

The National Academy of Kinesiology 2020 Review and Evaluation of Doctoral Programs in Kinesiology

John H. Challis

The results of the 2020 review and ranking of U.S. doctoral programs in kinesiology conducted by the National Academy of Kinesiology (NAK) are presented. These results represent data collected for the 2015, 2016, 2017, 2018, and 2019 calendar years for 43 programs. The rankings reflect data collected on program faculty (productivity, funding, and visibility) and program students (admissions, support, publications, and employment). The data for each assessment index were first transformed into z scores, and then the z scores converted into T -scores. Weights were applied to the T -scores of the indices and then summed to obtain a total T -score. Programs were ranked in two ways: one based on the total T -scores from the data not normalized (unadjusted) and the other with total T -scores from the data normalized with respect to the number of faculty members in each program (adjusted). In addition to program rankings, descriptive data are presented on faculty and student data.

Keywords: admissions, employment, funding, productivity, program rank, publications, support, visibility

The National Academy of Kinesiology (NAK) first conducted a review of U.S. doctoral programs in kinesiology in 2005, and every lustrum (5 years) the review has been repeated. The aim of these reviews was to enhance the status of doctoral education in kinesiology (Thomas et al., 2007), and they also provide useful data for programs performing self-evaluations. This is the report of the NAK's fourth review, which reflects data from the period 2015 to 2019. Across all four reviews (Spirduso & Reeves, 2011; Thomas & Reeves, 2006; Ulrich & Feltz, 2016; and the current review), the majority of the elements of the review have remained unchanged.

The NAK started developing an evaluation tool in 1996; in 2000, it was piloted on 20 volunteer programs (Thomas et al., 2007). The NAK review ranking is based on nine indices related to program faculty, and seven indices related to program students. While the NAK has now conducted four reviews of U.S. kinesiology doctoral programs, the National Research Council (NRC) has completed three reviews of U.S. doctoral programs (1982, 1995, and 2010), with kinesiology only included as field of study in the most recent review (Ostriker, Kuh, & Voytuk, 2011). The NRC used 20 metrics which are similar to the items in the NAK survey (Voytuk, Kuh, & Ostriker, & National Research Council, 2003). The NRC provided two final ranks: S-rank, which was based on survey data only, and R-rank, which was based on a regression analysis of faculty ranking of programs. In contrast, the NAK ratings are based on a statistical analysis of survey data with one ranking based on data unadjusted for program faculty size and the other with those data adjusted for program faculty size.

Alongside the 16 survey items which are used to determine program rank, the NAK also collects other data to obtain a description of U.S. doctoral programs. These data provide opportunities for program benchmarking. Mimicking the previous review, programs reported the distribution of races of their doctoral students. The categories for identifying race were the same as in the last round of reviews, which was based on categories formerly used

by the National Institutes of Health. The National Institutes of Health has since updated these categories, and future NAK reviews will likely incorporate these revised categories. New items in this round of the review related to faculty and included aspects related to workload (e.g., courses taught per semester, percentage of effort on teaching, percentage of effort on research, percentage of effort on service) and research impact (h-index and number of citations).

The NAK review is of doctoral programs, not departments. For many of the surveyed programs, the program was run from within a department with all faculty having appointments in that department, but this was not uniformly the case. There are programs which are interdepartment within a college, and others across departments in different colleges. While each program structure creates its own unique problems for collating data for the NAK survey, the program inclusion criteria are designed to be as inclusive as possible.

This purpose of this report is to describe the process and outcome of the NAK 2020 survey of U.S. kinesiology doctoral programs. The next section describes the methods, the following section presents the results, and the final section provides a discussion and summary of the survey. Two appendices are presented: Appendix A presents a list of all participating institutions (and program titles) and lists programs invited but electing not to participate, and Appendix B presents the Instructional Guide which contains the information provided to programs for data submissions.

Method

In the following subsections, information is presented on the following: data collection, data verification, indices and weighting factors, and data analysis. Two measurement experts were contracted to conduct the data analysis and therefore produce the ranking of programs.

Data Collection

Since the 2015 review, the Doctoral Program Evaluation Committee (DPEC) and NAK Executive Committee have discussed the review process and the contents of the review. These discussions were

Challis (jhc10@psu.edu) is with the Biomechanics Laboratory, Pennsylvania State University, University Park, PA, USA.

augmented by open discussions among NAK fellows at the annual conference during the business meetings. The data collected which contribute to the ranking of programs remained the same as used in the previous review (Ulrich & Feltz, 2016), but some additional data were collected to help characterize U.S. doctoral program.

To identify programs that could participate in the review, previous programs lists were augmented by the DPEC, providing a mailing list from which to solicit participants (see Appendix A). In addition to publicize the review, notices were placed in professional newsletters, and information was posted on the NAK website.

