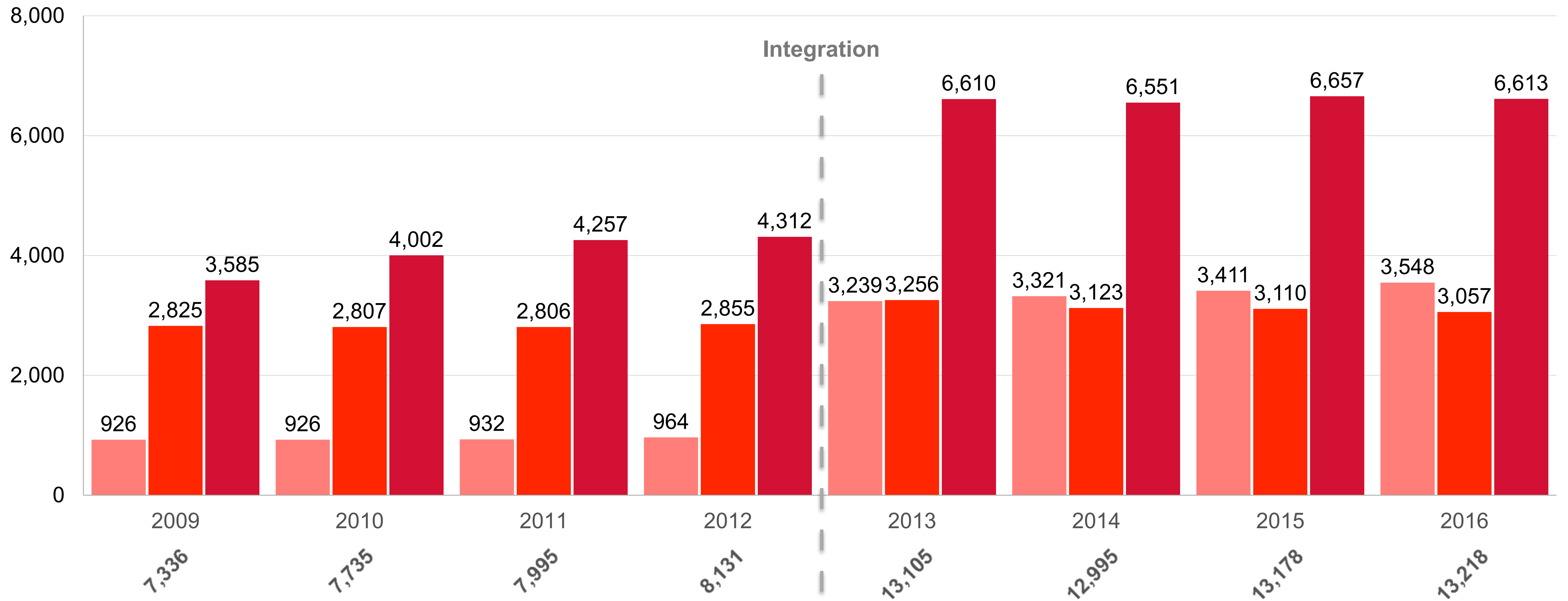
Source: Office of Institutional Research and Academic Planning

Note: Total enrollment headcount includes degree seeking and non-degree seeking students.

# Graduate Academic and Professional Degree-Seeking Enrollment

## Rutgers–New Brunswick and RBHS

Professional Doctorate   PhD   Masters

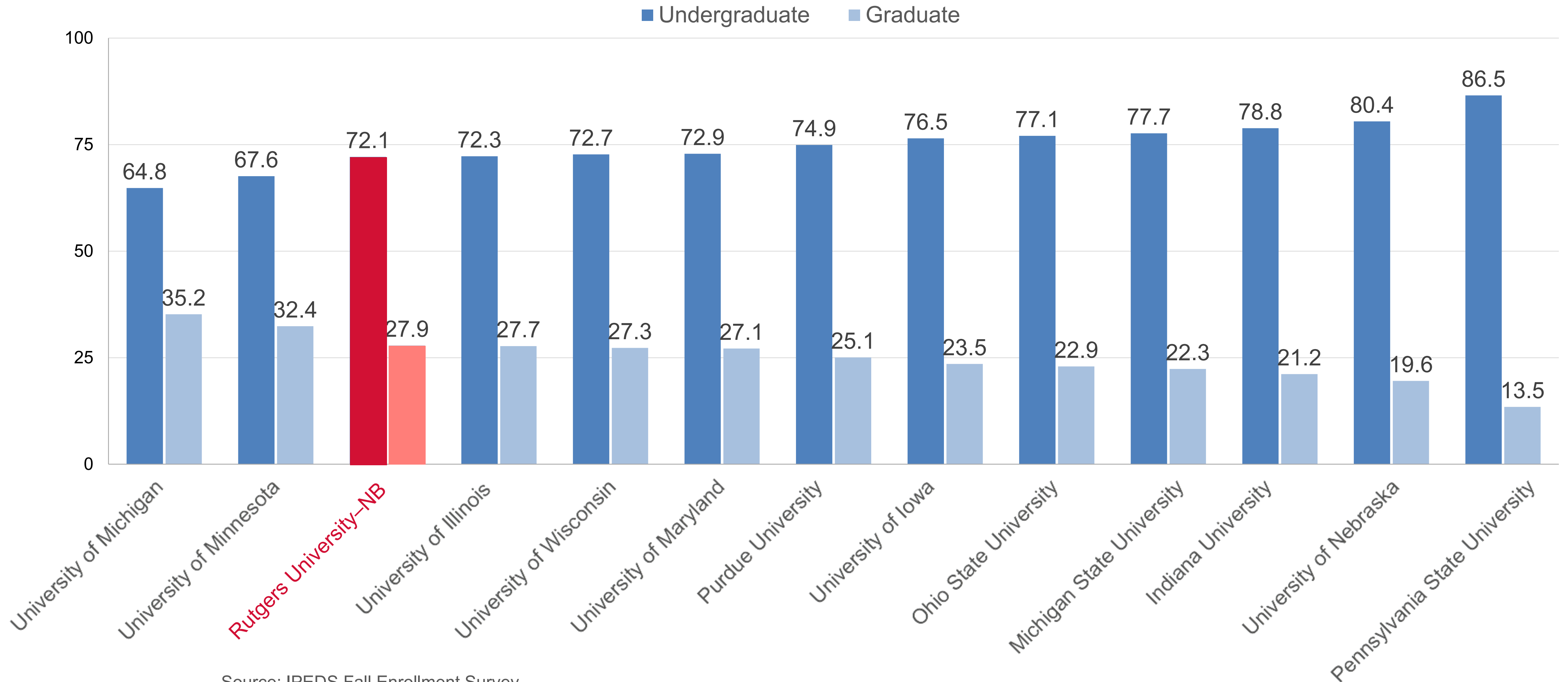


Source: Office of Institutional Research and Academic Planning  
 Note: Excludes non-degree seeking students.



# Big Ten Universities: Enrollment – Fall 2016

## Percentage of Graduate, Undergraduate



# Discussion



## **PhD Education – Quality**

Rutgers–New Brunswick (w/RBHS) is Recognized Nationally  
as a Leader in Research and Education

### **Association of American Universities**

- Founded in 1900
- 62 member institutions, all distinguished research universities from the U.S. and Canada
- Members collectively help shape policy for higher education, science, and innovation; promote best practices in undergraduate and graduate education; and strengthen the contributions of research universities to society
- Rutgers became a member in 1989

### **Big Ten Academic Alliance**

- Began in 1958 as the Committee on Institutional Cooperation
- 14 member institutions, all but one are also part of the AAU
- Provides opportunities for collaboration among students, faculty, and staff of member institutions
- Rutgers became a member in 2013

# PhD Education – AAU Recognition

## High Quality Graduate Education is Essential for Continued Membership in the AAU

*“The Association of American Universities is an association of leading comprehensive research universities distinguished by the breadth and quality of their programs of research and graduate education. Membership in the association is by invitation.”*





# **PhD Education – AAU Assessment**

## **Membership Indicators**

### **Phase 1 Indicators**

- Competitively funded federal research support
- Membership in the National Academies
- Faculty awards, fellowships, and memberships
- Citations

### **Phase 2 Indicators**

- USDA, state, and industrial research funding
- Doctoral education
- Number of post-doctoral appointees
- Undergraduate education

# PhD Education – AAU Assessment

## AAU Membership Indicators: Two Examples

### Federal Research Support

AAU Quartiles	Federal R&D Exp. (avg. FY13-15) in \$1,000	Fed R&D Exp. Normalized (avg/faculty)
AAU 75%	\$486,160	\$378
AAU 50%	\$322,848	\$239
AAU 25%	\$215,704	\$175
Rutgers	\$298,660	\$176
Percentile	44%	25.4%

### Doctoral Education

AAU Quartiles	Doctorates (avg. 2013-2015)	Doctorates Normalized (avg/faculty) x 1,000
AAU 75%	658	463
AAU 50%	506	374
AAU 25%	350	333
Rutgers	609	358
Percentile	69.4%	35.5%



# Discussion

# Ph.D. Education – Data Transparency



## Statement by AAU Chief Academic Officers on Doctoral Education Data Transparency

The statement below was endorsed by the Chief Academic Officers representing the universities that make up the Association of American Universities at their annual meeting on September 12, 2017.

