

Inventing a New Wheel: Assembling a Campus-Wide Doctoral Program Review



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Overview

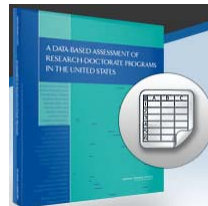
- Background and Purpose
- Doctoral Review Process
- Data Sources
 - Academic Analytics and Google Scholar
 - Institutional Data (Admissions, Graduate Tracking, HR)
 - National Research Council
- Creation and Distribution of Reports
- Results To Date
- Lessons Learned
- Looking Ahead

UMass Amherst Facts

- The flagship campus of the UMass system, the only public Carnegie very high research university in the state
- Enrollment: over 28,000 students (Fall 2012)
 - 78% undergraduate, 22% graduate students
 - 2,600 students in doctoral programs
- Over 50 academic departments
 - Over 100 undergraduate majors
 - 76 master's and 50 doctoral programs
- Research and development expenditures over \$181 million (FY 2011)

Background

- Program reviews every 5-7 years
 - Include graduate component of a program
- Comprehensive doctoral review never been done (with the exception of participation in NRC assessment)
- 2006: National Research Council (<http://www.nap.edu/rdp/>)
 - Results published Fall 2010



Timeline

- 2008-09
 - New chancellor on campus with renewed aspirations of reaching the level of other public AAU institutions
 - Ohio State had just completed a doctoral review
 - Chancellor charges Dean of Graduate School with conducting review for UMass Amherst
- 2009-10
 - New provost
 - Framework for Excellence
 - Increase size of faculty to 1,200 by 2020
 - Double federal research awards/expenditures
 - Increase post-doctoral appointments by 50%
 - Increase doctorates awarded to 375 degrees/year

Timeline (continued)

- 2010-11
 - Advisory committee formed to oversee doctoral review
 - Graduate Dean of Ohio State invited to campus
 - RFP out for faculty scholarly productivity data
- 2011-12
 - (Fall) Contract with Academic Analytics finalized
 - (Fall) Appointment of Special Assistant to the Provost charged with oversight of the review
 - Developed conceptual design and data requirements
 - (January) IR charged with producing statistical reports
 - Reports sent to programs February 1, 2012
- Fall 2012
 - New chancellor with mandate for strategic plan

Purpose and Principles

- The Doctoral Review was meant to provoke discussion:
 - of strengths and weaknesses,
 - of future directions,
 - of impediments to growth or improvement.

- Guiding principles:
 - Transparent: open access to the data
 - Flexible: programs able to propose peers
 - Fair: programs compared to other programs in the same field (not to each other within the university)

The Process

- Discussions with deans/program chairs/graduate program directors

- Doctoral Programs
 - Participated in identification of peer list
 - Reviewed faculty lists
 - Had full access (all programs) to research productivity data (AA portal)

- Limitation: comparative data were retrospective
 - Institutional data reflected current academic year (although comparative data were from NRC)

Peers

- Recommended peer list: primarily AAU public universities without a medical school (13 institutions)
- For each program, peers without the program were removed
- Each program was allowed to add or substitute peers
- Peer groups for programs ranged from 5 to 13 institutions (70 additional institutions were selected as peers for at least one program)

Academic Analytics



- Private company, founded in 2005
- Goal: Provide universities with an annual release of accurate data on faculty performance in a comparative, disciplinary context
- Collects data independently
- Contains comparative data on Ph.D. programs from 380+ institutions
- Faculty classified into 172 disciplines
- Data in 6 areas of research activity: books, journal publications, journal citations, proceeding citations, awards and grants

Discipline FSP Full Data [?](#)Discipline:

Nationally, there are 197 programs in this discipline.

[Download Data](#)

