Cornell University's Approaches to Doctoral Program Assessment and Improvement

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Graduate School

Graduate Program Assessment at Cornell

- >90 graduate fields

- Types of assessment (to inform decision making):
  - External department program reviews (~ every 7-10 years)
  - Student learning outcomes (every 2 years)
  - Biennial field meetings (every 2 years)
  - Self-service Field Metrics (real time; demographic details)
  - Public Field Metrics (sortable; aggregate demographics)
  - Student Surveys
    - Admitted Not Attending (August)
    - New Students (September)
    - PhD Student Experience (February, biennial)
    - Exit Survey (all graduates, every term)

Learning Outcomes & Assessment

- Explicit learning outcomes stated for each degree program.
- Every 2 years, each degree program reports on one or more learning outcomes:
  - Measures used (what did they assess, and how?)
  - Findings/Observations (what did they conclude?)
  - What will they do in response? (changes, improvements, continuation of activities)

Proficiencies

1. Demonstrate broad-based knowledge in the discipline of Ecology, Evolutionary Biology, Organismal Biology, or some combination.

2. Make an original and substantive research contribution to sub-discipline
   - Think originally and independently to develop new knowledge, concepts and methods.
   - Identify new research questions.

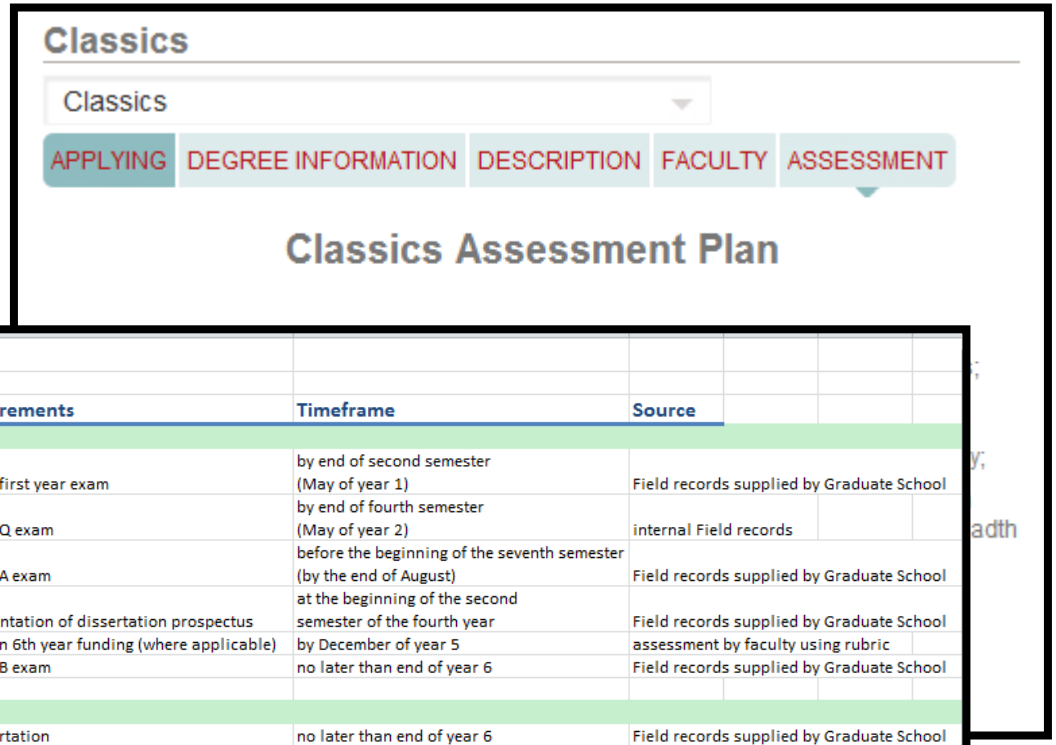
3. Demonstrate advanced research skills
   - Be knowledgeable of historical development and able to articulate, discuss, and synthesize concepts and evidence in sub-discipline.
   - Be knowledgeable of organisms and ecological or evolutionary systems pertinent to doctoral research.
   - Master observational, experimental and analytical methods
   - Adhere to ethical standards of scientific research.
   - Interpret and evaluate research findings

Sample Rubric for Evaluation of PhD Student Progress

Graduate Education Outcomes -- The student will be able to:	1 (Unacceptable)	2 (Fair)	3 (Very Good)	4 (Outstanding)
demonstrate knowledge of current research directions for the field of study.	Gaps in basic knowledge. Does not understand basic concepts, processes, or conventions of the discipline. Does not understand or misses relevant literature. Misrepresents or misuses sources.	Displays a basic understanding of the field. Literature review is adequate but not critical.	Displays a solid understanding of the field. Uses appropriate, standard theory, methods and techniques. Some exploration of interesting issues and connections.	Demonstrates thorough mastery as well as creativity in drawing on multiple sources. Synthetic and interdisciplinary. Demonstrates a deep understanding of relevant literatures.
show effective oral communication skills.	Argument is weak, inconsistent, contradictory, unconvincing or invalid.	Provides solid, expected results and answers. Clear and coherent.	Gives a solid argument with novel or fresh insights. Original with clear and coherent details.	Compelling, exciting, and persuasive. Has a point of view and a confident, independent, authoritative voice.
respond adequately to questions posed.	Unable to articulate an argument.	Provides a coherent response with some logic gaps or inconsistencies.	Shows understanding and mastery of subject matter.	Exhibits mature, independent thinking. Demonstrates command and authority over the material.
display effective written communication skills.	Academic writing lacks structure and organization. Writing has extensive spelling and grammatical errors.	Writing is adequate. Structure and organization are weak but sufficient.	Well written and well organized.	Concise, elegant, engaging, interesting, sophisticated, and original. Connects components seamlessly.
effectively frame or communicate the student's current research.	No independent research. Question or problem is trivial, weak, unoriginal, or previously solved.	Demonstrates competence but is not very original or significant. Displays little creativity, imagination, or insight.	Has a compelling question or problem. Argument is strong, comprehensive, and coherent. Has some original ideas, insights, and observations.	Argument is focused, logical, rigorous, and sustained. Proposed project is original, ambitious, creative, significant, and thoughtful. Asks new questions or addresses an important question or problem.

Degree Program Learning Outcomes

- Learning outcomes and assessment plan posted publicly for each degree program.



Field of Classics Assessment Plan 2011

Proficiency	Measurements	Timeframe	Source
Overarching Goals			
Complete degree in a timely fashion (5-6 years)	1. pass first year exam	by end of second semester (May of year 1)	Field records supplied by Graduate School
	2. pass Q exam	by end of fourth semester (May of year 2)	internal Field records
	3. pass A exam	before the beginning of the seventh semester (by the end of August)	Field records supplied by Graduate School
	4. presentation of dissertation prospectus	at the beginning of the second semester of the fourth year	Field records supplied by Graduate School
	5. obtain 6th year funding (where applicable)	by December of year 5	assessment by faculty using rubric
	6. pass B exam	no later than end of year 6	Field records supplied by Graduate School
Make an original and substantial contribution to the field			
Think originally and independently to develop concepts and methodologies	1. dissertation	no later than end of year 6	Field records supplied by Graduate School
Identify new research opportunities within the field	2. research projects or papers for disseminatio	ongoing	CV review, annual review, or field survey
Demonstrate advanced research skills			
demonstrate proficiency in languages	1. pass Q exam	by end of fourth semester (May of year 2)	internal Field records
	2. pass modern language exams	1st by end of the third year, 2nd by end of the	internal Field records
master application of existing research methods and techniques	3. completion of 2 chosen research papers	by the time of the A exam	internal Field records of paper grade
communicate in a style appropriate to the discipline	4. satisfactory coursework as appropriate to each concentration	ongoing	annual review, transcript
Demonstrate professional skills and commitment to the values of scholarship			
Listen, give, and receive feedback effectively	1. TA evaluations	ongoing	semesterly TA evaluations
	2. TA observation	ongoing	structured observations
	3. student receptivity to criticism of academic w	ongoing	annual review, CV review
Show commitment to professional development and knowledge transfer	4. conference participation	ongoing	annual review, CV review
	5. attend department lectures, TA training (wher	ongoing	annual review, observation

Public Field Metrics: Admissions; Enrollment; PhD Attrition & Completion; Median Time-to-Degree; Job Placement

Cornell University
Graduate School

SEARCH: go
Grad School Cornell more options

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Academics

- Fields of Study
- Faculty
- Graduate Degrees
- Research and Scholarship
- Learning Assessment
- Field Metrics
- Office of Academic Affairs
- Thesis & Dissertation
- Requirements

students & faculty

- Commencement
- Career Guide

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Field Metrics

To provide comprehensive information about advanced study at Cornell, the Graduate School is posting filterable data for several key areas: applications and yield, enrollment, attrition and completion, PhD outcomes, median time to degree, and job placement. Reports are filterable by degree type, discipline, and graduate field of study.

