

## 2006 NRC Assessment of Research Doctoral Programs

### A Brief Summary of the Ratings and Methods

#### Ratings

The 2006 NRC survey was to be a departure from the previous survey in 1995, which was based on rankings derived from direct faculty ratings of programs. The current survey improved on the methodology of previous surveys by using two sets of ratings to calculate rankings of programs within a field; one that used weights derived from faculty ratings of the importance of selected measures in determining program quality (“explicit” ratings) and a separate survey that asked faculty to rank programs directly within their field. Additional “dimensional” ratings were also calculated from subsets of the data to produce rankings of faculty productivity, student support & outcomes, and diversity for each program. These ratings are based on 20 variables, with the particular variables used and the weightings for each variable customized for every discipline.

#### Variables

The variables that were used in these rankings included data collected from the faculty questionnaires, the program questionnaires, and scholarly databases. Most of these values will be recorded on a per capita or percentage basis and will be standardized to allow aggregation of variables. The variables used to determine the rankings were:

Column	Variable	Dimensional scale in which variable is also included	Source of data
T	Average number of publications (2000-2006) per <i>allocated</i> faculty member (Humanities: Average # articles plus # books x 5 from 1986-2006.)	Research Activity	Institute for Scientific Information (ISI). Humanities: Submitted faculty resumes.
U	Average Citations per Publication (not included for humanities fields)	Research Activity	ISI
V	Percent of faculty with grants, 2006	Research Activity	Faculty questionnaire
W	Awards per <i>allocated</i> faculty, 2006	Research Activity	From scholarly societies
X	Percent of First Year Students with Full Financial Support, Fall 2005	Student Support & Outcomes	Program questionnaire
Y	Average Completion Ratio, 6 Years or Less	Student Support & Outcomes	Program questionnaire
Z	Median Time to Degree (Full and Part Time Graduates), 2006	Student Support & Outcomes	Program questionnaire

AA	Percent students with plans for academic positions (including postdocs) upon graduation	Student Support & Outcomes	NSF's Doctoral Records File
AB	Program Collects Data About Post Graduation Employment (1=Yes; 1=No)	Student Support & Outcomes (not included in overall rankings)	Program questionnaire
AC	Non-Asian Minority Faculty as a Percent of Total Core and New Faculty, 2006	Diversity of Academic Environment	Program questionnaire
AD	Female Faculty as a Percent of Total Core and New Faculty, 2006	Diversity of Academic Environment	Program questionnaire
AE	Non-Asian Minority Students as a Percent of Total Students, Fall 2005	Diversity of Academic Environment	Program questionnaire
AF	Female Students as a Percent of Total Students, Fall 2005	Diversity of Academic Environment	Program questionnaire
AG	International Students as a Percent of Total Students, Fall 2005	Diversity of Academic Environment	Program questionnaire
AH	Average Number of Ph.D.s Graduated, 2002-2006		Program questionnaire
AI	Percent of Interdisciplinary Faculty, 2006		Program questionnaire
AJ	Average GRE Scores, 2004-2006		Program questionnaire
AK	Percent of Students with External Fellowships, 2005		Program questionnaire
AL	Is Student Work Space Provided? (1=Yes; -1=No)		Program questionnaire
AM	Is Health Insurance Provided? (1=Yes; -1=No)		Program questionnaire
AN	Number of Student Activities (Max=18)		Program questionnaire

### Explicit ratings (Survey-based "S" rankings)

The faculty were asked to select the variables from this list that they believed to be most important to doctoral program quality. Next, the NRC established how much each individual variable contributed to the total rating. Three factors introduce error into this calculation: statistical error, variance of the measures from year to year, and choice of raters. After establishing the weighting for each variable, the NRC standardized the data for each variable (mean = 0, variance = 1). This made it possible to combine variables with very different values (e.g. time to degree and publications per faculty member) into one rating. For each variable (by each program in each discipline by each institution), these

normalized values were multiplied by the relevant weightings. This process was repeated 500 times, using slightly different weightings from within the ranges described above. Because this was repeated multiple times, the result is a range of weighted variable ratings.

### **Implicit ratings (Regression-based “R” rankings)**

In the second ranking, the NRC surveyed a random sample of faculty in each discipline, giving them data on a random sample of programs within their field and asking them to rank these programs. Each rater was given a set of 15 programs to rate on a six-point scale, for which 1 was “not adequate for doctoral education” and 6 was “distinguished.” The questionnaire also asked the rater’s familiarity with each program. Half of the raters values were randomly selected and averaged. This was repeated 500 times to produce the overall final rankings, again expressed as a range of rankings.

### **Dimensional Rankings**

The NRC also calculated additional rankings based on subsets of variables listed above. These include measures of Research Activity, Student Support & Outcomes, and Diversity (note: the colors of the text match the coding of the headings on the NRC data spreadsheet). These rankings were calculated similarly to the “S” rankings and are also presented as a range of rankings.

### **Ranges of rankings**

The NRC will publish these rankings as ranges of rankings rather than a single point. Uncertainty was allowed for by taking 500 samples of raters, since rater opinions may vary, and by allowing for the variance of each characteristic within a range. The ratings were then ranked from highest to lowest for all the programs in a field. This calculation results in a range of rankings for each program, rather than a single rank and will be reported at the 5<sup>th</sup> and 95<sup>th</sup> percentiles. Similarly derived ranges of rankings are calculated for each of the supplementary dimensional measures. A detailed explanation of the methodology will be released by the NRC along with the data.

*For further information see the Rating and Rankings section of the NRC Survey website ([http://sites.nationalacademies.org/PGA/Resdoc/PGA\\_044479](http://sites.nationalacademies.org/PGA/Resdoc/PGA_044479)). A detailed, 202 page, Methodology guide is also available (<http://sites.nationalacademies.org/pga/Resdoc/index.htm>) and an update to this guide will be released with the data.*