FSP Full Data

Institution	Program Name	# Fac	Rank # Fac	Pubs												
				Total Pubs	Total Pubs Rank	Fac With Pubs	Fac With Pubs Rank	Pubs Per Author	Pubs Per Author Rank	Publication Weight	% Fac Auth Article	% Fac Auth Article Score	% Fac Auth Article Rank	Articles Per Fac	Articles Per Fac Score	Articles Per Fac Rank
ate University	Chemistry	50	11.00	630	25.00	49	9.00	12.86	86.00	15.00	98%	0.96	39.50	12.60	0.22	73.00
iversity	Chemistry and Biochemistry	24	81.00	149	127.00	23	71.00	6.48	164.00	15.00	96%	0.74	55.50	6.21	-0.85	156.00
iversity	Chemistry and Biochemistry	21	95.00	140	129.00	18	102.00	7.78	149.00	15.00	88%	-0.27	124.50	6.67	-0.77	146.00
n University, St...	Chemistry	15	144.00	216	97.00	15	121.00	14.40	68.00	15.00	100%	1.16	38.50	14.40	0.53	54.00
lege	Chemistry	20	105.00	195	106.00	19	96.00	10.26	117.00	15.00	95%	0.66	60.50	9.75	-0.26	104.00
iversity	Chemistry	25	74.00	235	91.00	23	71.00	10.22	119.00	15.00	92%	0.36	88.50	9.40	-0.31	112.00
iversity	Chemistry	17	132.00	211	100.00	16	117.00	13.19	79.00	15.00	94%	0.57	66.00	12.41	0.19	75.00
ung University	Chemistry	39	28.00	246	84.00	32	38.00	7.69	181.00	18.00	82%	-0.63	147.00	6.31	-0.84	184.00
iversity	Chemistry	21	85.00	193	108.00	15	121.00	12.87	88.00	15.00	71%	-1.69	186.50	9.19	-0.35	118.00
College	Chemistry	7	196.00	24	197.00	7	194.00	3.43	197.00	15.00	100%	1.16	38.50	3.43	-1.32	188.00
Institute of Tech...	Chemistry	39	25.00	1070	7.00	38	23.00	28.16	5.00	15.00	97%	0.90	46.00	27.44	2.72	5.00

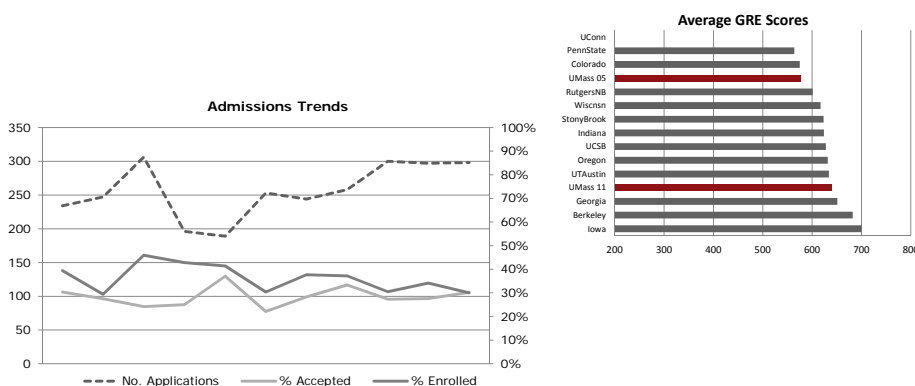
- Academic Analytics mines institutional data sources (online directories, catalogs, websites)
 - Lists are updated annually
 - Member institutions review list and make changes (non-member institutions may review lists as well)
- Faculty to include were tenure-stream faculty and individuals expected to perform research
 - Programs were asked to review
 - Programs able to add other faculty actively involved in research (e.g. emeritus professors, faculty from research affiliates)

Google Scholar

- For selected disciplines in Humanities, Social Science, Management and Education, productivity measures were not adequately captured by Academic Analytics
 - AA has since expanded bibliographic coverage – may still not be sufficient
- Conducted our own study of citations in Google Scholar
 - Graduate student employee used 'Publish or Perish' software to obtain productivity data for thousands of faculty (ours and those of our peers)
 - Needed to cross-reference faculty websites to make sure citations for the right person were being counted

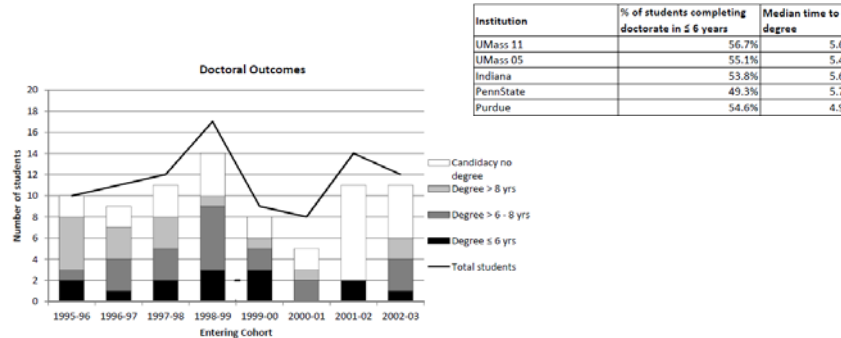
Student Data

- Institutional admissions data (same as what is used for standard reporting)



Graduate Tracking Data

- Used our updated graduate tracking system to build a comprehensive picture of doctoral student progress



Compiling the Report



Some data in Excel (Faculty lists, peers, notes, Google Scholar)