Selectivity and Yield Over Five Years

Five year trend for applicants, applicants who were offered admissions, and admitted students who completed all requirements to become students at Cornell (matriculants). Discipline level views show comparison to Cornell peer groups.

› Selectivity and Yield Over 5 Years

Enrollment Profile Over Five Years

Number of new student enrollments versus the students who are returning for a second year and beyond.

PhD Outcomes & Time-to-Degree: by Graduate Field
(Public Version)

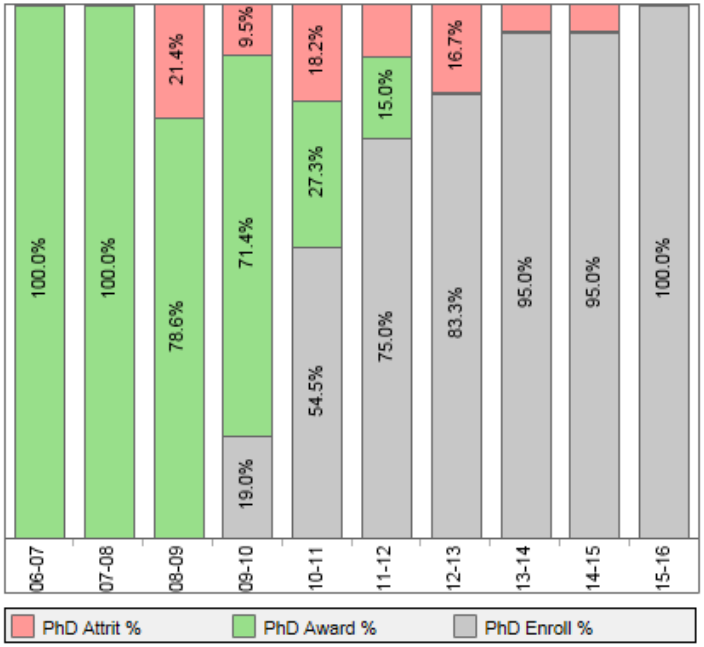
Outcomes and Time-To-Degree | Attrition - Completion

Field PhD Outcomes and Median Time-to-Degree by Cohorts

Cornell University Graduate School

Field: Biomedical Engineering

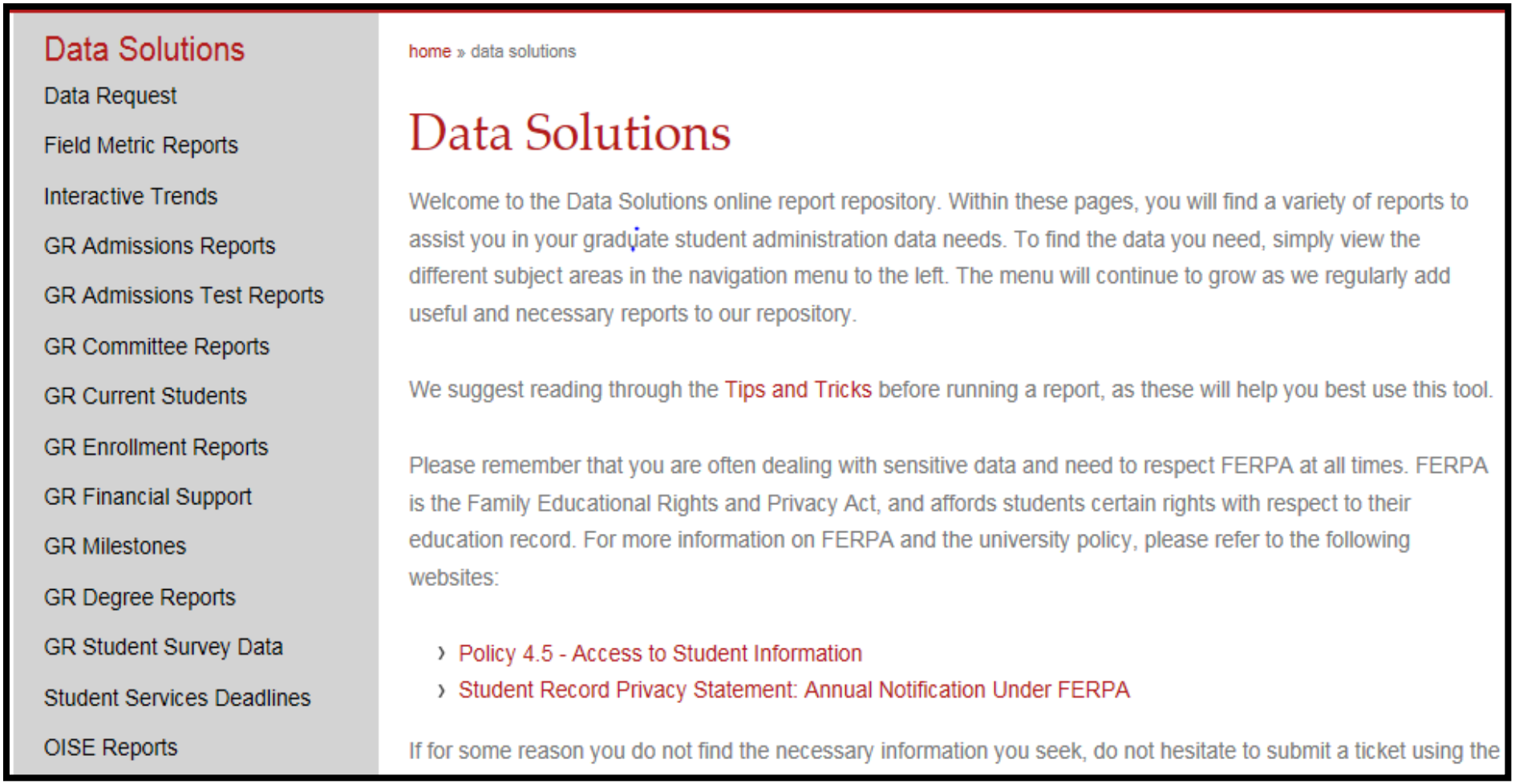
All PhD Outcomes for Biomedical Engineering



Overall Median Time-to-Degree for Biomedical Engineering in Doctoral Programs

	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
Doctoral Count	12	14	14	21	22	20	18	20	20	20
Doctoral TTD	5.43	5.60	5.97	5.41	4.98	3.98				

Self-service Metrics (Protected Access)



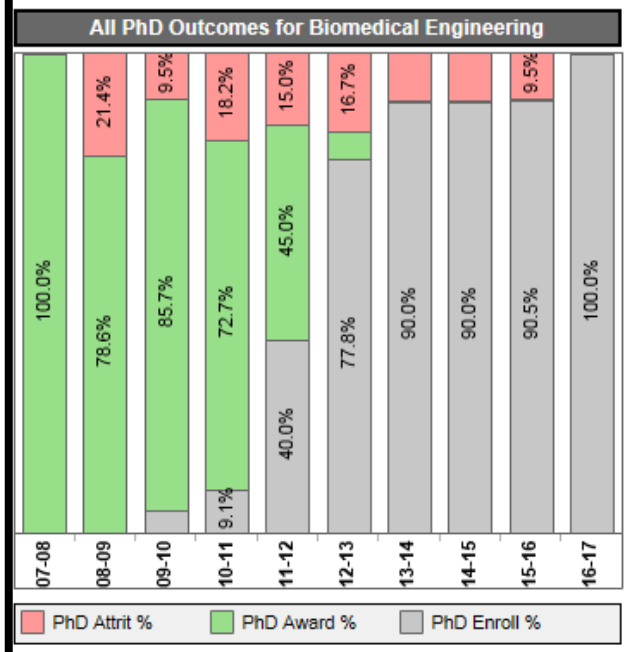
PhD Outcomes & Time-to-Degree: by Field or Discipline, Gender, Ethnicity, Citizenship