Numerous high-level reports over the past two decades have identified ways to improve PhD education. One frequently identified barrier to improvement is the lack of transparent data on PhD programs. The Chief Academic Officers of the Association of American Universities call on all PhD granting universities and their respective PhD granting colleges, schools, and departments, to make a commitment to providing prospective and current students with easily accessible information. **This should include data on matters such as student demographics, time to degree, financial support, and career paths and outcomes within and outside of academia. AAU institutions should commit to developing the infrastructure and institutional policies required to uniformly capture and make public such data.**



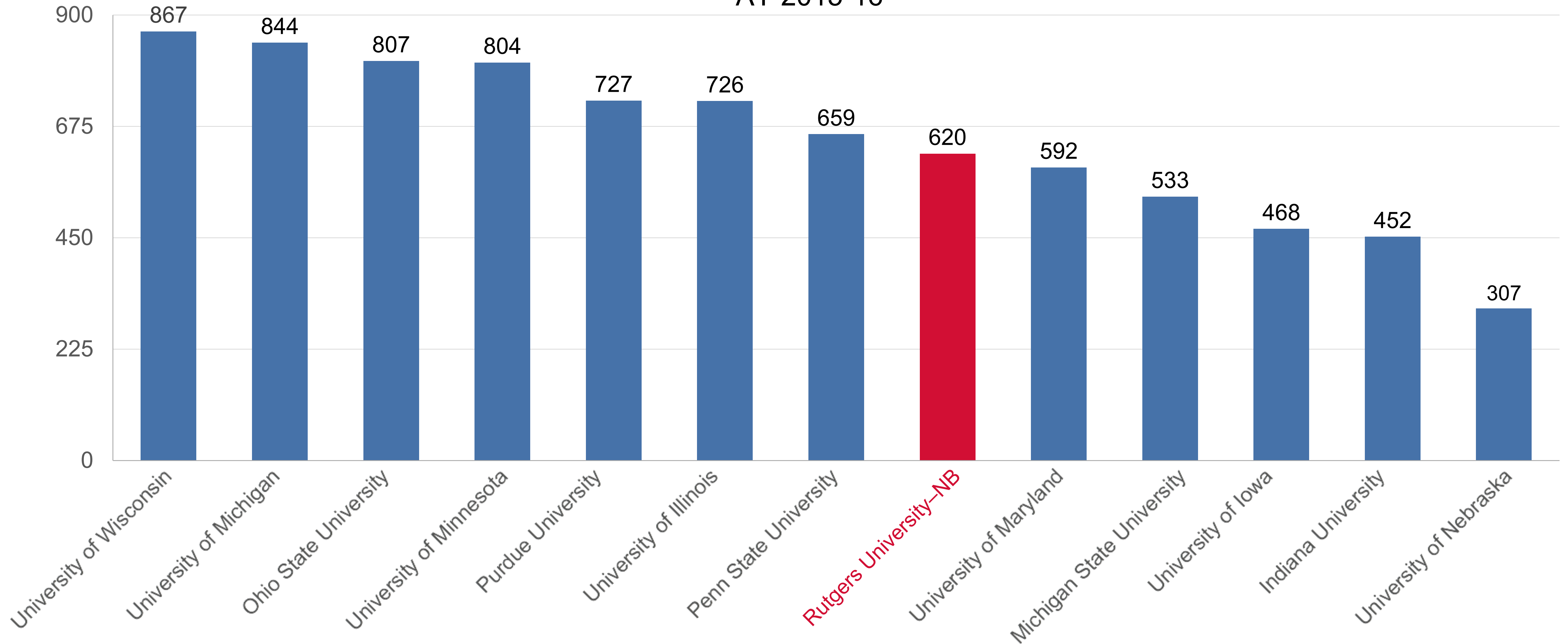
# Key Indicators

- PhD degrees awarded
- Applicant/matriculant demographics vis-à-vis selectivity and yield
- Financial support
- Prestigious external competitive fellowships and awards of distinction
- Completion and attrition
- Time to degree
- Diversity, inclusion, broadening participation
- Outcomes/placement

# PhD Degrees Awarded

## Big Ten Universities

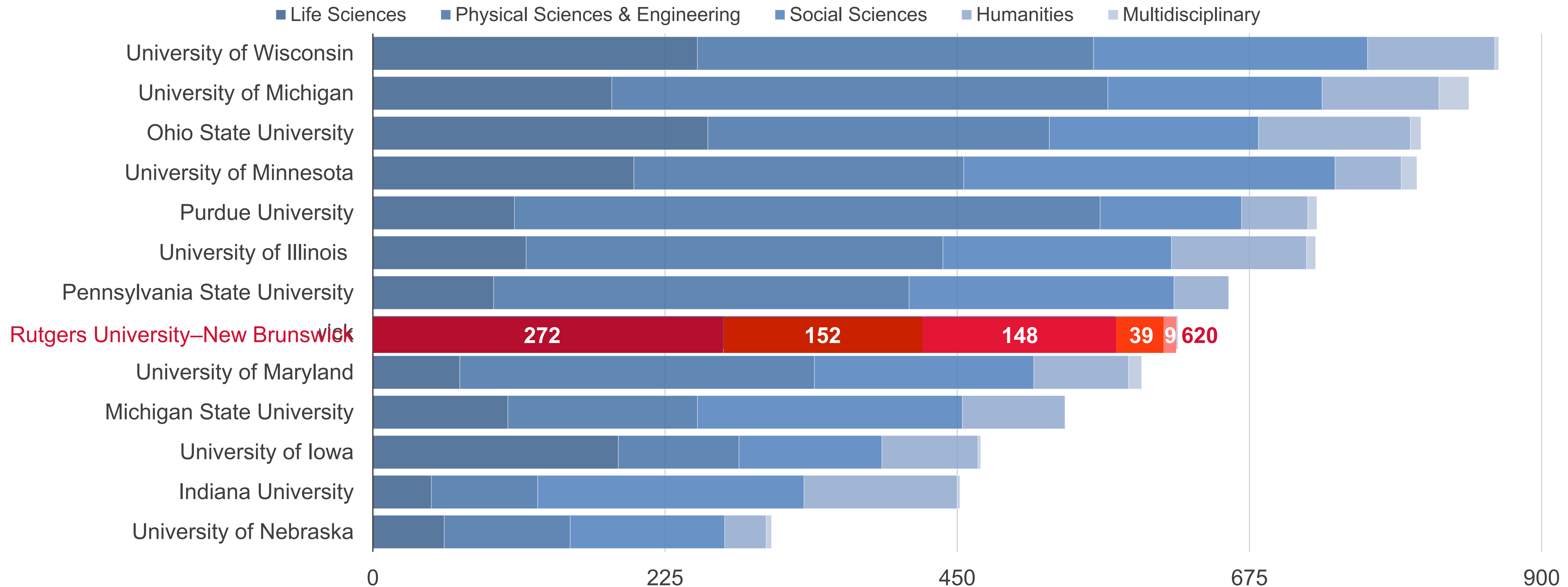
AY 2015-16





# PhD Degrees Awarded, Headcount by Broad Discipline Group

## Big Ten Universities, 2016



# Key Indicator: Applicant/Matriculant Demographics

## Application Statistics

Rutgers–New Brunswick, 2015-17

	Fall 2015	Fall 2016	Fall 2017
<b>Number of Applicants</b>	4,882	4,492	4,504
<b>Number of Admits</b>	844	914	942
<b>Number Enrolled</b>	369	392	407
<b>Percentage Yield</b>	43.7	42.9	43.2



# Applicant/Matriculant Demographics

## Fall 2017 Incoming PhD Students

Rutgers–New Brunswick

Gender	%
Female	50.6
Male	49.1
Other	0.2

Citizenship	%
U.S.	60.0
Foreign	40.0

Race/Ethnicity	%
White	40.0
Foreign	40.0
Hispanic	7.6
Asian	5.7
African American	3.4
Unknown	2.0
Two or More	1.2

# Discussion

# Key Indicator: Financial Support

## Support During First Year – PhD Recipients 2014 through 2016

Rutgers–New Brunswick

Form of Support	Percentage
University Funded Fellowships	32.6
Graduate teaching assistantship	28
FULL tuition scholarship/waivers	23.8
Graduate Research assistantship	17.8
Loans, savings, or family assistance	11.2
U.S government fellowship	7.5
Foreign government fellowships	3.9
Employee benefit or employer funding	3.9
Other part-time research employment	3.6
Other campus employment	3.6
External non-government fellowship	2.6
Other part-time teaching employment	2.6
Off-campus employment	1.7
U.S. government traineeship	1.4
PARTIAL tuition scholarship/waivers	1.3

Source: Rutgers PhD Exit Survey

Note: Percentages will sum to more than 100% because the survey question instructs to select all that apply.