In August 2019, a letter highlighting the upcoming review was sent to chairs and deans of programs in the list of U.S. doctoral programs. In November 2019, letters were sent to program chairs and their deans initiating the review process. In January 2020, programs that completed the last review but had not agreed to participate in this round were contacted, as were any NAK fellows in those programs. Submissions were due in March 2020, with the requested data covering the calendar years 2015, 2016, 2017, 2018, and 2019.

An Instructional Guide was sent to all participating programs; it contained details on all required data and how they should be reported (Appendix B). New items not requested in previous reviews related to program faculty included the following: courses taught per semester; percentage effort for teaching, research, and service; *h*-index; and career number of citations. One new item was included related to program students: it was number admitted students. All data were submitted in an Excel file (Microsoft Corp., Redmond, WA) to make for ease of data verification and analysis.

Data Verification

To verify submitted data, there were various steps. Immediately after submission, each submission was reviewed to confirm that all items requested were received. For all submissions, the program chairperson signed to authenticate the faculty and student data. In addition, each program submitted a bibliography of all of the publications used to arrive at the total number of publications submitted by a program. A separate bibliography listed all of the book chapters from a program. On submission, the program chairperson and a budget officer signed to authenticate the reported funding data. One item in the submitted data is the number of members of the NAK; on submission, these data were confirmed, against academy records of membership by institution.

All raw data for all indices were checked for outliers that may have occurred due to erroneous data entry, if required specific verifications were requested from program chairs. A random selection of programs was reviewed for detailed verification of their publication lists. These bibliographies were checked for duplications, abstracts presented as full papers, papers published outside of the data collection window, and other anomalies. The sample size was predetermined by the DPEC and NAK Executive Committee to be 10% of the number of programs in the review, which resulted in an $n=4$. The analyzed bibliographies averaged a mean error of 2.7%, well below the actionable criteria established (10%).

Indices and Weighting Factors

To compute the overall rank of programs, the faculty indices contribute 66% and student indices 34% of the total score. The weighting of these indices to the overall rank remained the same as in the previous round of the review (Ulrich & Feltz, 2016). The faculty-related indices can be divided into three categories (productivity, funding, and visibility): their weightings were

Faculty Indices—66%

Productivity—30%

Journal publications—20%

Book chapters—5%

Presentations—5%

Funding—26%

Federal research funds—15%

Nonfederal research funds—8%

Internal grant funds—3%

Visibility—10%

Editorial boards—6%

NAK fellow—2%

Other national fellowships—2%

The student-related indices can be divided into four categories (admissions, support, publications, and employment): their weightings were

Students Indices—34%

Admissions—12%

Selectivity—2%

GRE: verbal—5%

GRE: quantitative—5%

Graduate assistant support—13%

Doctoral publications—2%

Employment—7%

Postdoctoral positions—4%

Employment in the field—3%

Data Analysis

Data analysis adopted the procedures of Ulrich and Feltz (2016). Faculty indices were analyzed in two ways: unadjusted for faculty size and adjusted for faculty size.

The raw data, unadjusted and adjusted, were processed using the following sequence:

- Faculty and student indices were converted to z scores.
- Extreme scores were truncated to a z score of ± 2.576 .
- T -scores were calculated from the z scores (mean = 50, $SD = 10$).
- Weightings applied to individual indices.
- Total T -score computed by summing across weighted indices.

From the sum of the T -scores, the programs were ranked in two ways: using the indices unadjusted for faculty size and using the indices adjusted for faculty size.

The means and SD s for faculty and student indices were calculated. In addition, the programs were placed in one of four groupings based on total T -score (a) <40, (b) 40–49, (c) 50–59, and (d) ≥ 60 , and then descriptive statistics computed for these groups. Correlations were computed between the individual indices and the summed T -scores.

Results

In this section, reference is made to assessed indices and nonassessed indices, meaning those indices which contributed to the overall

program rankings and those metrics not used to determine program rankings, respectively. Program rankings were determined from the weighted sum of the *T*-scores from the assessed indices.

The Programs

A total of 74 kinesiology doctoral programs were identified in United States (Appendix A). These programs were all invited to participate in the review, of which 43 (58%) submitted the required data. The NRC 2010 review had 41 programs that participated. In 2020, there were four programs that did not participate in the 2015 review, and 13 programs that participated in 2015 but elected not to participate in 2020. The number of faculty in the participating programs ranged from 5 to 31 (15.0 ± 5.8). These basic data show a moderate increase in faculty size from the previous rounds of the review (Table 1).

Rankings

The overall ranking of programs was performed with and without adjustment for faculty size (Table 2).

Faculty Data

The relative standing of a program's faculty data for the individual indices can be determined from the program's *T*-scores for each of the assessed indices (Table 3). The programs were grouped by ranking *T*-score, and then descriptive statistics were computed for the four subgroups for the assessed faculty indices (Table 4). Descriptive data for program funding were computed for all programs (Table 5). Finally, the associations between the assessed indices and program rank were examined by quantifying the correlations between the assessed faculty indices and the summed *T*-scores used to arrive at overall rank (Table 6).