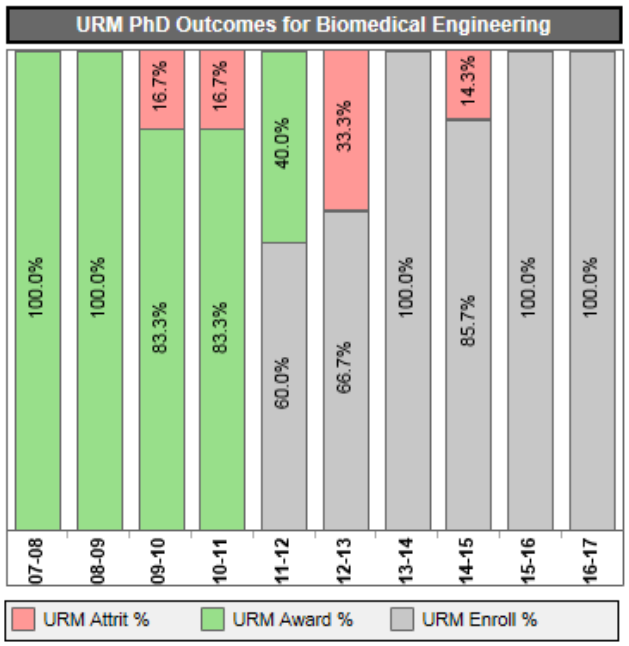
(Private Version)

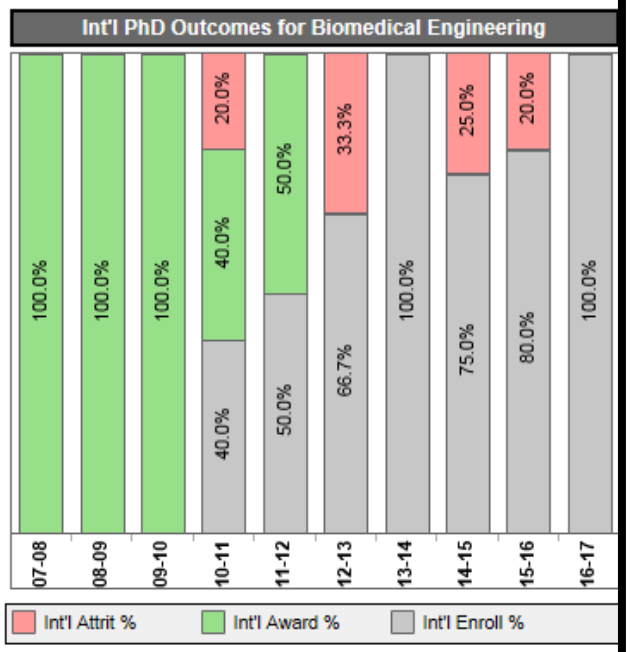
Field PhD Outcomes and Median Time-to-Degree by Cohorts

Cornell University Graduate School

Field: Biomedical Engineering | Gender: (All) | Ethnicity: (All)







Overall Median Time-to-Degree for Biomedical Engineering in Doctoral, Professional Masters, Research Masters Programs

	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17
Doctoral Count	14	14	21	22	20	18	20	20	21	15
Doctoral TTD	5.60	5.97	5.74	5.55	4.99	3.77				

PhD Attrition & Completion: by Field or Discipline, Gender, Ethnicity, Citizenship (Private Version)

Field: Biomedical Engineering | **Gender:** (All) | **Ethnicity:** (All) | **Comp / Att** by Number

All Doctoral Attrition for Biomedical Engineering

	Cohort Count	1 Year Attrit	2 Year Attrit	3 Year Attrit	4 Year Attrit	5 Year Attrit	6 Year Attrit	6 + Attrit
07-08	14	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08-09	14	0.0	1.0	0.0	1.0	0.0	0.0	1.0
09-10	21	1.0	0.0	1.0	0.0	0.0	0.0	0.0
10-11	22	2.0	1.0	0.0	1.0	0.0	0.0	0.0
11-12	20	1.0	0.0	0.0	1.0	1.0	0.0	0.0
12-13	18	2.0	1.0	0.0	0.0	0.0	0.0	
13-14	20	1.0	0.0	1.0	0.0	0.0		
14-15	20	0.0	2.0	0.0	0.0			
15-16	21	1.0	1.0	0.0				
16-17	15	0.0	0.0					

All Doctoral Completion for Biomedical Engineering

	Cohort Count	1-3 Yr Comp	4 Year Comp	5 Year Comp	6 Year Comp	7 Year Comp	8 Year Comp	8 + Comp
07-08	14	0.0	0.0	4.0	5.0	5.0	0.0	0.0
08-09	14	1.0	1.0	1.0	7.0	1.0	0.0	0.0
09-10	21	0.0	1.0	6.0	6.0	5.0	0.0	0.0
10-11	22	0.0	2.0	4.0	6.0	4.0	0.0	
11-12	20	0.0	3.0	2.0	4.0	0.0		
12-13	18	0.0	1.0	0.0	0.0			
13-14	20	0.0	0.0	0.0				
14-15	20	0.0	0.0					
15-16	21	0.0						
16-17	15	0.0						

Totals

PhD Attrit %	PhD Award %	PhD Enroll %
0.0%	100.0%	0.0%
21.4%	78.6%	0.0%
9.5%	85.7%	4.8%
18.2%	72.7%	9.1%
15.0%	45.0%	40.0%
16.7%	5.6%	77.8%
10.0%	0.0%	90.0%
10.0%	0.0%	90.0%
9.5%	0.0%	90.5%
0.0%	0.0%	100.0%

URM Doctoral Attrition for Biomedical Engineering

	URM Count	1 Year Attrit	2 Year Attrit	3 Year Attrit	4 Year Attrit	5 Year Attrit	6 Year Attrit	6 + Attrit
07-08	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
08-09	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
09-10	6	0.0	0.0	1.0	0.0	0.0	0.0	0.0
10-11	6	1.0	0.0	0.0	0.0	0.0	0.0	0.0
11-12	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-13	3	0.0	1.0	0.0	0.0	0.0	0.0	
13-14	1	0.0	0.0	0.0	0.0	0.0		
14-15	7	0.0	1.0	0.0	0.0			
15-16	6	0.0	0.0	0.0				
16-17	5	0.0	0.0					

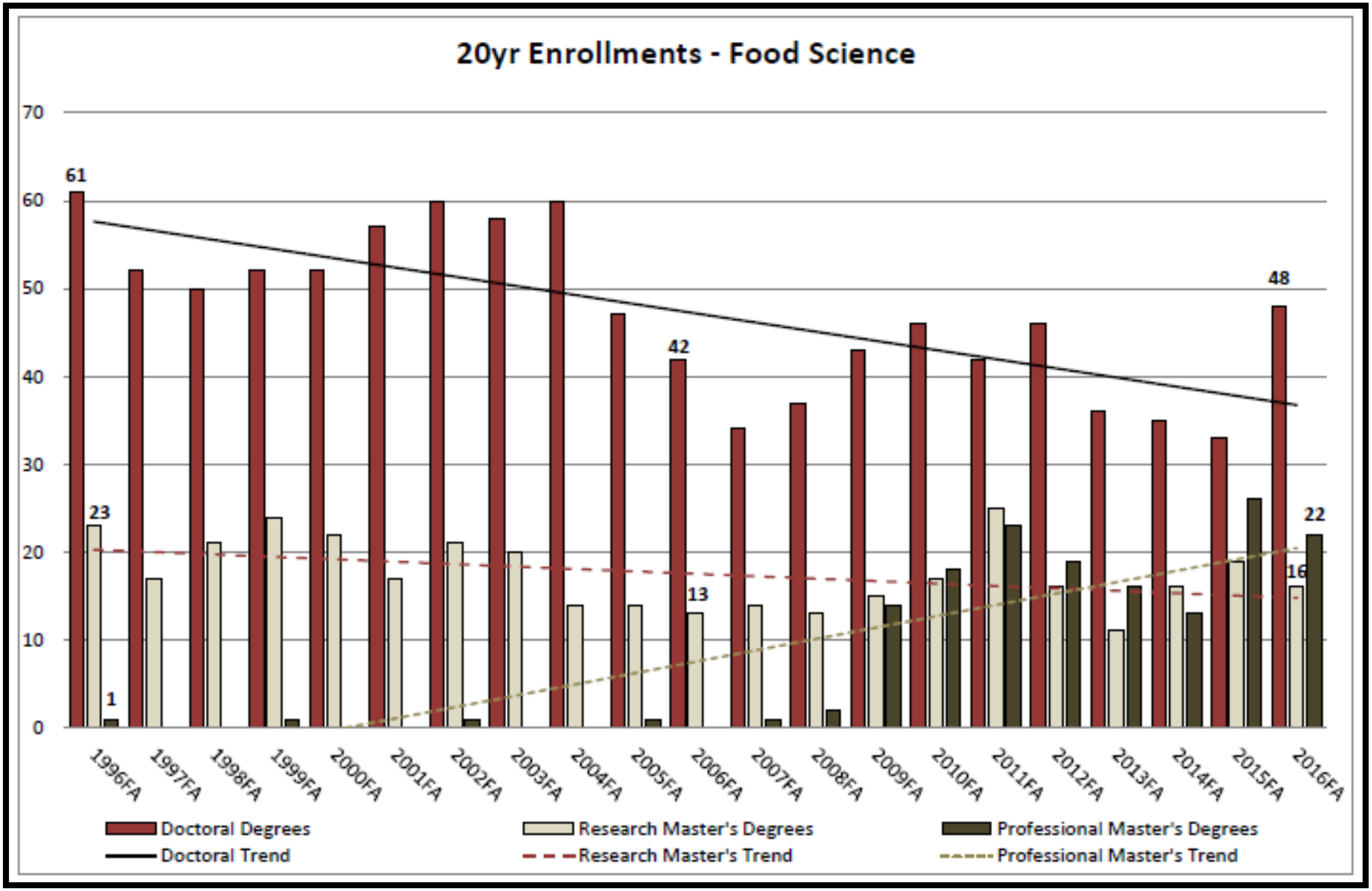
URM Doctoral Completion for Biomedical Engineering