# Financial Support

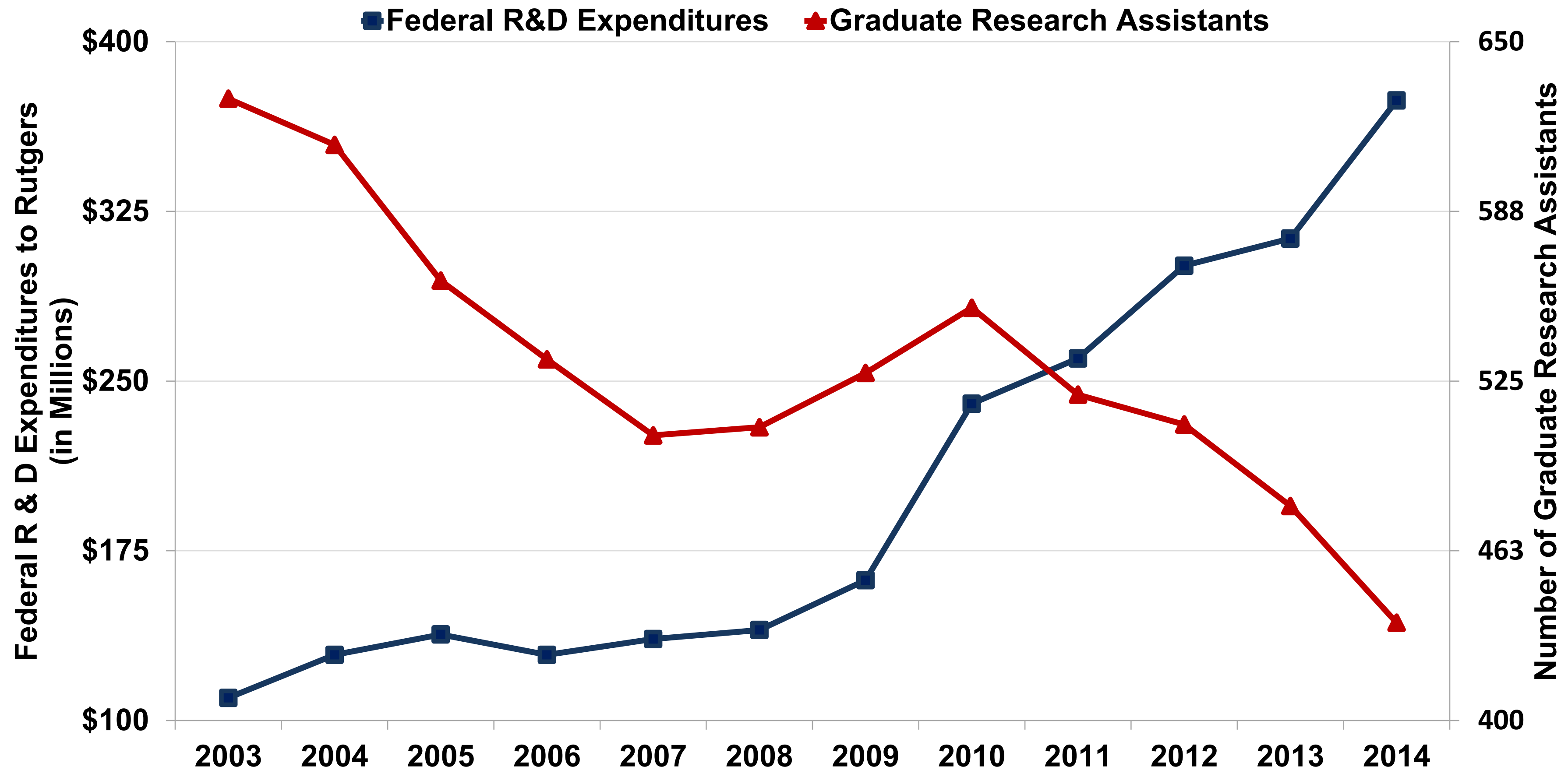
## A Review of Financial Support for PhD Students Enrolled in GSNB

Rutgers–New Brunswick

Form of Support	Number
Teaching Assistant	850
Graduate Assistant	450
Fellow	450
Hourly Student Employee	188
Part-Time Teaching Assistant	125
Part-Time Graduate Assistant	66
Coadjutant Casual Employee	30
Part-Time Lecturer	29
Instructor	24

# Financial Support Analysis

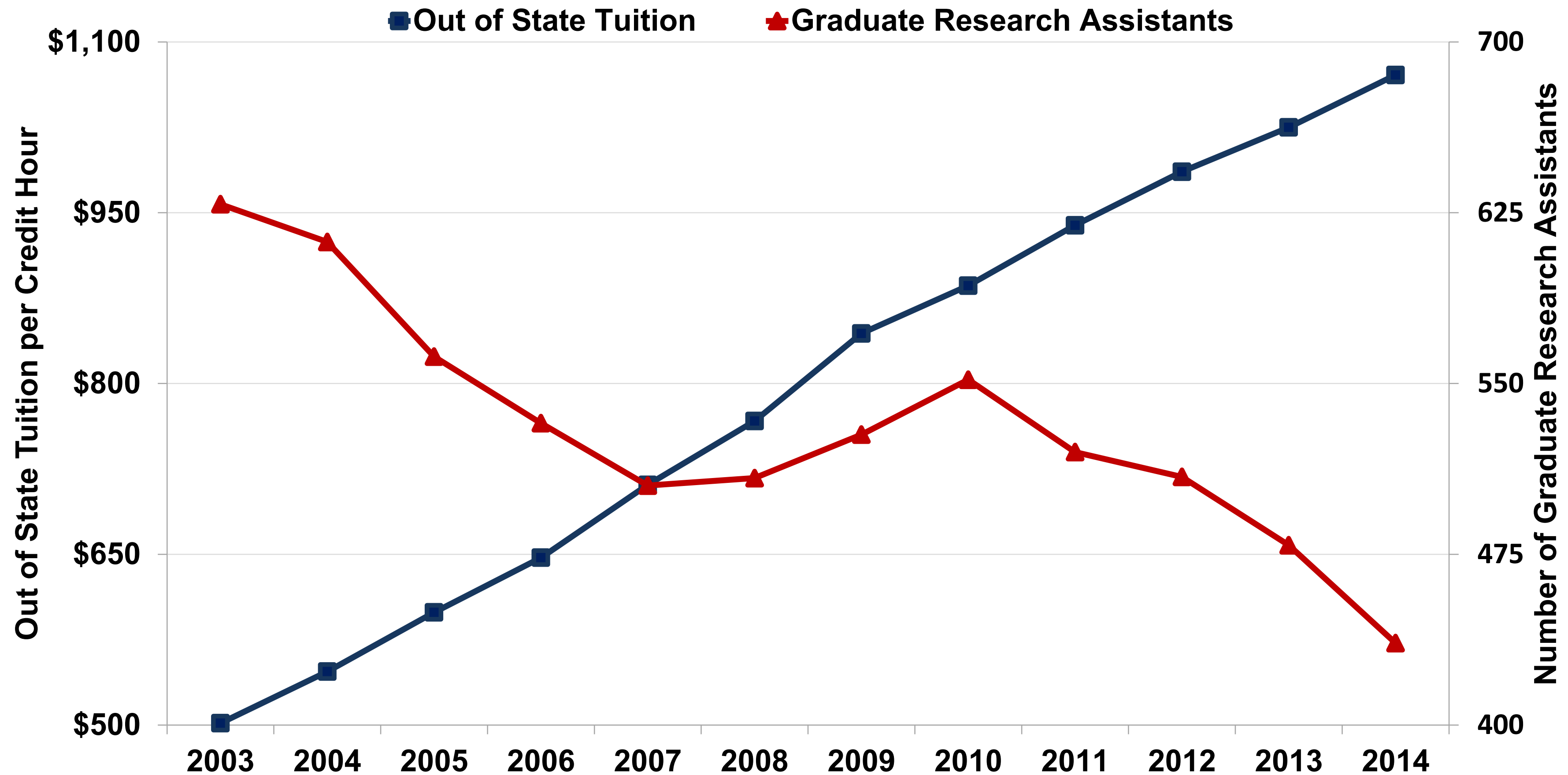
## GSNB Graduate Research Assistants and Federal R&D Expenditures to Rutgers



Source: National Science Foundation Higher Education Research and Expenditure (HERD) survey and Rutgers payroll data.  
 Notes: Excludes graduate research assistants supported internally on State funds. GSNB data does not include GSBS students.