Student Data

The relative standing of a program's student data for the individual indices can be determined from the program's *T*-scores for each of the assessed indices (Table 7). The programs were grouped by ranking *T*-scores, and then descriptive statistics were computed for the four subgroups for all assessed student indices (Table 8). Finally, the associations between the assessed indices and program rank were examined by quantifying the correlations between the assessed student indices and the summed *T*-scores used to arrive at overall rank (Table 9).

Indices Not Used in Ranking

For the faculty, data were collected for six indices; these indices related to workload distribution (teaching, research, and service) and

research profile (h-index and total citations). The programs were grouped by total *T*-scores, and then descriptive data were computed for the four subgroups for the nonassessed faculty indices (Table 10). The associations between the nonassessed indices and total *T*-scores were examined by quantifying the correlations between the non-assessed faculty indices and the summed *T*-scores for both adjusted and nonadjusted data. Those indices associated with faculty workload had small and nonsignificant correlation coefficients ($|r|$ from .00 to .17). The correlation between program summed *T*-scores and h-index and number of citations were low for the unadjusted program rank (.23 and .20, respectively) but were greater and statistically significant for the adjusted program rank (.52 and .49, respectively, $p < .01$). In a similar fashion, the associations between the assessed faculty indices and nonassessed faculty indices were assessed by computing their correlations (Table 11).

For the students in kinesiology doctoral programs for the survey years, data were collected for the race of those students (Table 12). For comparison purposes, the data for the National Science Foundation 2018 survey of doctoral degree recipients are also presented. In their survey, they collected data on race and ethnicity, which was not the case in the NAK survey.

Discussion

This report has presented the results from the fourth NAK review of U.S. doctoral programs. The quality of a doctoral program is determined by many factors, and to some extent, these factors are student specific—the intention of this review is to try and capture at least some of these factors. The data set from the current review provides a temporal snapshot of doctoral kinesiology programs in the United States. A historical perspective can be obtained by comparing the results of the current review with those from previous reviews (Spirduso & Reeves, 2011; Thomas & Reeves, 2006; Ulrich & Feltz, 2016). Hopefully, it will be useful for administrators as benchmark data and may create the opportunity to request new or additional resources.

The overall number of faculty in programs has shown modest increases over the last three reviews (Table 1), likely in part driven by the increasing undergraduate enrollments in the last decade (Bassett, Fairbrother, Panton, Martin, & Swartz, 2018). The number of students studying for a doctoral degree in kinesiology has shown steady growth over the last decade (Figure 1a). Figure 1a could be potentially misleading as it combines data from the 2015 review which included 52 programs with the 2020 review which has 43 programs; therefore, the student enrolment data are also presented as the mean number of students per program; these data also show steady growth over the last decade (Figure 1b). The data from the 2015 and 2020 surveys on the demographics of the

Table 1 The Number of Programs Participating (+Number of New Programs in Review/–Number of Programs Completing Previous Review But Not Current Review) and the Mean Faculty Size (Median) for the Four NAK Reviews of Doctoral Programs in Kinesiology

Review year	Years for data	Number of programs	Faculty size
2005	2000–2004	32	—
2010	2005–2009	36 (+9/–5)	13.7 (14.0)
2015	2010–2014	52 (+17/–1)	14.7 (14.0)
2020	2015–2019	43 (+4/–13)	15.0 (15.0)

Note. NAK = National Academy of Kinesiology.

Table 2 Overall Final Ranking and Total T-Scores When Both Adjusted and Unadjusted for Faculty Size