	URM Count	1-3 Yr Comp	4 Year Comp	5 Year Comp	6 Year Comp	7 Year Comp	8 Year Comp	8 + Comp
07-08	1	0.0	0.0	0.0	1.0	0.0	0.0	0.0
08-09	1	0.0	0.0	0.0	0.0	1.0	0.0	0.0
09-10	6	0.0	0.0	1.0	0.0	4.0	0.0	0.0
10-11	6	0.0	0.0	1.0	3.0	1.0	0.0	
11-12	5	0.0	1.0	0.0	1.0	0.0		
12-13	3	0.0	0.0	0.0	0.0			
13-14	1	0.0	0.0	0.0				
14-15	7	0.0	0.0					
15-16	6	0.0						
16-17	5	0.0						

URM Totals

URM Attrit %	URM Award %	URM Enroll %
0.0%	100.0%	0.0%
0.0%	100.0%	0.0%
16.7%	83.3%	0.0%
16.7%	83.3%	0.0%
0.0%	40.0%	60.0%
33.3%	0.0%	66.7%
0.0%	0.0%	100.0%
14.3%	0.0%	85.7%
0.0%	0.0%	100.0%
0.0%	0.0%	100.0%

Enrollment Trends by Field and Degrees



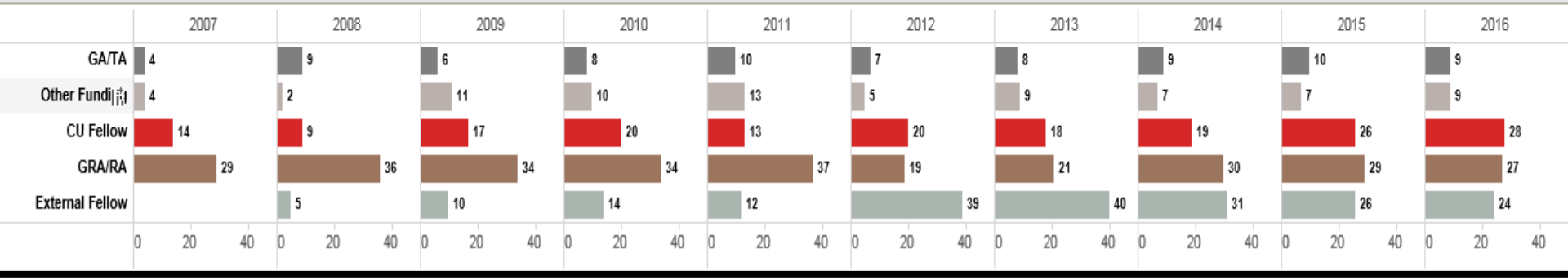
Graduate Student Funding Trends

Cornell University Graduate School

Cornell University Graduate School Ten-Year Primary Support Trends

Graduate Field	College/Unit	Discipline	Degree Type	Funding Type	STEM Field?	Training Grant?	High-Level Citizenship	High-Level Ethnicity	Sex
Biomedical Engineering	(All)	Physical Sciences an...	Doctoral	(All)	(All)	(All)	(All)	(All)	(All)

Overall Primary Support



Admissions Selectivity & Yield: By Field & Discipline, Degree, Gender, Ethnicity, Citizenship

(Private Version)

Graduate Field Selectivity and Yield Over 5 Year Trend

Cornell University Graduate School

	Ecology and Evolutionary Biology							Life Sciences
	SU/FA 2012	SU/FA 2013	SU/FA 2014	SU/FA 2015	SU/FA 2016	5 Year Average	5 Year % Change	Discipline 5 Year % Change
Applied	138	110	88	95	96	86	-31.2%	-9.7%
Admitted	17	16	11	10	16	11	-41.2%	-0.4%
Matric	13	12	10	6	11	8	-53.8%	-6.8%

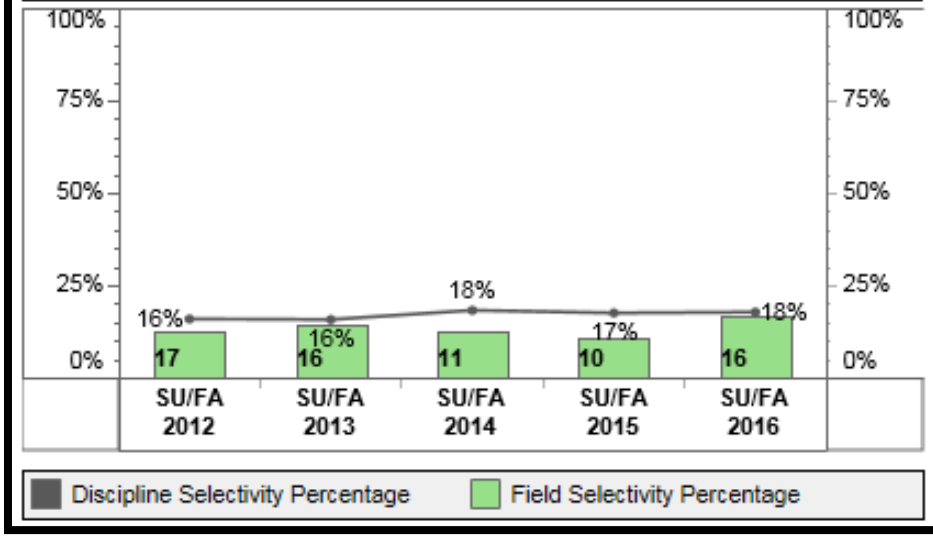
Graduate Field

Ecology and Evolutionary Biology

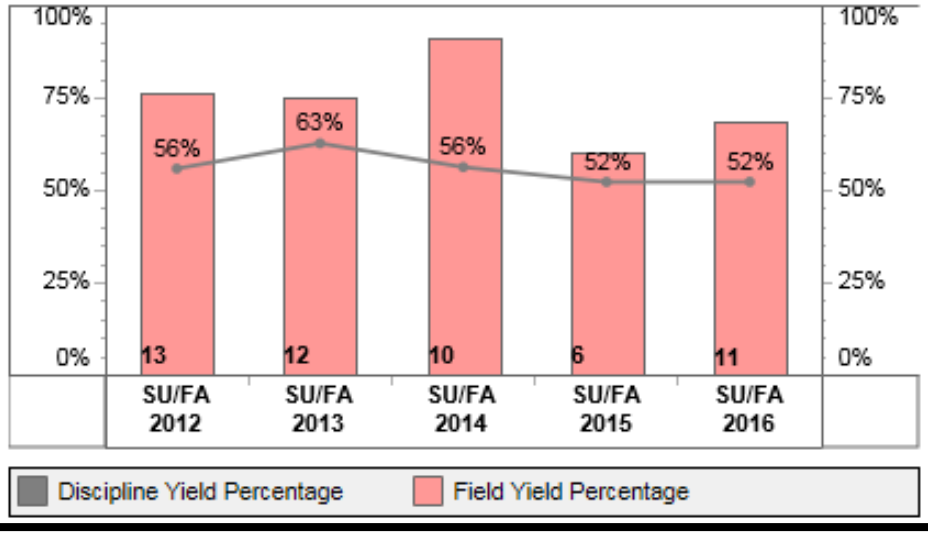
Degree Type

Doctoral

Overall Selectivity for Ecology and Evolutionary Biology
(Percent of Acceptable to be Admitted)



Overall Yield for Ecology and Evolutionary Biology
(Percentage of Admitted Who Matric)