# Financial Support Analysis

## Decrease in Graduate Research Assistants in GSNB and Increase in Out of State Tuition



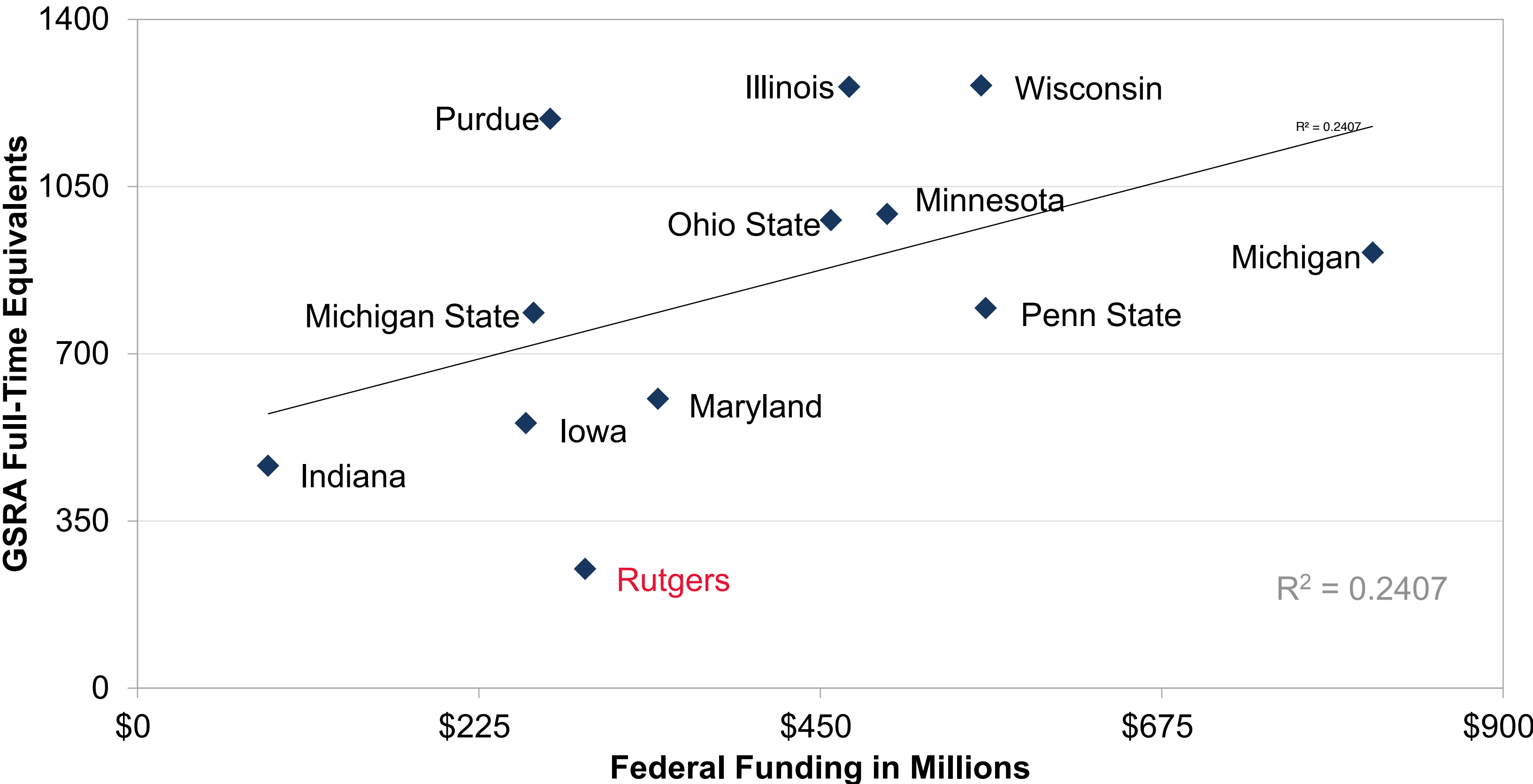
Source: Rutgers Board of Governors approved tuition schedules and Rutgers Payroll data.

Notes: Excludes graduate research assistants supported internally on State funds. GSNB data does not include GSBS students. 70% of PhD students are non-resident.



# Financial Support Analysis

## Graduate Research Assistants Full-Time Equivalents in GSNB Related to Federal Funding



Source: National Science Foundation Higher Education Research and Expenditures (HERD) Survey and Rutgers Payroll Data.  
 Notes: Excludes graduate research assistants supported internally on State funds. GSNB data does not include GSBS students.

# Financial Support Analysis

## Tuition Charges to Research Grants for Big Ten

University	How Tuition is Charged to Research Grants
University of Wisconsin	Grant is assessed at flat tuition rate of \$8K per year regardless of residency.
University of Illinois	Tuition is charged to grant at the rate of 64% of the stipend. This is approximately equal to the In-State tuition rate.
Purdue University	Grant is assessed at flat tuition rate of \$11K per year. This is approximately equal to the In-State tuition rate.
University of Minnesota	A study is currently underway to reduce tuition costs for graduate students on research grants. The flat fee model appears to have much support (i.e., per-semester charge regardless of number of credits or residency status).
Ohio State University	Grant is assessed the In-State tuition rate regardless of residency.
University of Michigan	Grant is assessed the In-State tuition rate regardless of residency. The University centrally pays the differential between In-State and Out-of-State tuition.
Penn State University	Grant is assessed a reduced tuition rate that is lower than In-State tuition.
Michigan State University	Grant is assessed the In-State tuition rate regardless of residency.
University of Maryland	Grant is assessed the In-State tuition rate regardless of residency.
University of Iowa	Grant is assessed the In-State tuition rate regardless of residency.
Indiana University	No data.
Rutgers University–NB	Grant is assessed full Out-of-State tuition for non-residents, who make up 70% of our Ph.D. students.

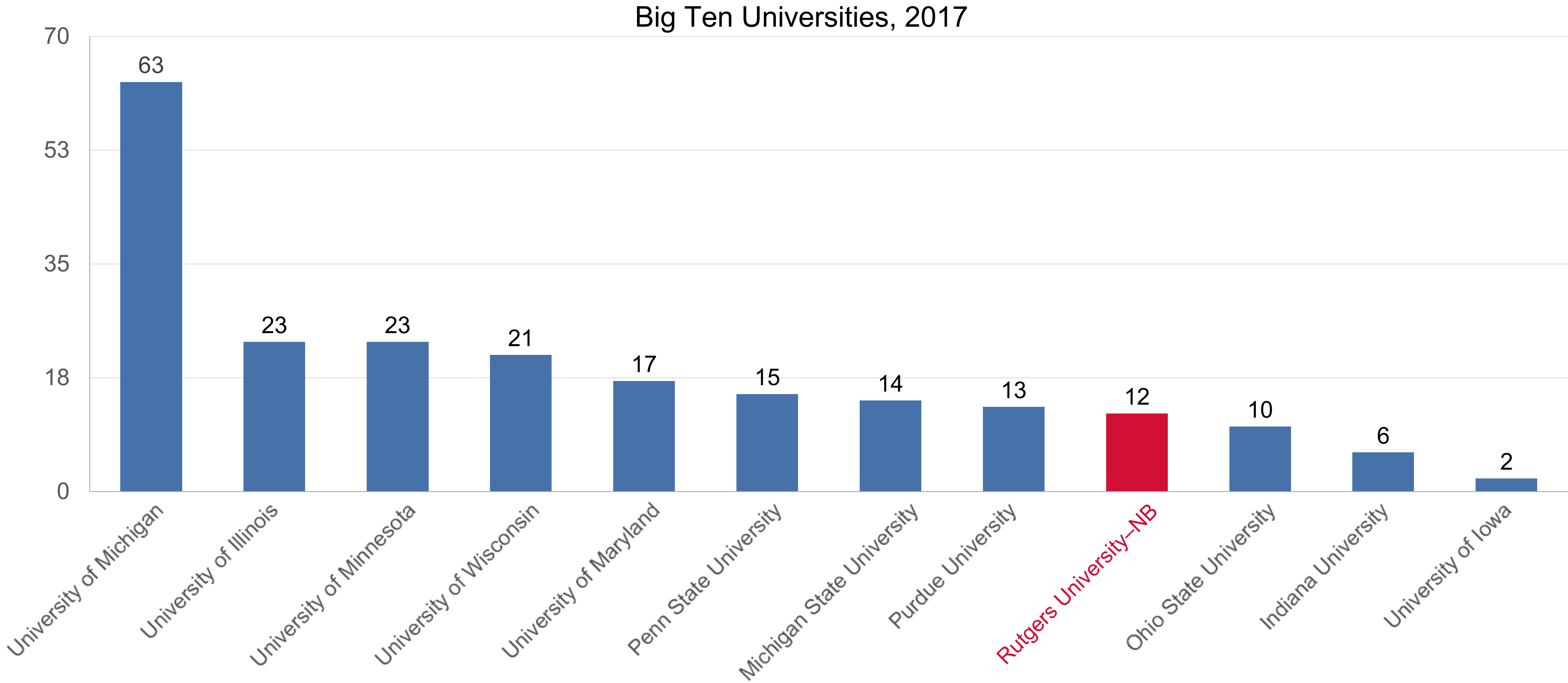
# Discussion



## Key Indicator: Fellowships and Awards of Distinction

- American Association of University Women American Dissertation Fellowships
- American Political Science Association's Congressional Fellowships
- Council of European Studies Fellowships
- Critical Language Scholarships
- Ford Foundation Dissertation Fellowships & Predoctoral Fellowships
- Fulbright Hays Doctoral Dissertation Research Fellowships
- Fulbright IIE Research & Study Grants
- Gates Millennium Fellowships
- Howard Hughes Medical Institute Graduate Fellowships
- IBM Doctoral Fellowships
- Institute for Historical Research Dissertation Fellowships in the Humanities
- IREX Individual Advanced Research Projects Fellowships
- Jacob K. Javits Graduate Fellowships
- Marie Curie Fellowships
- Mellon ACLS Dissertation Completion Fellowships
- NASA Earth and Space Science Fellowships
- NASA Space Technology Fellowships
- National Defense Science & Engineering Graduate Fellowships
- National Physical Science Consortium Fellowships
- National Science Foundation Doctoral Dissertation Improvement Grants
- National Science Foundation Graduate Research Fellowships
- Open Society Fellowships
- Ruth Kirchstein National Research Service Awards for Individual Predoctoral Fellows
- Samsung Fellowships
- U.S. Environmental Protection Agency STAR Fellowships
- Woodrow Wilson Foundation's Charlotte Newcombe Dissertation Fellowships