Chilton, Elizabeth S	Assoc Prof	1996
Decker, Seamus A	Asst Prof	2001
Goehry, Laraine R.	Prof	1977
Harper, Krista M	Asst Prof	1999
Hernandez, Julie D	Assoc Prof	2000
Holt, Brigitte M	Asst Prof	1999



Academic Analytics downloaded from web portal



Sas Student data (Admissions, Grad Tracking)

	EMPLID	ACAD_CAREER	STDTY_CAR_LNBR	ADM_APP_LNBR
1	23818526	GRAD	0	00341342
2	24476319	GRAD	0	00343870
3	24721916	GRAD	0	00349067
4	25317536	GRAD	0	00200733
5	25319337	GRAD	0	00300734
6	24877964	GRAD	0	00300658

576 Status		AY2001	AY2002	AY2003
575 % Applications		18	26	23
576 % Accepted		50%	54%	33%
577 % Enrolled		22%	13%	38%

Cohort	Entering	Candidacy	Candidacy
	Students	1-3 Yrs	3-6 Yrs
1995-96	14	0.7672424	0.3
1996-97	12	0.6666667	0.5454545
1997-98	12	0.5833333	0.75
1998-99	13	0.6923077	0.6923077
1999-00	8	0.75	0.125
2000-01	10	0.4000000	0.0000000
2001-02	13	0.6923077	0.0769231
2002-03	10	0.6000000	0.0000000

Compiling the Report (continued)

Distribution of faculty by rank		Distribution by year of doctorate	
Full	0	2000-	0
Assoc.	0	1990-1999	0
Asst.	0	1980-1989	0
Other	0	1970-1979	0
Total	0	Pre-1970	0

School	Program	Program Abbrev
HFA	Linguistics	Ling
HFA	Afro-American Studies	Afro Am
	Psychology and Biomedical Sciences	AniSci
		Anthro
		Astro
		Chem E
		Chem
		Civil Eng
		Comm
	Disorders	Comm Dis
	ature	Comp Lit
		Comp Sci
		Econ
	puter Engineering	ECE
		English

Diversity
 Source: Executive Summary Affirmative Action Plan 2010-2011, data as of [redacted] at the level of the department, not the doctoral program. The following department most closely associated with this doctoral program. No data science doctoral programs.

Category	Actual	Available
Female faculty	0.0%	0.0%
Minority faculty	0.0%	0.0%

Faculty Size Comparison
 Source: Academic Analytics, for fall 2009. Source: Academic Analytics, for median is for all programs in the field as reported by Academic Analyt[redacted]

```

Sub Create_report ()
' Create_report Macro
' Creates complete doctoral program review report
Dim wbReport As Workbook
Dim wsReport As Worksheet
Dim cell As Range
Dim firstRow As Integer
Dim lastRow As Integer

Set wbReport = Workbooks("Program data - re[redacted]
Sheets("DistList").Activate

For Each cell In Sheets("DistList").Columns("
If cell.Value = "Educ" Then 'cell.Row > 1
school = cell.Offset(0, -2).Value
prog = cell.Offset(0, -1).Value
progShort = cell.Value
progChair = cell.Offset(0, 1).Value
progEmail = cell.Offset(0, 2).Value

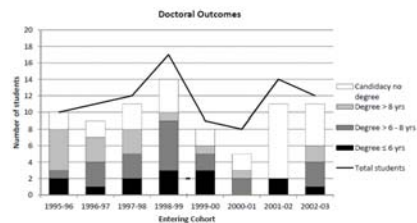
' Copy report template
Sheets("Master").Select
Sheets("Master").Copy After:=Sheets("

Set wsReport = wbReport.Sheets("Maste
    
```

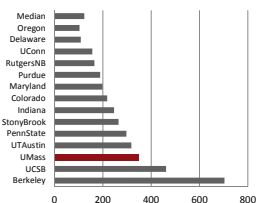
Compiling the Report (continued)

Peers
 Source: The doctoral programs themselves, in response to a request made ir [redacted]

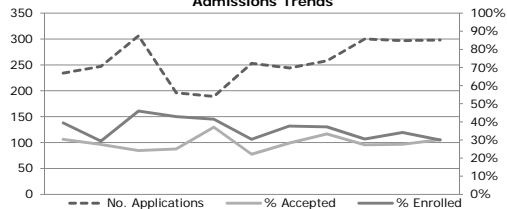
University	Abbrev.	Program
Pennsylvania State University	PennState	Chemical Eng
Purdue University	Purdue	Chemical Eng
Rutgers - New Brunswick	RutgersNB	Chemical and
University of California, Berkeley	Berkeley	Chemical Eng
University of California, Santa Barbara	UCSB	Chemical Eng
University of Colorado at Boulder	Colorado	Chemical and
University of Connecticut	UConn	Chemical Eng
University of Delaware	Delaware	Chemical Eng
University of Maryland, College Park	Maryland	Chemical Eng
University of Texas at Austin	UTAustin	Chemical Eng