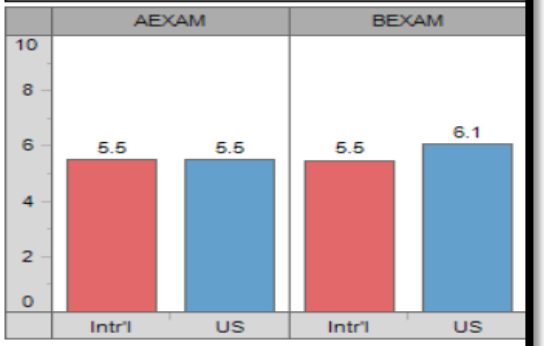
Student Progress on Exams: By Field or Discipline, Degree, Gender, Ethnicity, Citizenship, Registration Status, Exam, Year, Timing

Milestone Exam Details by Graduate Student

Field Description: Biochemistry, Molecular & Cell Biology
Exam Status: Passed
Milestone: (All), AEXAM, BEXAM, MEXAM
Bench Mark: (All), Behind Schedule, Within Schedule
Admit Year: (All), 99-00, 98-99, 97-98, 96-97
Registered Student: (All)
Gender: (All)
URM Status: (All)
Degree Type: Doctoral

t Name	Admit Term	Degree Plan	Milestone	Attempt Nbr	Date Attempted	Milestone Complete	
	1996FA	PHD	AEXAM	1	10/9/1998	Passed	✓
			BEXAM	1	11/9/2001	Passed	✓
Luz (1267021)	1999FA	PHD	AEXAM	1	3/4/2002	Passed	✓
			BEXAM	1	6/10/2004	Passed	✓
2005244)	2007FA	PHD	AEXAM	1	9/3/2009	Passed	✓
			BEXAM	1	4/23/2013	Passed	✓
(1300809)	2002FA	PHD	AEXAM	1	11/15/2004	Passed	✓
			BEXAM	1	9/8/2009	Passed	✗
(1762215)	2007FA	PHD	AEXAM	1	1/16/2009	Passed	✓
			BEXAM	1	9/7/2011	Passed	✓
er (1270349)	1999FA	PHD	AEXAM	1	3/14/2002	Passed	✓
			BEXAM	1	11/30/2005	Passed	✓
cilia (1231092)	1998FA	PHD	AEXAM	2	12/7/2000	Passed	✓
			BEXAM	1	12/17/2003	Passed	✓
her (1029860)	1994FA	PHD	AEXAM	1	3/5/1998	Passed	✗
			BEXAM	1	11/10/2000	Passed	✓
pun (2530397)	2010FA	PHD	AEXAM	1	11/6/2012	Passed	✓
e (1219736)	1991FA	PHD	AEXAM	1	7/30/1993	Passed	✓
97)	1991FA	PHD	AEXAM	1	5/4/1994	Passed	✓
beth Jane (1160154)	1990FA	PHD	AEXAM	1	11/30/1995	Passed	✗
92540)	2001FA	PHD	AEXAM	1	11/18/2004	Passed	✗
			BEXAM	1	6/12/2007	Passed	✓
es (1824791)	2005FA	PHD	AEXAM	1	11/20/2007	Passed	✓
			BEXAM	1	8/30/2011	Passed	✓
314752)	2003FA	PHD	AEXAM	1	11/30/2005	Passed	✓
			BEXAM	1	10/1/2010	Passed	✗
030770)	1997FA	PHD	AEXAM	1	8/6/2001	Passed	✗
			BEXAM	1	5/15/2003	Passed	✓
(1761800)	2004FA	PHD	AEXAM	1	10/26/2006	Passed	✓
			BEXAM	1	8/12/2011	Passed	✓