# NSF Graduate Research Fellowships

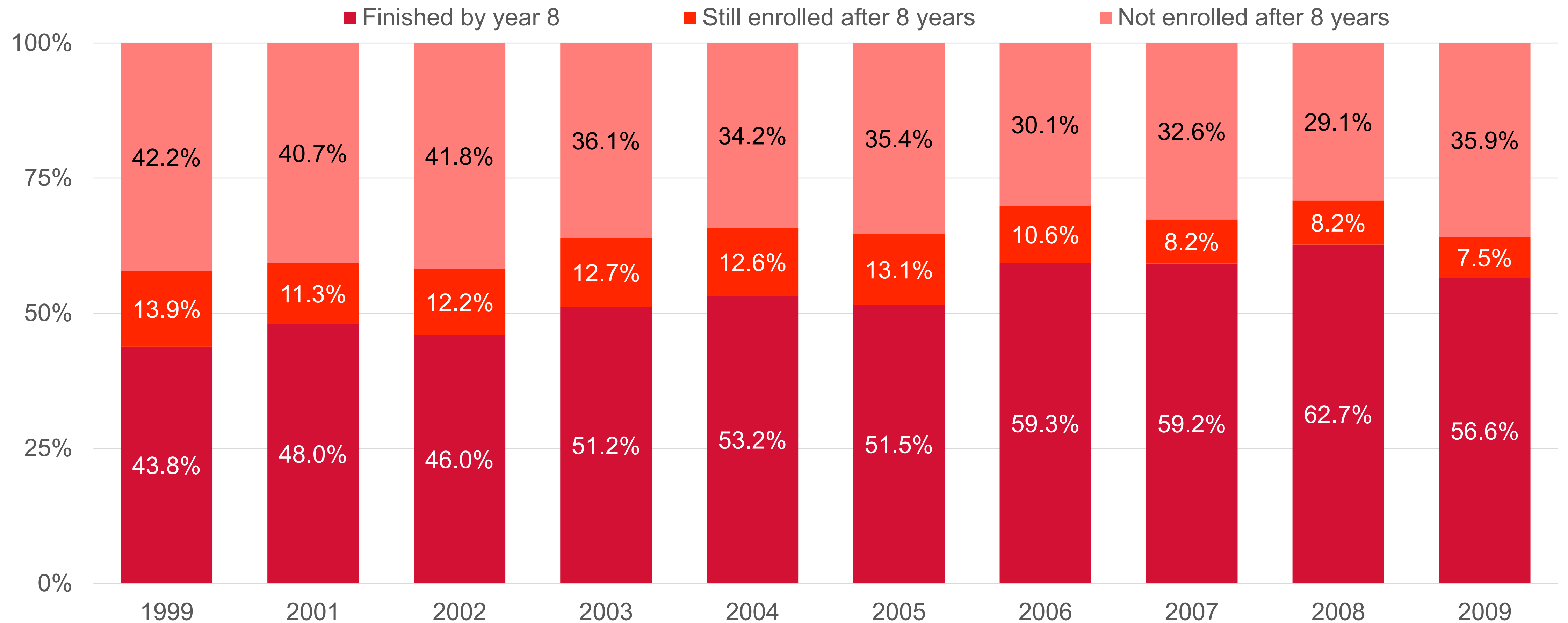


Source: NSF GRFP Awardee List 2017

# Key Indicator: Completion and Attrition

## 8-Year Completion Rates by Entering Cohort

Rutgers–New Brunswick

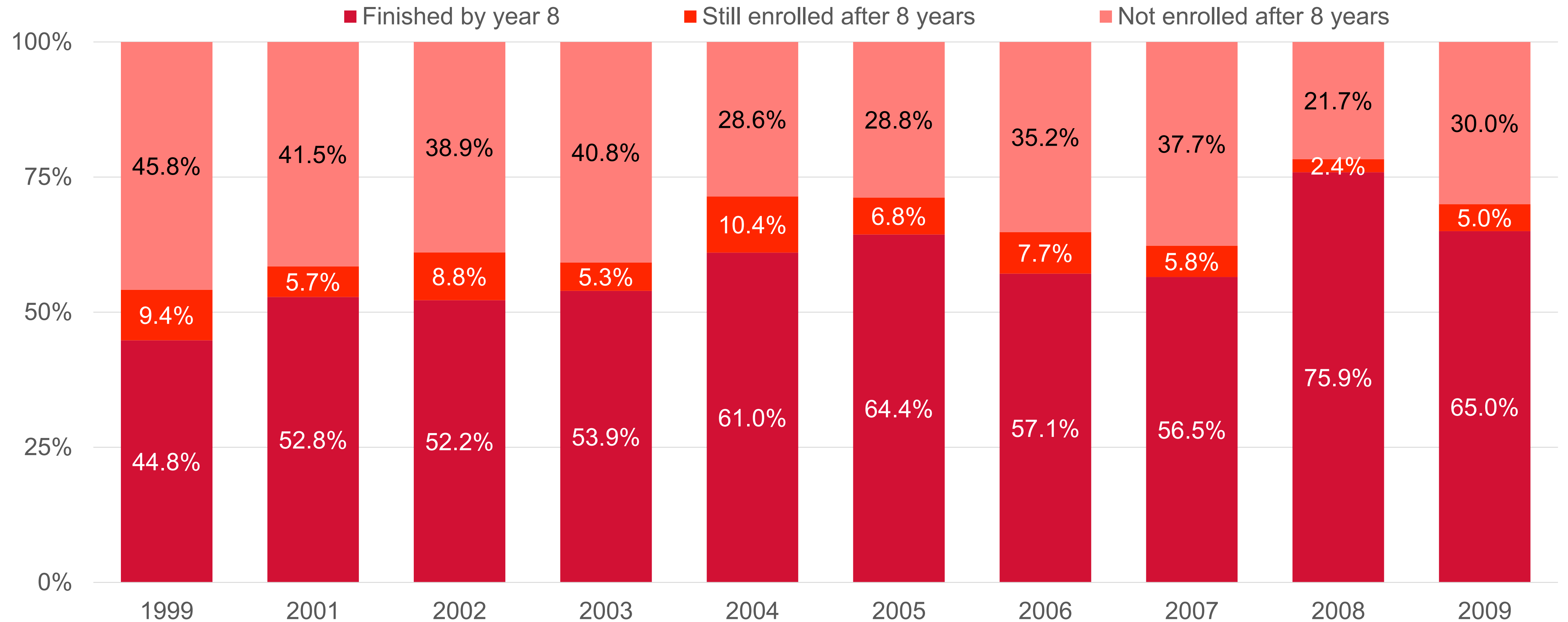




# Completion and Attrition – Engineering

## 8-Year Completion Rates by Entering Cohort

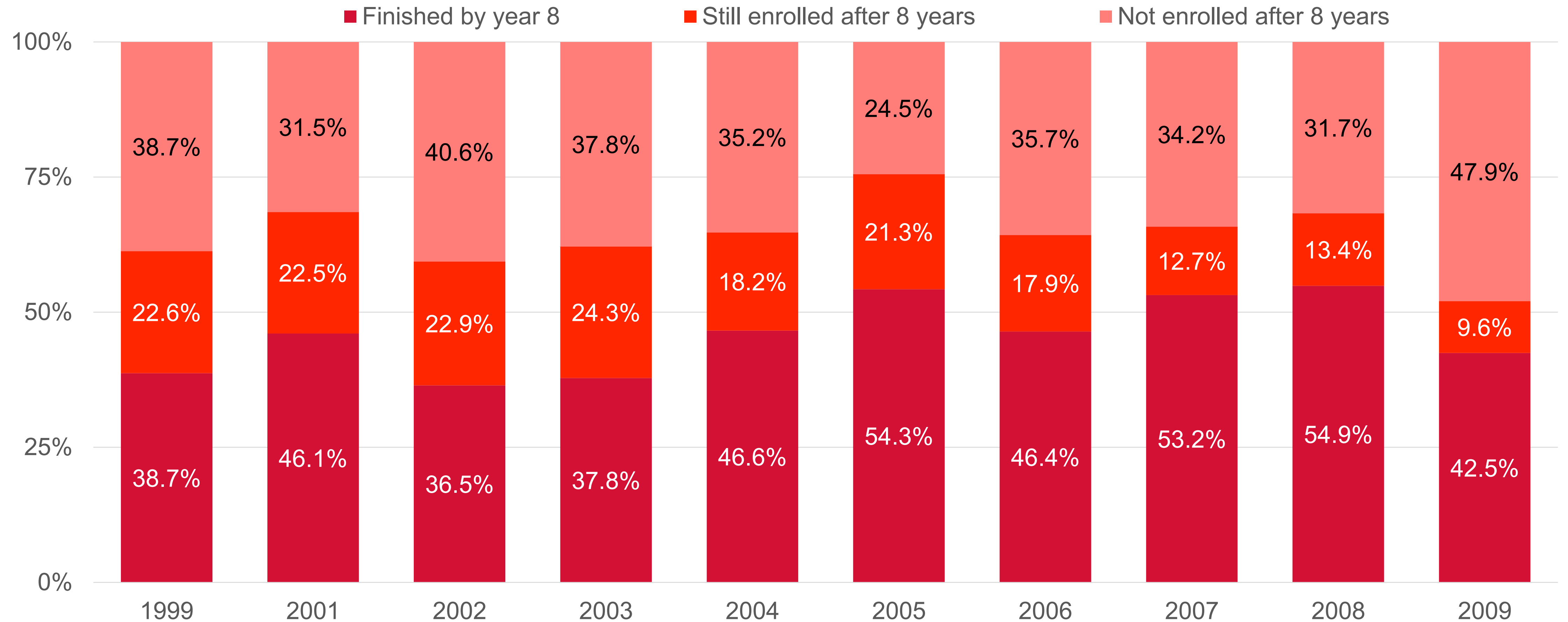
Rutgers–New Brunswick