Adjusted for size of faculty			Unadjusted for size of faculty		
Rank	University	T-score	Rank	University	T-score
1	University of South Carolina	72.68	1	University of Michigan	80.65
2	University of Michigan	68.34	2	University of North Carolina at Chapel Hill	71.79
3	University of Connecticut	65.04	3	Pennsylvania State University	70.09
4	Teachers College, Columbia University	63.22	4	University of South Carolina	69.82
5	University of North Carolina at Chapel Hill	61.91	5	University of Delaware	61.78
6	University of Mississippi	61.00	6	University of Mississippi	56.99
7	Pennsylvania State University	60.00	7	University of Illinois, Urbana-Champaign	56.97
8	University of Virginia	59.17	8	University of Wisconsin—Madison	56.28
9	University of Central Florida	58.07	9	University of Texas at Austin	55.57
10	The Ohio State University	57.58	10	University of Utah	55.02
11	University of Minnesota	57.47	11	Indiana University	54.63
12	University of Southern California	57.36	12	University of Minnesota	54.03
13	University of Delaware	56.44	13	Auburn University	53.60
14	University of Illinois, Urbana-Champaign	56.37	14	University of Georgia	53.48
15	University of Texas at Austin	56.18	15	University of North Carolina at Greensboro	53.12
16	Rutgers University	55.92	16	University of Southern California	52.95
17	University of Utah	53.27	17	The Ohio State University	52.80
18	University of Wisconsin—Madison	53.21	18	Iowa State University	52.72
19	University of Florida	52.94	19	University of Florida	52.71
20	Indiana University	52.67	20	University of Tennessee, Knoxville	51.68
21	Iowa State University	52.32	21	Michigan State University	51.06
22	Auburn University	49.99	22	University of Virginia	49.86
23	Michigan State University	48.85	23	University of Texas at Arlington	47.26
24	University of North Carolina at Greensboro	48.30	24	University of Maryland	47.25
25	University of Georgia	47.45	25	University of Connecticut	46.00
26	University of Massachusetts, Amherst	47.44	26	University of Massachusetts, Amherst	45.40
27	University of Tennessee, Knoxville	46.76	27	University of Nebraska Omaha	45.27
28	University of Maryland	45.81	28	Teachers College, Columbia University	44.30
29	University of Arkansas	43.79	29	Florida State University	43.61
30	University of Nebraska Omaha	43.39	30	Louisiana State University	43.39
31	University of Illinois, Chicago	42.98	31	University of Illinois, Chicago	42.91
32	Syracuse University	41.21	32	University of Central Florida	42.88
33	University of Alabama	41.04	33	Colorado State University	42.60
34	East Carolina University	40.81	34	Oregon State University	41.95
35	The University of Texas at Arlington	40.10	35	Purdue University	40.78
36	Oregon State University	39.79	36	Rutgers University	40.09
37	Colorado State University	38.85	37	University of Oklahoma	39.81
38	Virginia Commonwealth University	37.95	38	University of Alabama	39.70
39	Florida State University	37.01	39	University of Arkansas	39.49
40	Purdue University	36.55	40	East Carolina University	38.65
41	Louisiana State University	36.12	41	Virginia Commonwealth University	37.32
42	University of Oklahoma	34.95	42	Mississippi State University	37.12
43	Mississippi State University	29.69	43	Syracuse University	36.63

Note. T-scores are presented to two decimal places as this was required to determine the rank for some programs.

doctoral students can be combined to examine trends in the student enrolments. The largest proportion of the students are White, but the proportion of these students has diminished over the last decade (Figure 2a). The data for the other groups show some modest increases over the decade (Figure 2b).

The review is of doctoral programs, not departments. Some programs were run out a single department, but other programs were interdepartmental. This review was conducted by the NAK, but not all surveyed programs were doctoral programs titled as a kinesiology program; they had a large spectrum of titles

Table 3 T-Score Results for Faculty Indices, Adjusted for Faculty Size

University	Publications	Book chapters	Presentations	Federal funding	Nonfederal funding	Internal funding	Editors	NAK fellows	National fellows
Auburn University	50	45	54	44	51	47	47	55	50
Colorado State University	46	42	35	45	55	55	40	71	47
East Carolina University	40	41	52	56	43	49	34	50	39
Florida State University	42	43	37	45	46	45	40	38	42
Indiana University	49	49	49	43	53	60	76	47	60
Iowa State University	46	46	46	50	48	44	44	48	52
Louisiana State University	43	47	45	42	40	45	55	42	42
Michigan State University	50	49	48	43	45	46	54	48	41
Mississippi State University	36	45	35	42	40	44	36	50	30
The Ohio State University	51	57	71	47	57	47	70	62	76
Oregon State University	44	44	43	48	45	44	44	44	61
Pennsylvania State University	50	76	54	48	49	46	62	54	48
Purdue University	39	41	41	43	46	48	37	51	49
Rutgers University	55	57	67	71	46	57	53	38	70
Syracuse University	58	42	45	43	43	44	35	38	37
Teachers College, Columbia University	54	73	60	60	46	62	65	71	43
University of Alabama	49	47	60	41	43	47	44	38	41
University of Arkansas	49	50	75	42	55	44	44	38	48
University of Central Florida	71	49	51	41	47	65	43	38	55
University of Connecticut	69	75	71	45	76	47	55	59	54
University of Delaware	43	45	50	76	62	44	50	50	41
University of Florida	49	44	49	61	45	76	46	49	39
University of Georgia	48	51	44	44	44	45	50	62	51
University of Illinois, Urbana-Champaign	54	52	55	45	59	48	55	56	41
University of Illinois, Chicago	46	46	57	49	47	44	55	44	54
University of Maryland	41	51	37	46	51	44	58	60	49
University of Massachusetts, Amherst	45	43	44	51	46	49	42	53	56
University of Michigan	44	48	51	63	68	46	61	54	52
University of Minnesota	48	60	44	48	41	44	63	76	64
University of Mississippi	76	46	45	41	40	45	60	38	44
University of Nebraska Omaha	47	44	46	63	41	57	42	44	39
University of North Carolina at Chapel Hill	61	46	63	51	74	46	50	48	54
University of North Carolina at Greensboro	44	50	40	47	42	45	50	63	50
University of Oklahoma	39	44	38	42	40	46	45	44	47

(continued)

Table 3 (continued)

University	Publications	Book chapters	Presentations	Federal funding	Nonfederal funding	Internal funding	Editors	NAK fellows	National fellows
University of South Carolina	62	52	61	63	72	45	43	47	61
University of Southern California	47	43	61	57	46	45	42	44	59
University of Tennessee, Knoxville	43	50	47	43	40	44	50	42	44
University of Texas at Arlington	48	47	45	47	42	45	42	38	46
University of Texas at Austin	50	59	40	48	68	54	59	57	63
University of Utah	58	51	47	47	53	44	53	52	51
University of Virginia	55	51	57	52	55	76	63	60	73
University of Wisconsin—Madison	42	48	47	76	55	65	43	38	42
Virginia Commonwealth University	50	43	42	41	41	47	46	48	46

Note. NAK = National Academy of Kinesiology.