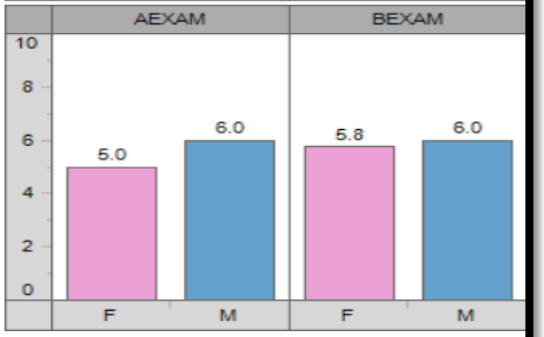
Median Time to Exam by Citizenship



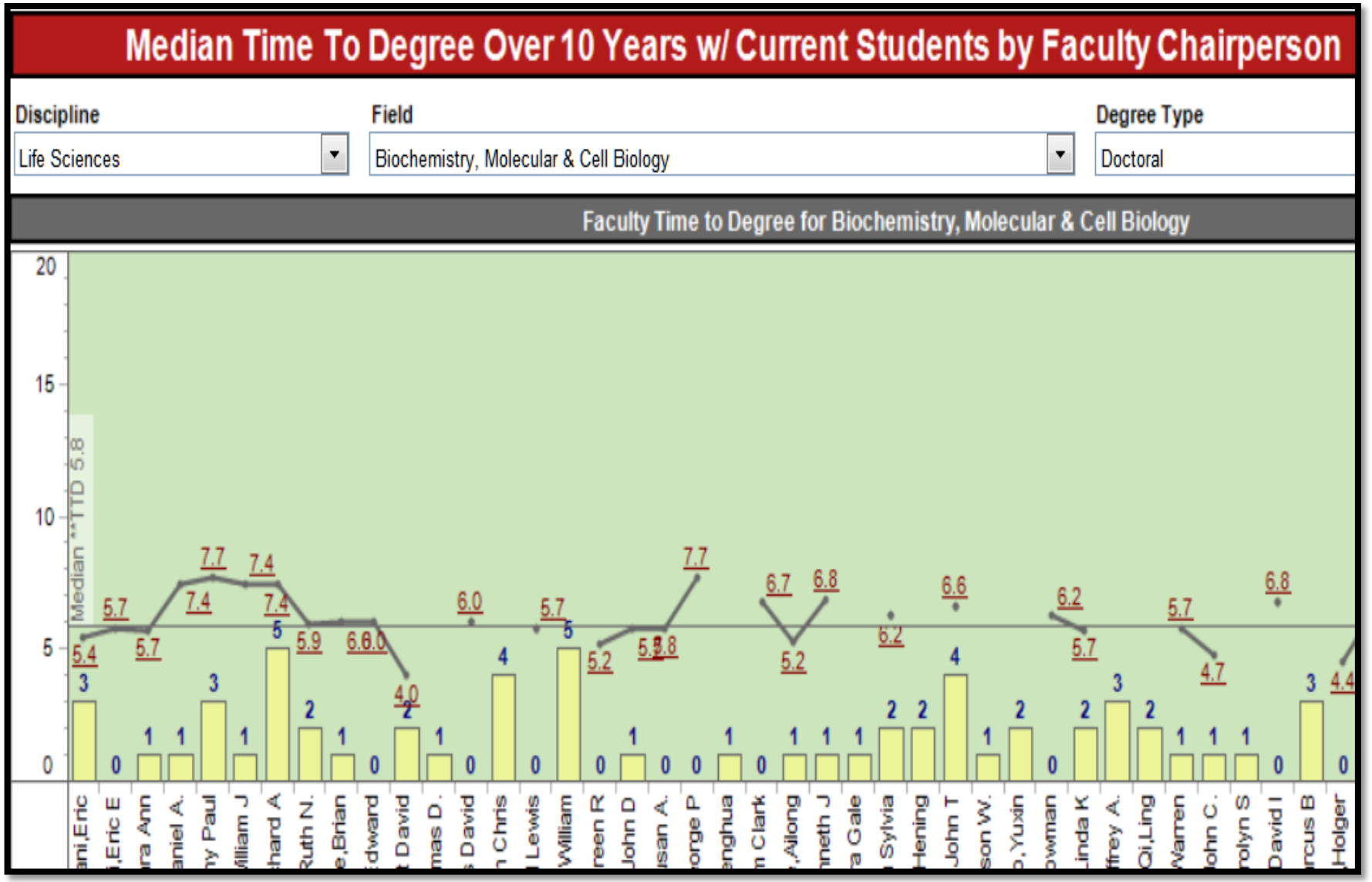
Student Count by Citizenship

	AEXAM	BEXAM	M
Intr'l	63	37	
US	185	112	

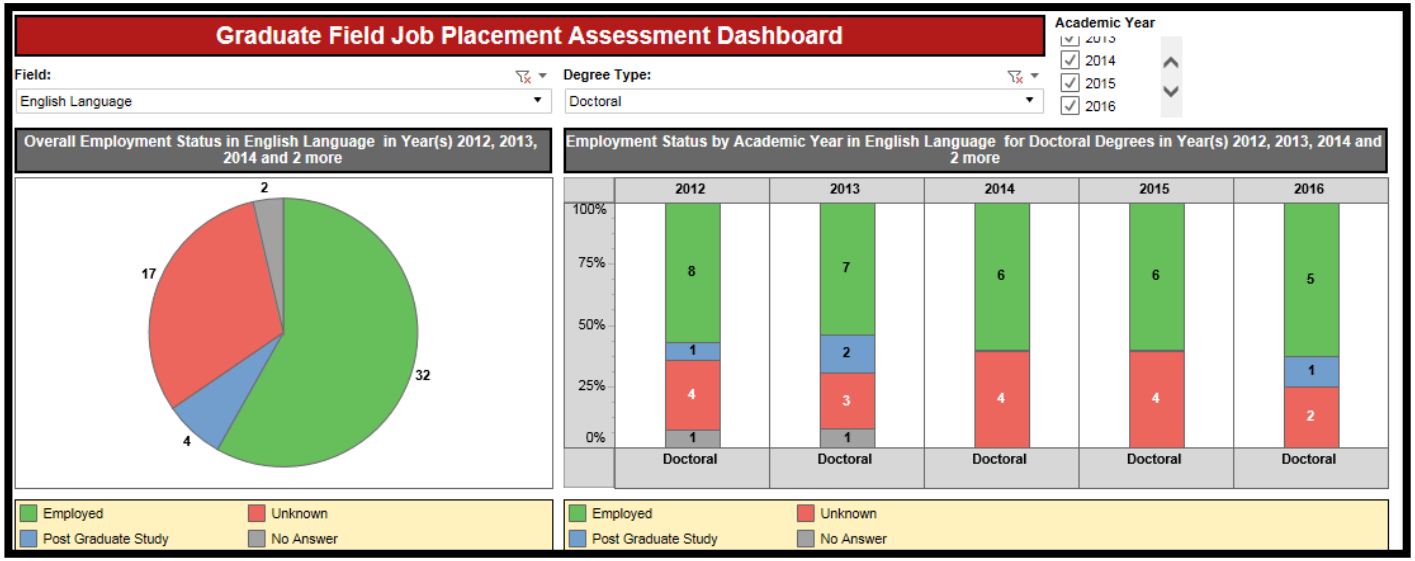
Median Time to Exam by Gender



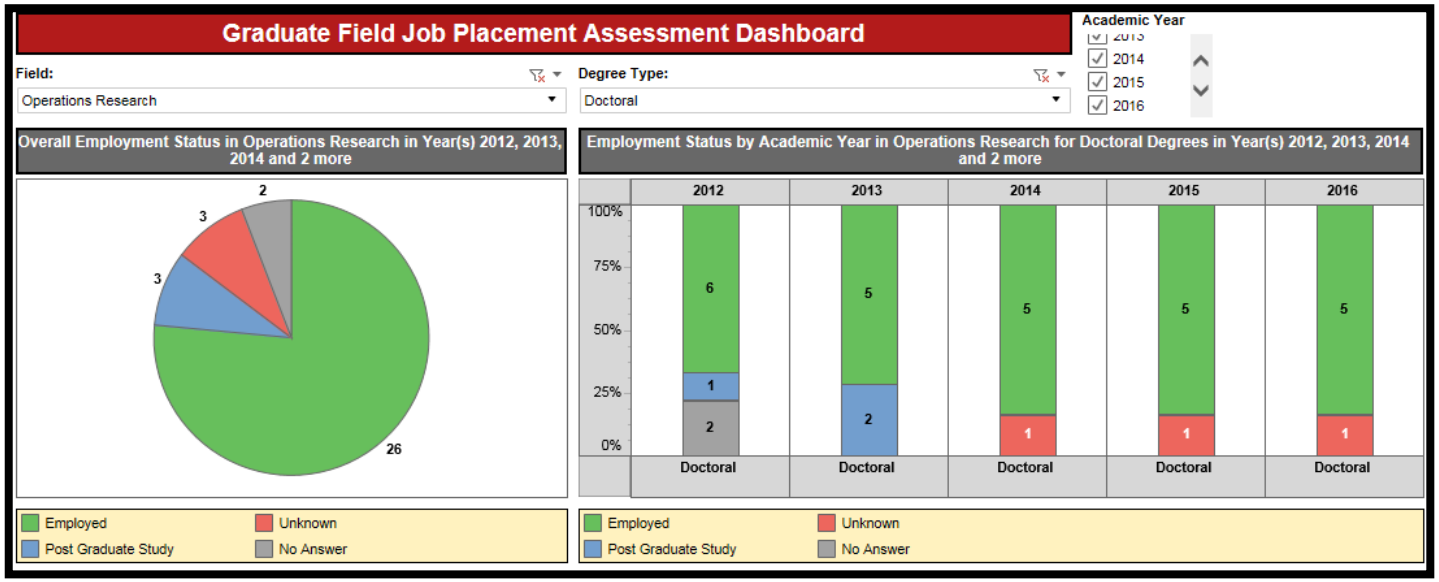
Time-to-Degree by Faculty Advisor: By Field or Discipline, Degree (Private Version)



Initial Job Placement: By Field or Discipline, Degree
(Public and Private Versions)



English Language & Literature

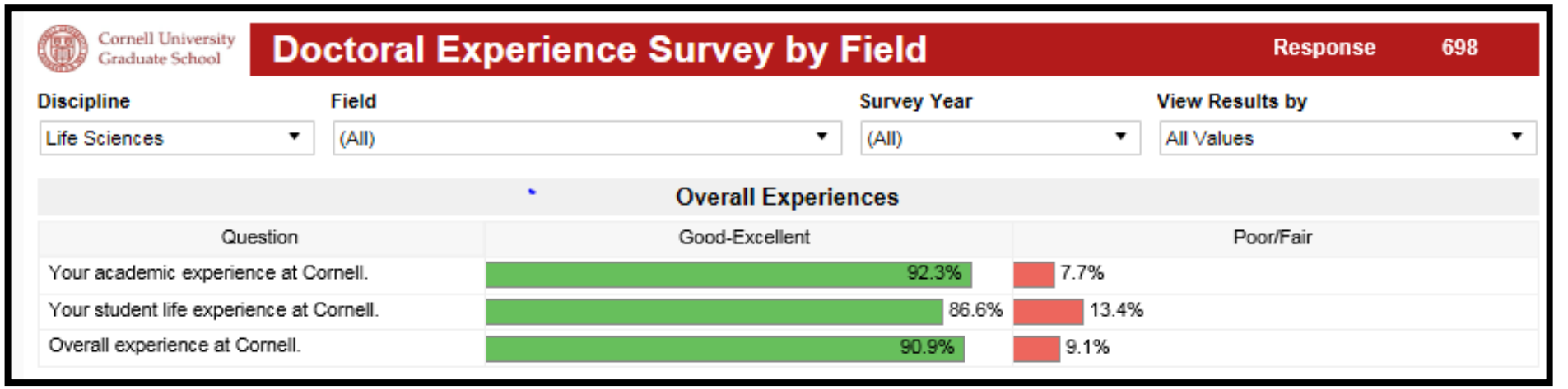


Operations Research

Career Outcomes: Alumni Survey

- Doctoral alumni career outcomes surveys, starting in 2014 (2-20 years out)
- Complemented with social media for current position information.
- Employment, reflections on value of graduate education for job.
- Perceptions of value of doctoral education for job entry now.

Student Surveys: Private; By Field, Discipline, Gender, Citizenship, Family, Sexual Orientation



Cornell University Graduate School

Doctoral Experience Survey by Field — Response 698

Discipline	Field	Survey Year	View Results by
Life Sciences	(All)	(All)	All Values

Overall Experiences

Question	Good-Excellent	Poor/Fair
Your academic experience at Cornell.	92.3%	7.7%
Your student life experience at Cornell.	86.6%	13.4%
Overall experience at Cornell.	90.9%	9.1%