# Completion and Attrition – Humanities

## 8-Year Completion Rates by Entering Cohort

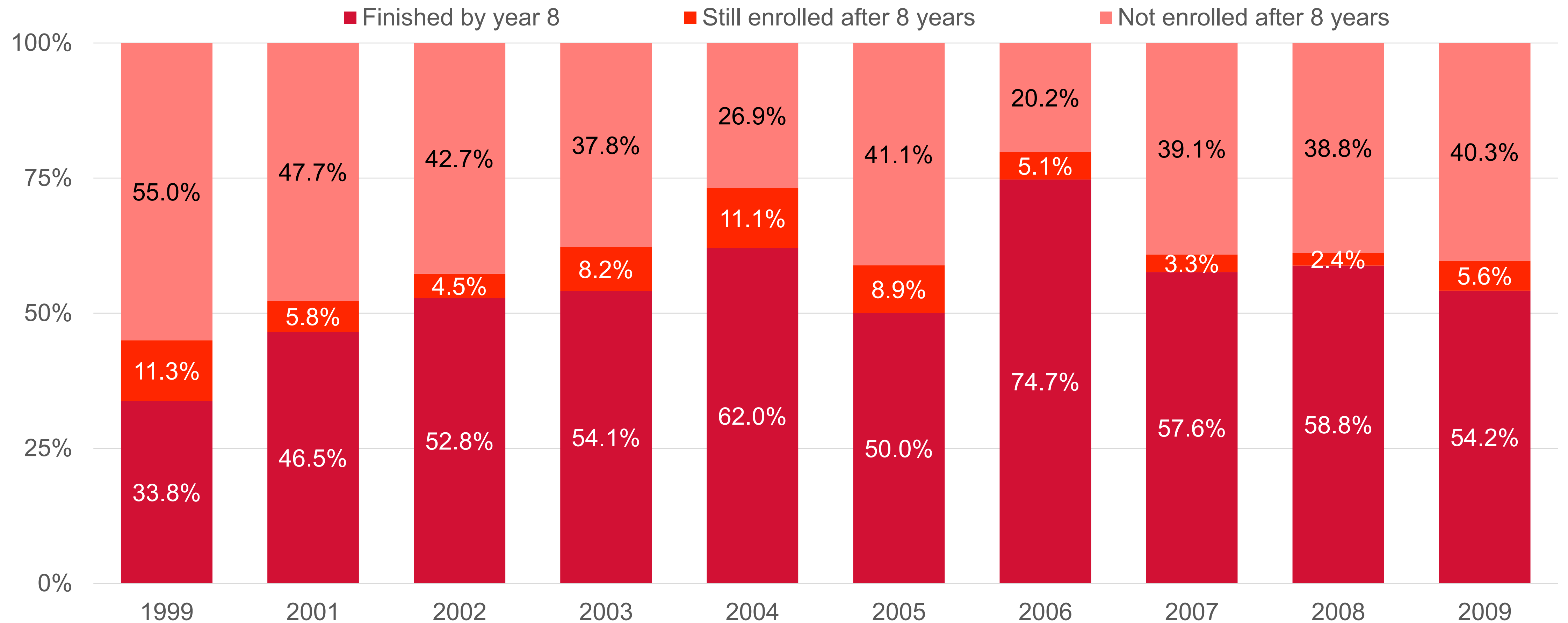
Rutgers–New Brunswick



# Completion and Attrition – Life Sciences

## 8-Year Completion Rates by Entering Cohort

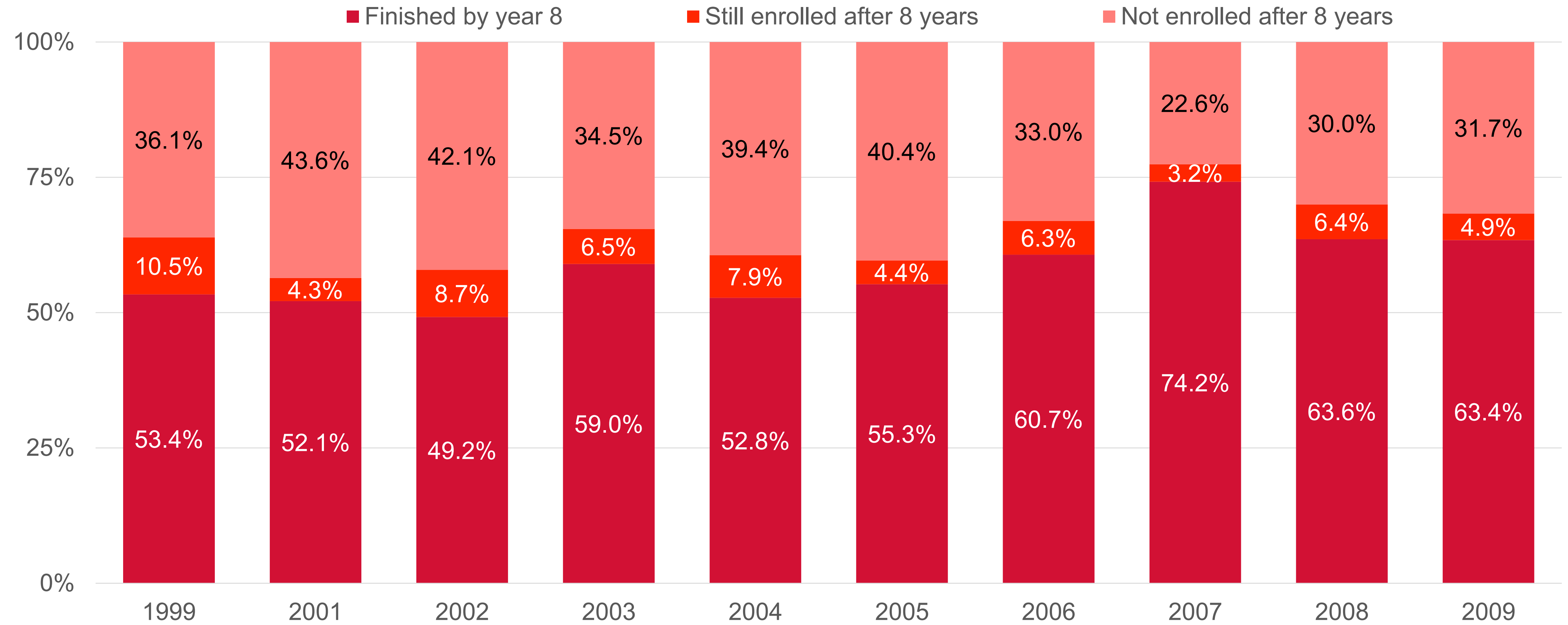
Rutgers–New Brunswick



# Completion and Attrition – Physical Sciences and Mathematical Sciences

## 8-Year Completion Rates by Entering Cohort

Rutgers–New Brunswick

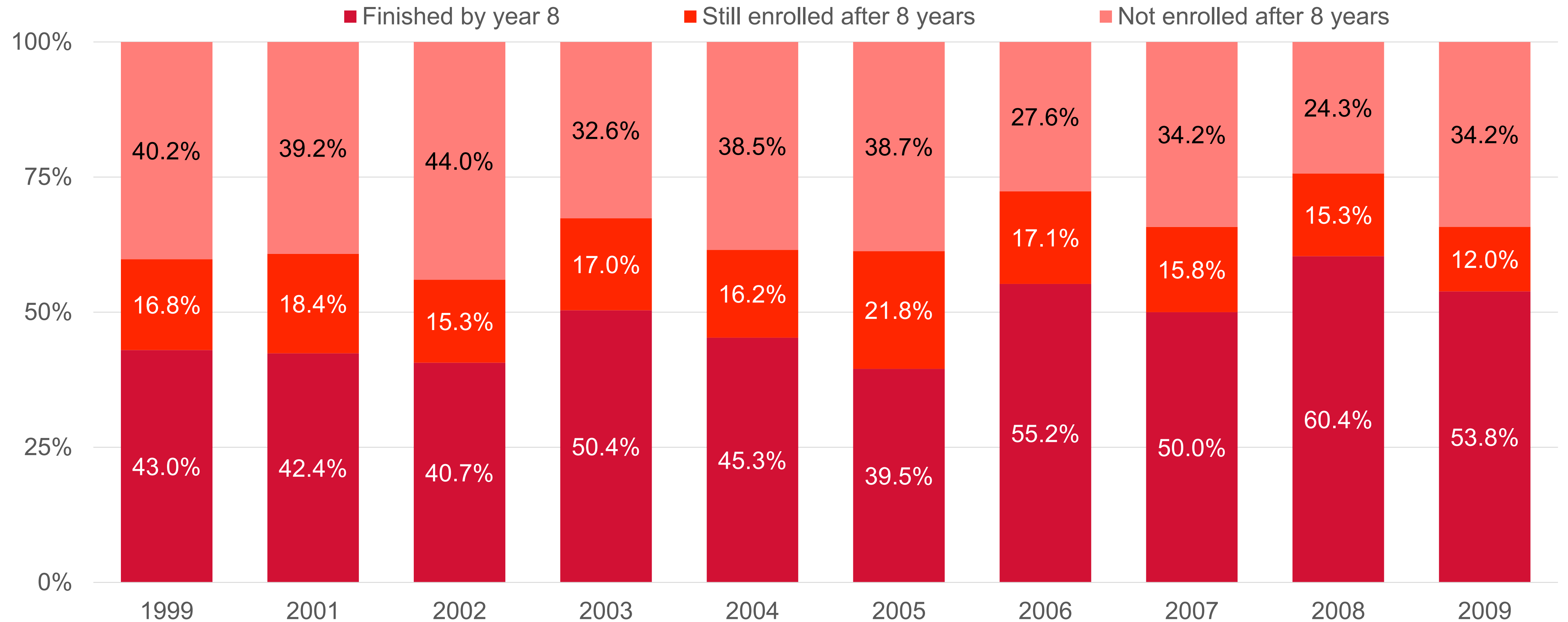