Table 4 Descriptive Statistics, *M* and *SD*, for Assessed Faculty Indices by Total *T*-Score Category (Adjusted for Faculty Size)

Category of total <i>T</i> -scores	Publications	Book chapters	Presentations	Federal funding	Nonfederal funding	Internal funding	Editors	NAK fellows	National fellows
<40 (<i>n</i> = 8)									
<i>M</i>	15.4	0.7	17.7	\$102,831	\$61,723	\$29,282	1.0	0.1	0.5
<i>SD</i>	4.2	0.4	3.3	\$91,388	\$70,096	\$34,658	0.5	0.1	0.3
40–49 (<i>n</i> = 14)									
<i>M</i>	19.7	1.4	26.6	\$248,249	\$74,405	\$28,243	1.3	0.1	0.5
<i>SD</i>	4.3	0.8	8.5	\$246,998	\$59,047	\$34,396	0.6	0.1	0.2
50–59 (<i>n</i> = 14)									
<i>M</i>	23.7	2.2	29.1	\$570,012	\$174,552	\$125,453	1.9	0.2	0.8
<i>SD</i>	7.0	1.2	7.9	\$539,720	\$100,906	\$146,385	0.9	0.1	0.4
≥60 (<i>n</i> = 7)									
<i>M</i>	34.0	4.7	33.7	\$490,003	\$287,706	\$45,424	2.1	0.2	0.7
<i>SD</i>	15.3	4.2	7.5	\$361,700	\$210,506	\$60,735	0.6	0.1	0.2
Total (<i>n</i> = 43)									
<i>M</i>	22.5	2.1	26.9	\$365,310	\$139,375	\$62,883	1.6	0.1	0.6
<i>SD</i>	9.6	2.2	8.8	\$404,201	\$134,220	\$98,472	0.8	0.1	0.3

Note. NAK = National Academy of Kinesiology.

Table 5 Descriptive Statistics for the Total Funding Reported for All Faculty in the National Academy of Kinesiology 2020 Doctoral Program Review

Index	<i>n</i>	Minimum	Maximum	Sum	<i>M</i>	<i>SD</i>
External federal funding	43	\$0	\$35,434,581	\$253,425,035	\$5,893,605	\$7,869,494
External nonfederal funding	43	\$65,140	\$11,936,686	\$100,521,471	\$2,337,709	\$2,885,873
Internal funding	43	\$6,912	\$6,762,936	\$35,565,251	\$827,099	\$1,339,037

(e.g., kinesiology, biokinesiology, kinesiology and applied physiology, biomechanics and movement science, movement science). As Newell (1990) has highlighted, the word kinesiology works well to capture disciplinary and interdisciplinary efforts to study

physical activity. It may be elusive to describe all areas which fit under the kinesiology label, but practitioners echo the sentiments of U.S. Supreme Court Justice Potter Stewart in that they know it when they see it.

Table 6 The Correlation Between the Assessed Faculty Indices and the Programs' Total T-Scores

Index	Adjusted	Unadjusted
Publications (20%)	.61**	.83**
Books (5%)	.55**	.50**
Presentation chapters (5%)	.54**	.84**
Federal funding (15%)	.43**	.60**
External funding (nonfederal) (8%)	.64**	.79**
Internal funding (3%)	.23	.11
Editorial boards (6%)	.55**	.76**
NAK fellow (2%)	.26	.51**
National fellows (2%)	.47**	.71**

Note. Values in parentheses refer to the contribution of the index to the total T-score (the weighting). NAK = National Academy of Kinesiology.

** $p < .01$.

Institutions also differ in how faculty are associated with a program; thus, three criteria were used to determine if faculty should be included in the survey. The criteria were as follows:

1. Currently teach doctoral-serving courses, and/or direct doctoral dissertations, and/or serve on doctoral advisory committees.
2. Hold a doctoral degree and be in a tenured or tenure-earning position at the rank of assistant, associate, or full professor.
3. At least 25% of their base salary support is provided by the academic unit sponsoring the doctoral program.