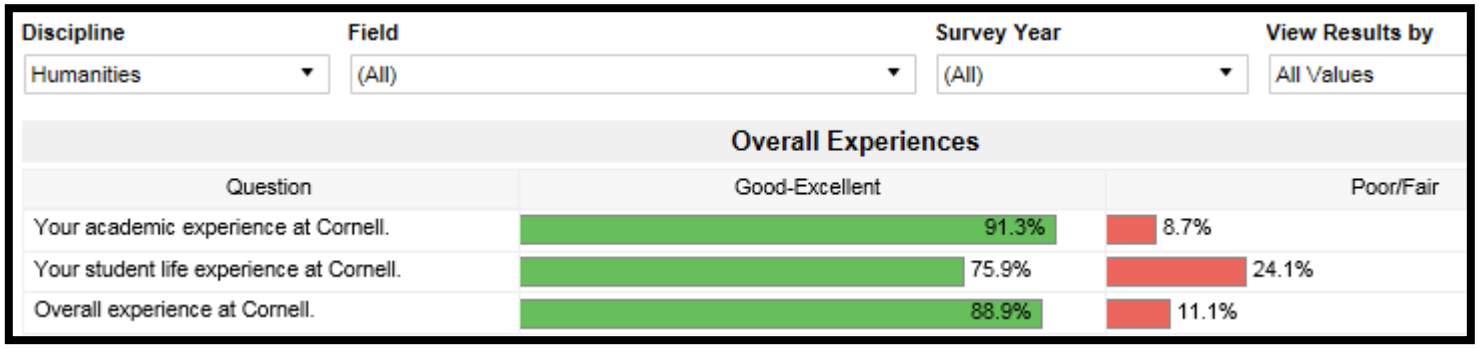
Experience & Exit Survey Topics:

- Overall Experiences
- Quality of Your Academic Program
- Advising and Mentoring
- Professional Development
- Research Experience
- Program Climate
- Campus Climate
- Resources and Services
- Learning Outcomes
- Career Plans

New Student & Admitted Not Attending Topics:

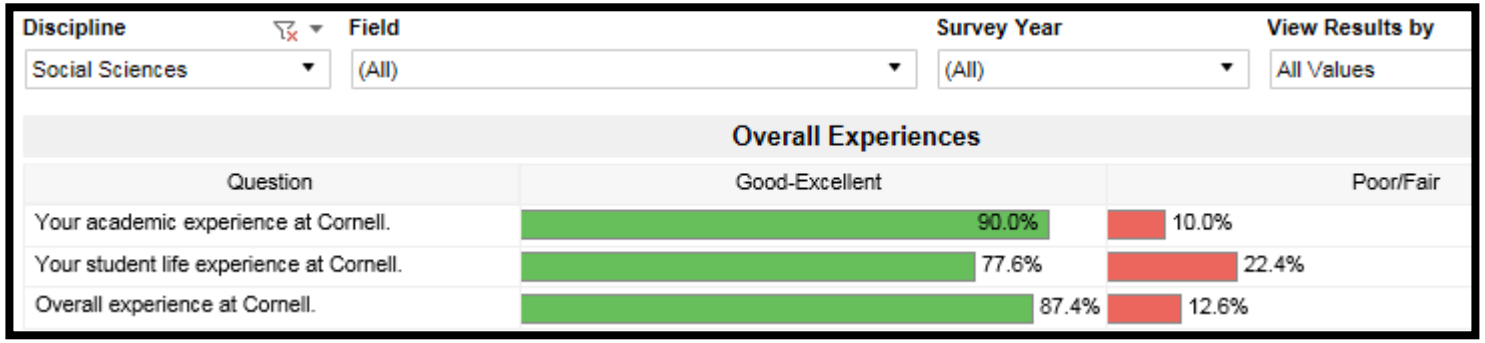
- Top Three Schools
- Decision to Apply
- Decision to Enroll
- (First Impressions)

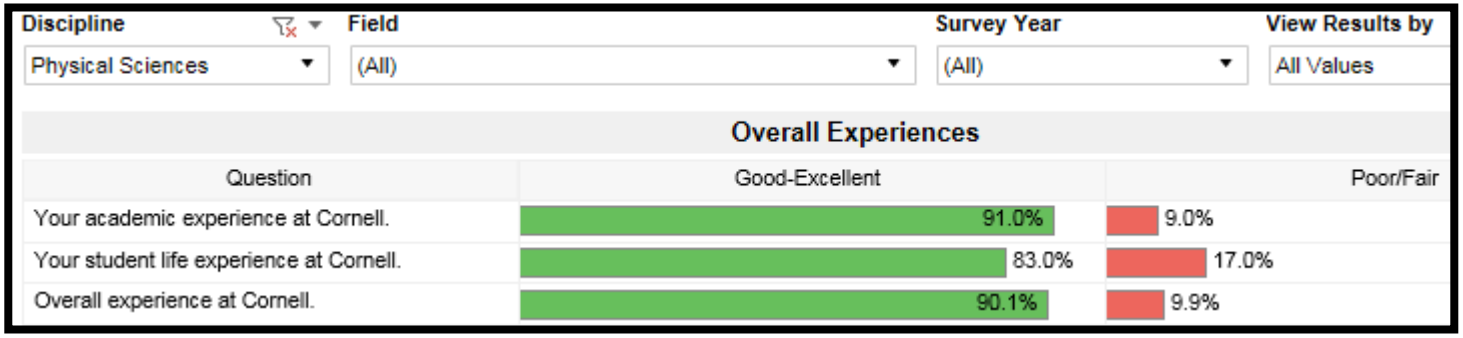
Student Surveys: Compare Disciplines



Humanities

Social Sciences





Physical Sciences & Engineering

Survey Dashboards: Disciplines vs. Fields

Quality of Your Academic Program

Question	Good-Excellent	Poor/Fair
Quality of graduate curriculum.	84.3%	15.7%
Quality of graduate-level teaching by faculty.	89.5%	10.5%
Opportunity to collaborate across discipline.	86.5%	13.5%
Quality of academic advising and guidance.	79.6%	20.4%

Humanities

English Language & Literature

Quality of Your Academic Program

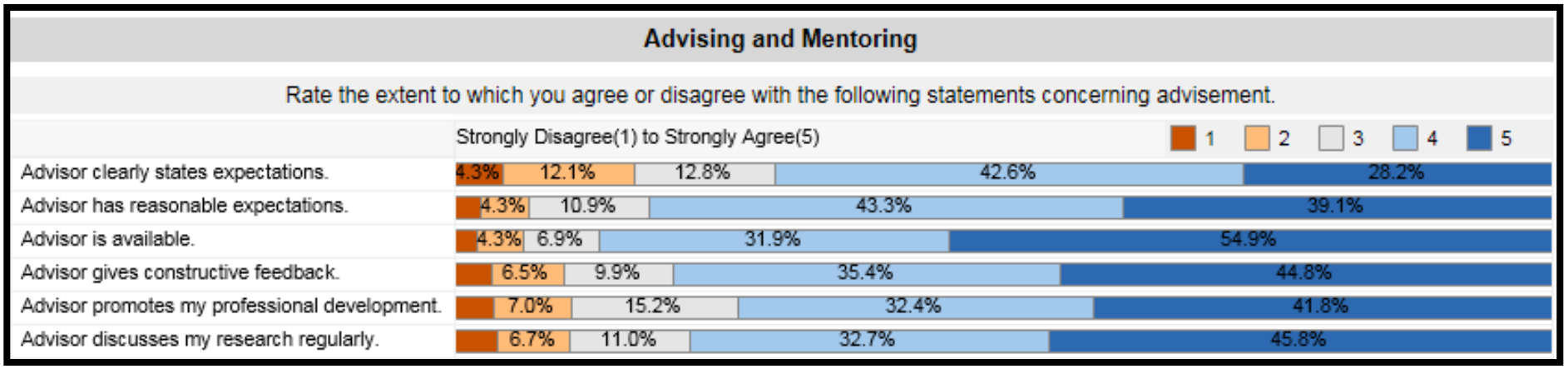
Question	Good-Excellent	Poor/Fair
Quality of graduate curriculum.	81.0%	19.0%
Quality of graduate-level teaching by faculty.	87.9%	12.1%
Opportunity to collaborate across discipline.	80.7%	19.3%
Quality of academic advising and guidance.	75.9%	24.1%