# Completion and Attrition – Social Sciences

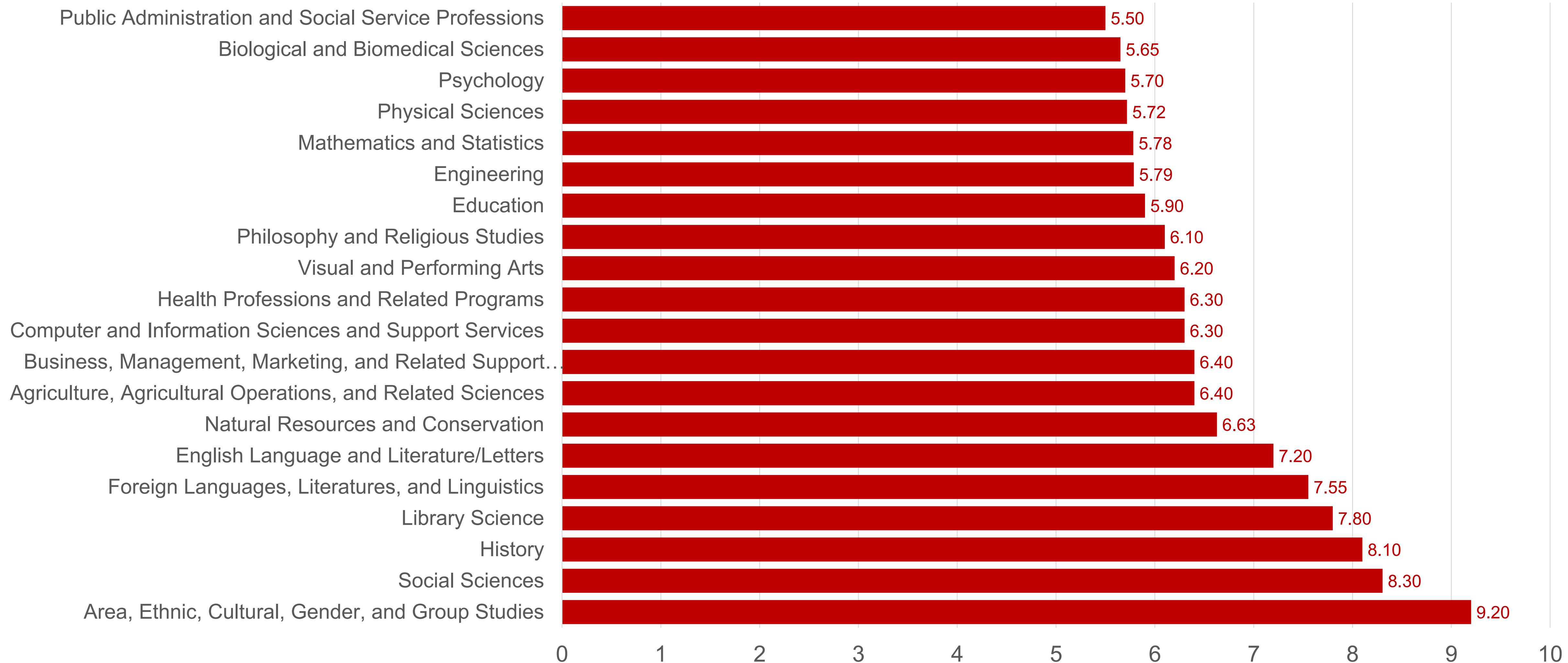
## 8-Year Completion Rates by Entering Cohort

Rutgers–New Brunswick



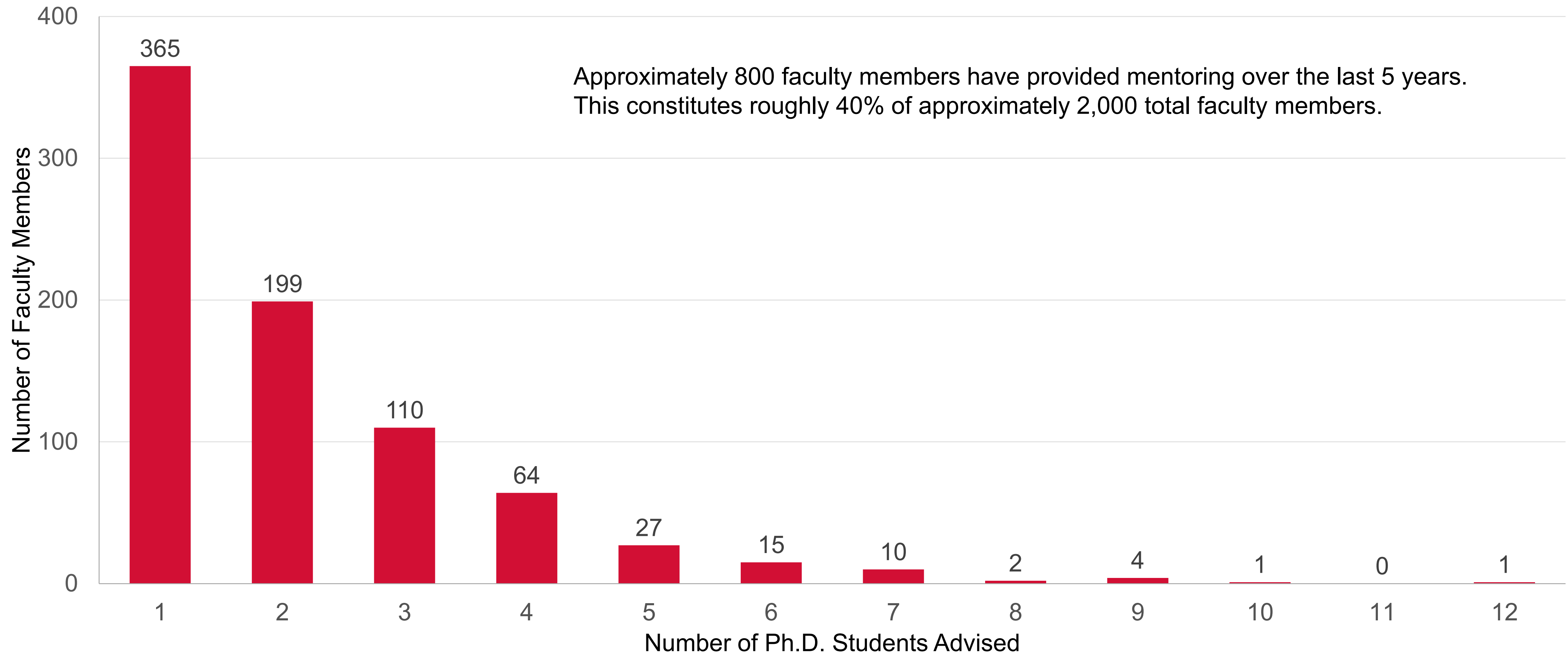
# Key Indicator: Time to Degree, Broad CIP Discipline

Rutgers–New Brunswick, 2014



# Faculty Mentoring

## Number of Students per Advisor for Ph.D. Dissertations Over 5 Years



Source: School of Graduate Studies

Note: Number of students per advisor shown for students who received their PhD in the last 5 years.