Item 3 creates problems because faculty salaries are administered differently at different institutions, but here the term "academic unit" has been used to provide flexibility. Item 2 creates problems because the professoriate has shown an expansion of appointment types in recent years, with various appointment types paralleling the traditional tenure-line titles. There has been an increase in the proportion of faculty with appointments outside of the traditional tenure-line (Fuesting & Schmidt, 2020), and with this increase, there has been an expansion of potential duties for

Table 7 T-Score Results for Student Indices

University	GRE verbal	GRE quantitative	Assistantships (FTE)	Selectivity	Doctoral publications	Postdoctoral positions	Employed
Auburn University	35	33	61	49	68	55	66
Colorado State University	48	45	43	24	41	41	39
East Carolina University	55	55	45	47	37	50	39
Florida State University	44	49	47	51	44	50	47
Indiana University	35	49	52	41	56	58	64
Iowa State University	52	70	61	56	52	46	50
Louisiana State University	48	47	40	46	40	38	51
Michigan State University	52	45	53	56	48	48	67
Mississippi State University	37	48	52	30	41	36	42
The Ohio State University	45	39	44	53	62	55	76
Oregon State University	52	49	42	56	40	40	50
Pennsylvania State University	56	70	51	62	63	63	44
Purdue University	56	66	40	59	38	45	42
Rutgers University	48	51	33	52	37	40	38
Syracuse University	48	45	47	49	38	43	39
Teachers College, Columbia University	76	68	39	55	38	50	39
University of Alabama	44	37	47	45	56	40	64
University of Arkansas	52	37	39	56	45	46	42
University of Central Florida	64	58	50	63	46	40	46
University of Connecticut	39	45	43	41	54	51	50
University of Delaware	50	52	47	56	47	45	55
University of Florida	53	49	42	56	57	76	43
University of Georgia	46	46	50	50	61	61	61
University of Illinois, Urbana-Champaign	45	52	50	44	65	70	65
University of Illinois, Chicago	34	39	43	47	44	61	42
University of Maryland	60	58	43	56	49	63	45
University of Massachusetts, Amherst	50	42	54	62	49	60	46
University of Michigan	54	62	76	61	55	58	49
University of Minnesota	52	58	65	56	50	53	55

(continued)

Table 7 (continued)

University	GRE verbal	GRE quantitative	Assistantships (FTE)	Selectivity	Doctoral publications	Postdoctoral positions	Employed
University of Mississippi	39	33	76	52	64	36	55
University of Nebraska Omaha	38	52	45	24	39	41	40
University of North Carolina at Chapel Hill	60	60	42	45	71	46	50
University of North Carolina at Greensboro	44	41	67	55	44	53	52
University of Oklahoma	46	39	52	41	50	43	51
University of South Carolina	54	53	63	52	71	70	48
University of Southern California	67	75	52	62	50	60	50
University of Tennessee, Knoxville	56	41	68	61	53	36	61
University of Texas at Arlington	44	45	50	35	40	43	39
University of Texas at Austin	52	54	48	52	57	55	54
University of Utah	49	56	50	51	44	45	51
University of Virginia	47	45	46	56	64	46	52
University of Wisconsin—Madison	54	42	46	55	44	53	42
Virginia Commonwealth University	56	45	42	33	39	40	40

Note. FTE = full-time equivalent; GRE = Graduate Record Examination.

** $p < .01$.

Table 8 Descriptive Statistics, *M* and *SD*, for Assessed Student Indices by Program Total *T*-Score Category (Adjusted for Faculty Size)

Category of total <i>T</i> -scores	GRE verbal	GRE quantitative	Assistantships (FTE)	Selectivity	Doctoral publications	Postdoctoral positions	Employed in field
<40 ($n = 8$)							
<i>M</i>	152.1	152.8	17.0	0.6	42.8	3.1	9.9
<i>SD</i>	1.5	1.9	5.8	0.3	17.8	2.5	6.4
40–49 ($n = 14$)							
<i>M</i>	151.8	151.7	24.2	0.4	73.4	8.2	15.9
<i>SD</i>	1.9	1.7	10.7	0.2	44.4	5.4	13.4
50–59 ($n = 14$)							
<i>M</i>	152.7	154.1	21.8	0.4	93.8	9.9	19.8
<i>SD</i>	1.9	2.4	9.1	0.1	40.5	6.4	14.2
≥60 ($n = 7$)							
<i>M</i>	154.1	154.6	30.8	0.4	128.9	10.3	12.6
<i>SD</i>	4.2	3.2	19.8	0.1	56.2	6.7	6.0
Total ($n = 43$)							
<i>M</i>	152.5	153.2	23.2	0.4	83.3	8.2	15.5
<i>SD</i>	2.4	2.4	11.8	0.2	48.5	6.0	12.0

Note. FTE = full-time equivalent; GRE = Graduate Record Examination.

nontenure line faculty (Finkelstein, Conley, & Schuster, 2016). Should these faculty be included in the review? For some programs including these faculty would boost the program profile, but for other programs, their institution makes doctoral student teaching and dissertation supervision the sole purview of the tenure-line faculty. The tenure-line appointments and associated titles are long established and have the same common elements across

institutions. To include nontenure line appointments in the NAK review would create a potential bias for institutions with more liberal policies for the engagement of faculty in graduate student education. Due to the nature of tenure-line appointments, they reflect those faculty to whom the host institution has long-term fiduciary commitment, and other appointments do not necessarily have this commitment. The professoriate is evolving and revisiting

the criteria for eligible faculty needs frequent reconsideration by the NAK.