AA Citations per Faculty Member



Admissions Trends



Doctoral Program Reports

- 14 page reports, containing:
 - Guidance & Instructions
 - List of peers
 - List of faculty, faculty characteristics and comparison
 - Academic Analytics data shown in 27 charts (grants and grant \$, books, publications, citations and awards)
 - Quintile analysis of faculty and grant \$ to size relationship
 - Student characteristics (demographics, size of class)
 - Admission trends and GRE scores
 - Completion data: graduation rates, outcomes, median milestone times
- Summary of doctoral student post-graduation activities as reported by programs

Doctoral Program Reports (continued)

- Highlight reports primarily for Deans were 2 pages with subset of information
 - Only graphical data
 - All productivity data showed counts per capita
 - Different information was presented depending on the school/college
- Both the full and highlight reports showed unadjusted, unweighted data
 - Did not report Faculty Scholarly Productivity Index (FSPI)

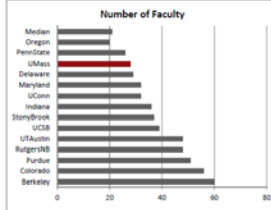
**Doctoral Program Review
Highlights for**

Size and composition of student body

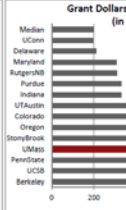
# Enrolled (fall 2011)	# in Entering Class (5 year avg)	# of doctorates awarded (5 year avg)	Percent of Enrolled Students		
			Female	URM	INT ¹
140	28.2	18.4	39%	22%	57%

Source: OIR.
Data is up to date through fall 2011. URM = underrepresented minority (non-Asian); INT = international.

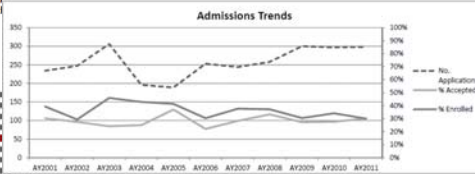
Bars labeled "median" are for the entire field, not just this program and its peers.



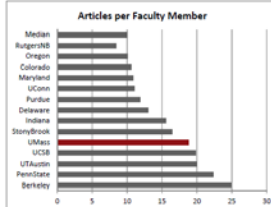
Source: Academic Analytics, for Fall 2009.



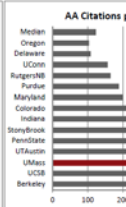
Source: Academic Analytics, for pe



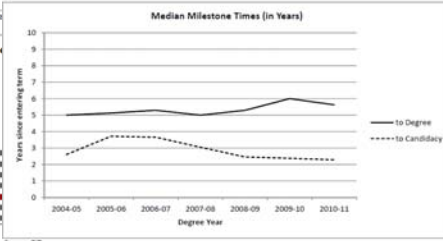
Source: OIR.



Source: Academic Analytics, for period 2006-2009.



Source: Academic Analytics, for pe



Source: OIR.
Time to degree and time to candidacy for graduating students. A value of 0 years means no students graduated in that year.

Distribution

- Distributed electronically
- Each program received its own report
 - Excel macro sent same e-mail with appropriate attachment
- All reports and highlights were available on a restricted shared drive
 - Access was provided to deans, department/program chairs and graduate program directors

Results To Date

- Program self-assessments
 - Programs able to question and/or augment data flaws
 - Most programs submitted a self-assessment
 - Many identified own areas for improvement, proposed plan and have started acting
 - Self-assessments were sent to deans
- Deans reports
 - Most Dean's reports have been received
 - Very different styles of reports
- Advisory Committee review
 - Tasked by Chancellor to "identify areas of emphasis" (i.e., where can a modest investment make a difference?)

Looking Ahead

- Recommendations of the Advisory Committee
- Program-level actions to improve performance
- Sub-committee of Graduate Council to discuss time to degree and completion rate already in place

- Tie-in with comprehensive program review

- Updating reports with new data
 - Already done for highlight reports

Lessons Learned

- Transparency and involvement of programs paid off in terms of buy-in
 - Having an involved senior faculty member responsible for the review who worked with programs lent credibility to the process (but not necessarily the data)
 - Importance of on-going reviews and access to new data keeps programs engaged
- Ability to provide feedback to data source provider improves data quality
- Time investment to create good database is well worth it and automating report production allowed for easy re-runs with corrected data

Questions?

For more information:

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