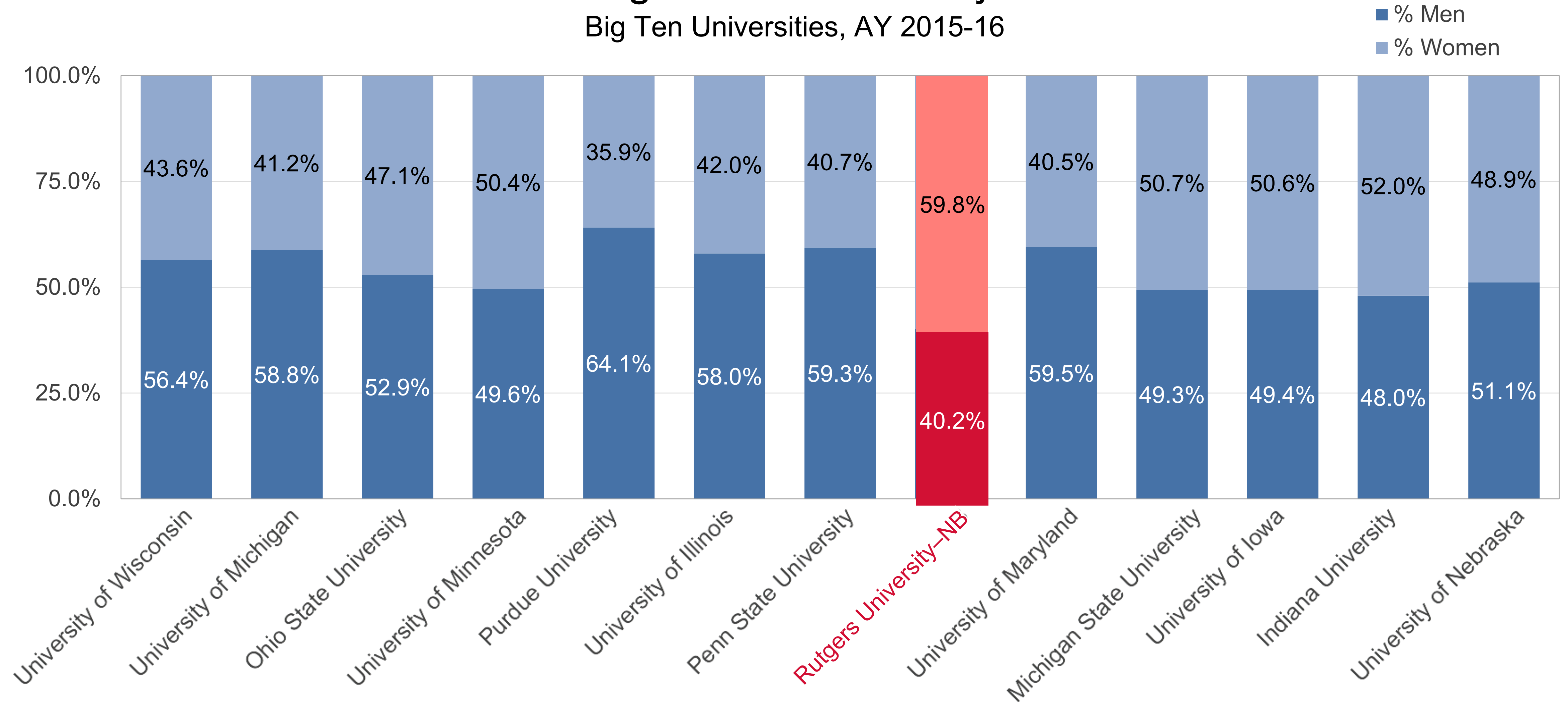
# Discussion



# Key Indicator: Diversity and Inclusion

## PhD Degrees Conferred by Gender

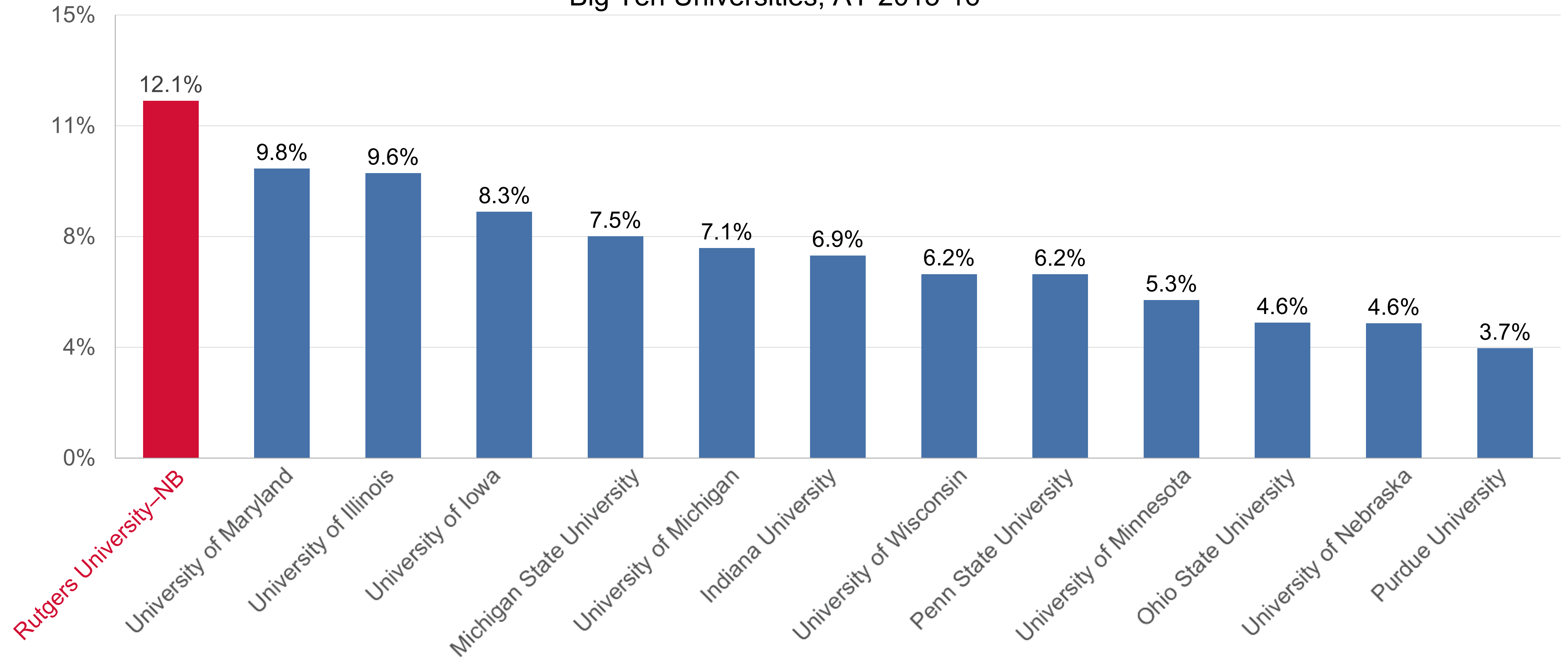
Big Ten Universities, AY 2015-16



# Diversity and Inclusion

## Ph.D. Degrees Conferred by Underrepresented Minorities

Big Ten Universities, AY 2015-16



## Key Indicator: Outcomes/Placement

### Postgraduate Plans Upon Graduating - PhD Recipients 2014 through 2016

Rutgers University–New Brunswick

Status	Percentage
Have signed a contract or made commitment for postdoc work	44.6
Seeking position but have no specific prospects	31.5
Negotiating with one or more specific organizations	8.7
Returning to, or continuing in, predoctoral employment	8.4
Other	5.6
Other full-time program (i.e., MD, DDS, JD, MBA, etc.)	0.7
Do not plan to work or study (i.e., family commitments)	0.6

# Key Indicator: Outcomes/Placement

## PhD Recipients Level of Satisfaction

Rutgers University–New Brunswick

Evaluation of Program		Rating – Percentage Excellent or Very Good
Quality of teaching		71.5
Quality of advising		68.9
Assistance in finding employment		47.1
Financial Support		45.7
Program Climate and Quality of Interactions		Rating – Percentage Strongly Agree or Agree
Students are treated with respect by faculty		86.1
Overall, the climate of my program is positive		78.7
Financial support of students is fairly distributed		73.6
Overall Evaluation of Experience		Rating – Percentage Excellent or Very Good
Academic experience		76.4
Doctoral program experience		71.9
Student life experience		61.7
Overall experience		65.4



# Discussion

# Going Forward

## Rutgers iJOBS

Phased Approach	Description	Holistic Programming
<b>Phase 1 iNQUIRE</b>	Sample the program to see if a non-academic career is for you; register for programming as meets your needs	SciPhD Leadership and Business Training; Professional site visits; Professional networking sessions; Informative seminars; Web portal enrichment
<b>Phase 2 iNITIALTE</b>	Go forward and define your career focus. Apply for “trainee” status and, if accepted, take advantage of individualized mentoring and career planning support	Individual development planning and mentorship; Career-specific courses; Professional shadowing
<b>Phase 3 iPLEMENT</b>	Ready yourself for career placement and search for a position	Resume development; Interview preparation; Career fair; Job placement and tracking
<b>Phase 4 iNSTRUCT</b>	Now that you are successful in your chosen career, share your experience with new trainees	Continued participation; Support and mentoring

# Going Forward

## Rutgers iJOBS

### Career Tracks

- Science and Health Policy
- Intellectual Property Management
- Industrial Development and Business Management
- Clinical and Regulatory Testing Support
- Health and Science Data Analysis

## In Closing . . .

Research and doctoral education are intricately linked

That said, faculty research leads, doctoral education follows