The indices for the students in the review of doctoral program included GRE scores on the verbal and quantitative parts of the exam. These scores collectively contribute 10% to the overall ranking and contribute just under a third of the score from student indices used in the rankings. These measures in theory capture the quality of the students in the programs, but, of course, this assumes quality on admission impacts student quality on graduation. The use of GRE scores as part of an admission decision is fraught with problems given evidence that women and certain minority groups are disadvantaged by the exam relative to White males (Miller & Stassun, 2014). For students in the biomedical sciences, the assumption of a relationship between GRE scores and student first authored papers has not been found (Hall, O'Connell, & Cook, 2017). Once again in the biomedical sciences, GRE scores were identified by Moneta-Koehler, Brown, Petrie, Evans, and Chalkley

(2017) as bad predictors of completing doctoral milestones (passing qualifying exam, time to defense, and successful graduation) and of measures of productivity (conference presentations, first authored papers, and grants). There is a trend for academic programs and institutions to abandon the GRE, leading to the so called GRExit. This trend has been more prevalent, for example, for programs in neuroscience than it is for programs in psychology (Langin, 2019). With respect to the inclusion of the GRE scores as indices used to determine program rank, these are all important factors to consider for future rounds of the review.

In 2005 when Hirsch (2005) introduced his eponymous h-index, the proposal was that this index would capture the impact and relevance of an individual's research output. These data were collected for the first time in this round of the NAK survey of doctoral programs, and it was not used to determine program rank, but its association with program rank was assessed. The h-index had a statistically significant correlation with size adjusted program total *T*-scores (0.49, $p < .01$) but had relatively low nonsignificant correlations with the individual indices used to determine program rank (Table 11). Similar patterns were seen for number of citations. It could be argued that these measures are capturing something different to the existing indices used to arrive at the rank and are therefore worthy of further examination. Kinesiology comprises academics with different areas of interest, which creates a challenge when using a metric which includes the number of citations as different areas have different citations rates (e.g., Radicchi & Castellano, 2012; Seglen, 1997), and, of course, different research areas also have different publication patterns (e.g., Kulczycki et al., 2018).

When making measurements, there is always a risk of making changes to the very thing being measured (Dent, 2013). This NAK initiative for the continuing review of kinesiology doctoral programs is intended to provide feedback on the state of the area, not to guide program features which should be emphasized.

The results of the 2020 review of U.S. doctoral programs by the NAK have been presented. This is the fourth review completed

Table 9 The Correlation Between the Assessed Student Indices and the Programs' Total *T*-Scores

Index	Adjusted	Unadjusted
Average GRE—Verbal (5%)	.29	.09
Average GRE—Quantitative (5%)	.32*	.31*
Assistantships (FTE) (13%)	.32*	.52**
Selectivity (2%)	.44**	.34*
Doctoral publications (2%)	.60**	.68**
Postdoctoral positions (4%)	.44**	.47**
Positions in field (3%)	.22	.29

Note. FTE = full-time equivalent; GRE = Graduate Record Examination. Values in parentheses refer to the contribution of the index to the total *T*-score (the weighting).

* $p < .05$. ** $p < .01$.

Table 10 Descriptive Statistics *M* (Median) and *SD* for Nonassessed Faculty Indices by Total *T*-Score Category, Adjusted for Faculty Size

Category of total <i>T</i> -scores	Courses per semester	%Effort teaching	%Effort research	%Effort service	h-index	Number of citations
<40 ^a ($n = 8$)						
<i>M</i>	1.5 (1.3)	34.5 (31.9)	43.9 (40.5)	21.1 (21.0)	18.8 (20.2)	1,934 (2,113)
<i>SD</i>	0.3	4.7	8.2	7.2	4.2	787
40–49 ^b ($n = 14$)						
<i>M</i>	1.6 (1.6)	36.5 (35.6)	41.8 (41.3)	20.9 (22.0)	25.0 (25.3)	4,018 (3,259)
<i>SD</i>	0.3	5.8	6.5	5.9	5.2	2,572
50–59 ^c ($n = 14$)						
<i>M</i>	1.4 (1.5)	33.9 (35.6)	45.1 (43.6)	20.9 (20.3)	28.9 (28.2)	4,847 (4,454)
<i>SD</i>	0.4	8.6	8.0	5.3	6.7	2,384
≥60 ($n = 7$)						
<i>M</i>	1.6 (1.7)	38.3 (40.0)	41.0 (41.5)	20.8 (19.2)	29.8 (30.4)	5,892 (5,703)
<i>SD</i>	0.3	7.5	5.6	4.7	4.8	2,226
Total ^c ($n = 43$)						
<i>M</i>	1.5 (1.5)	35.6 (35.7)	43.1 (41.6)	20.9 (20.3)	26.1 (25.4)	4,265 (3,790)
<i>SD</i>	0.3	6.9	7.1	5.5	6.6	2,494

^aSeven programs from this category provided responses for these variables. ^bSample size was 13 for h-index, and number of citations. ^cSample size was 42 for courses per semester, %effort teaching, %effort research, and %effort service and 41 for h-index and number of citations.