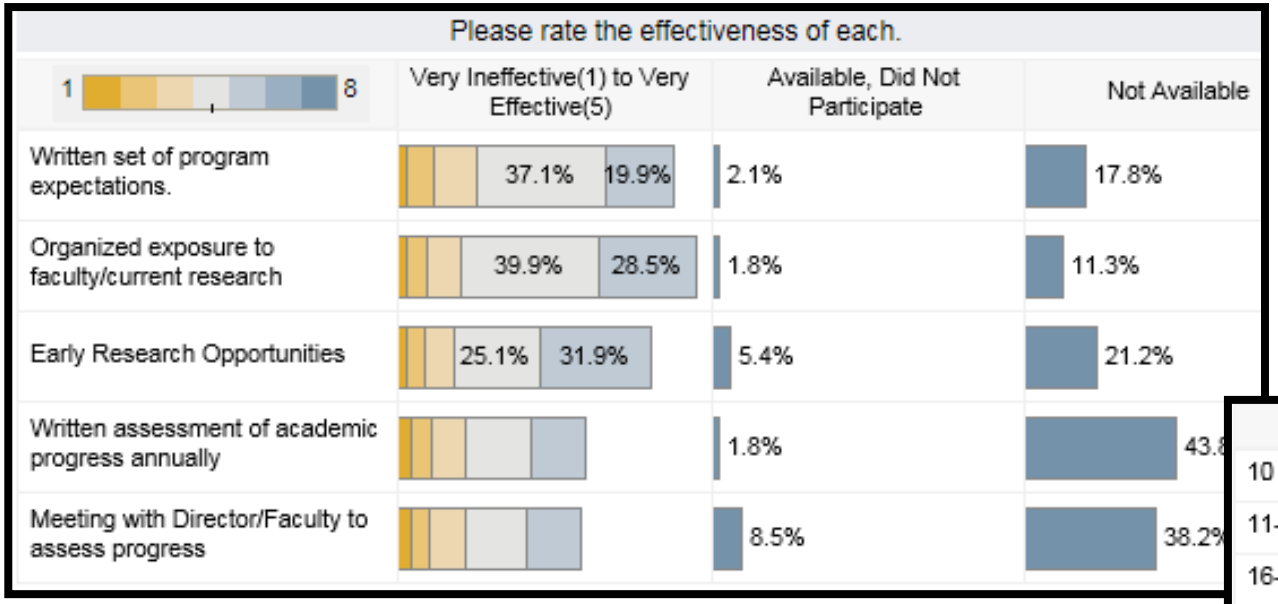
Classics

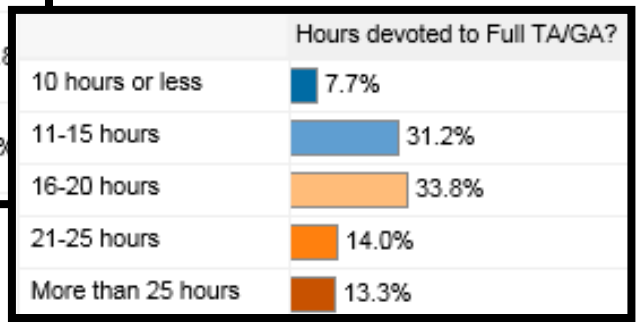
Quality of Your Academic Program

Question	Good-Excellent	Poor/Fair
Quality of graduate curriculum.	87.0%	13.0%
Quality of graduate-level teaching by faculty.	91.3%	8.7%
Opportunity to collaborate across discipline.	100.0%	
Quality of academic advising and guidance.	78.3%	21.7%

Survey Dashboards: Advising & Mentoring





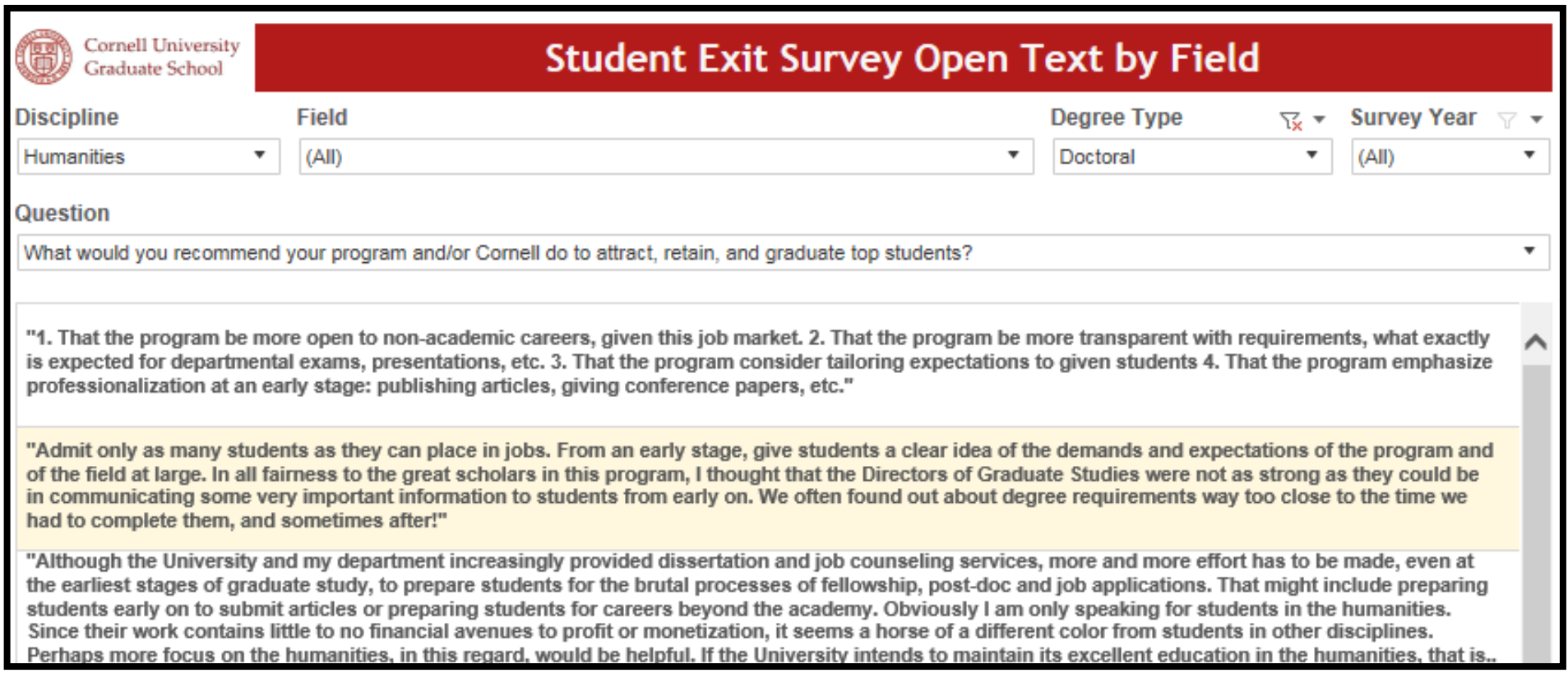


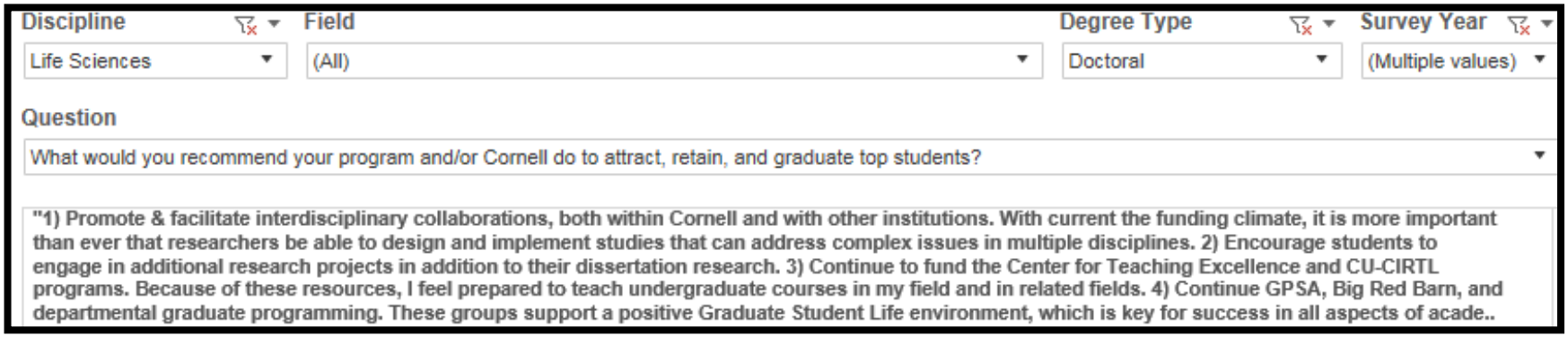
Survey Dashboards: Men v. Women

Men, Physical Sciences & Engineering

Women, Physical Sciences & Engineering

Survey Dashboards: Exit Survey Open Response





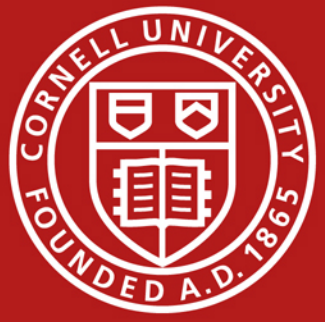
Outcomes of Assessment: Fields and Graduate School Conversations and Actions

In Fields:

- Time-to-degree
- Timing of exams
- Requirements in relation to learning outcomes
- Advising quality
- Career planning
- Field collaborations

In Graduate School:

- Programming to support transferable skills
- Disseminate good practices
- Resource allocation decisions
- Campus partnerships
- External funding



Cornell University