Table 11 Correlation Coefficients Between Two Sets of Faculty Indices, Specifically Those Indices Not Used in Program Ranking (e.g., Courses per Semester) and Those Used in the Ranking (e.g., Number of Faculty Publications)

Index	Publications	Book chapters	Presentations	Federal funding	External funding (nonfederal)	Internal funding	Editorial boards	National academy members	National fellows
Courses per semester	-.06	.13	-.09	-.18	-.10	-.11	.05	-.09	-.15
%Effort teaching	-.01	.37*	.04	-.10	-.05	-.12	.31*	.30	.09
%Effort research	.02	-.34*	.07	.35*	.19	.24	-.17	-.14	-.08
%Effort service	.01	-.03	-.12	-.29	-.16	-.15	-.17	-.19	-.003
h-index	.12	.30	.21	-.02	.09	.17	.24	.29	.27
Number of citations	.09	.22	.18	-.01	.11	.05	.14	.24	.25

Note. Values in this table are based on the 42 programs who provided these data.

* $p < .05$.

Table 12 Demographics of Doctoral Students in Kinesiology for the Survey Years of 2015–2019 Compared With Data From the National Science Foundation for Recipients of a Doctoral Degree in 2018

Race	United States ^a	NAK				
	2018	2015	2016	2017	2018	2019
Hispanic or Latino ^b	3,603 (6.5)	—	—	—	—	—
American Indian or Alaska Native	116 (0.2)	5 (0.7)	4 (0.5)	6 (0.8)	6 (0.7)	6 (0.7)
Asian	14,815 (26.8)	104 (13.9)	107 (13.7)	115 (14.7)	123 (15.1)	115 (13.7)
Black	3,058 (5.5)	38 (5.1)	41 (5.3)	41 (5.2)	42 (5.2)	58 (6.9)
Native Hawaiian or Other Pacific Islander ^c	—	1 (0.1)	1 (0.1)	1 (0.1)	1 (0.1)	0 (0.0)
White	28,585 (51.8)	468 (62.7)	512 (65.7)	510 (65.2)	524 (64.4)	531 (63.4)
More than one race	1,213 (2.2)	28 (3.8)	25 (3.2)	21 (2.7)	22 (2.7)	29 (3.5)
Other race or race not reported	862 (1.6)	102 (13.7)	94 (12.1)	88 (11.3)	107 (13.1)	102 (12.2)
Ethnicity not reported ^b	2,943 (5.3)	—	—	—	—	—
Total	55,195	746	779	782	814	837

Note. NAK = National Academy of Kinesiology.

^aThese data indicate number of doctorates awarded by race and ethnicity for U.S. doctoral students (National Center for Science and Engineering Statistics, 2019). ^bThese data were not collected by the NAK for this evaluation period. ^cThese data were not reported by the National Science Foundation for this reporting period.

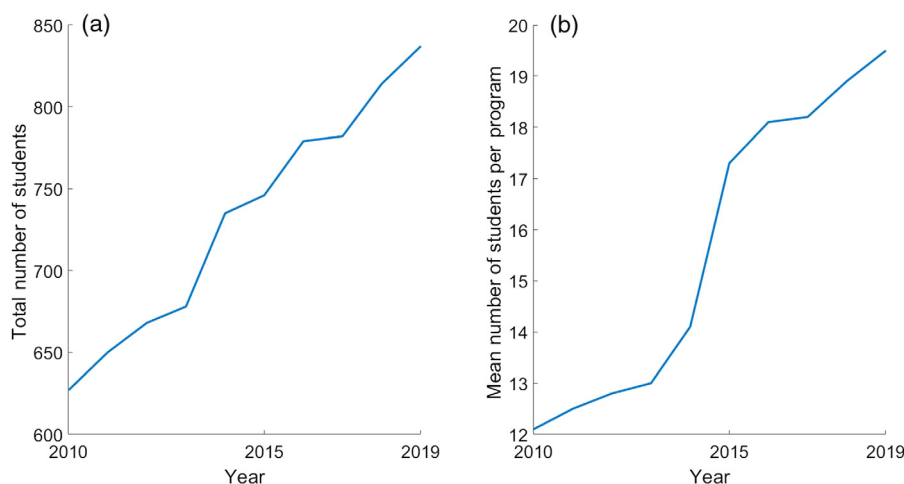


Figure 1 — The number of students studying for a doctoral degree in a kinesiology in the United States: (a) total number of students and (b) number of students per program. These graphs combine data from the 2015 and 2020 National Academy of Kinesiology surveys.

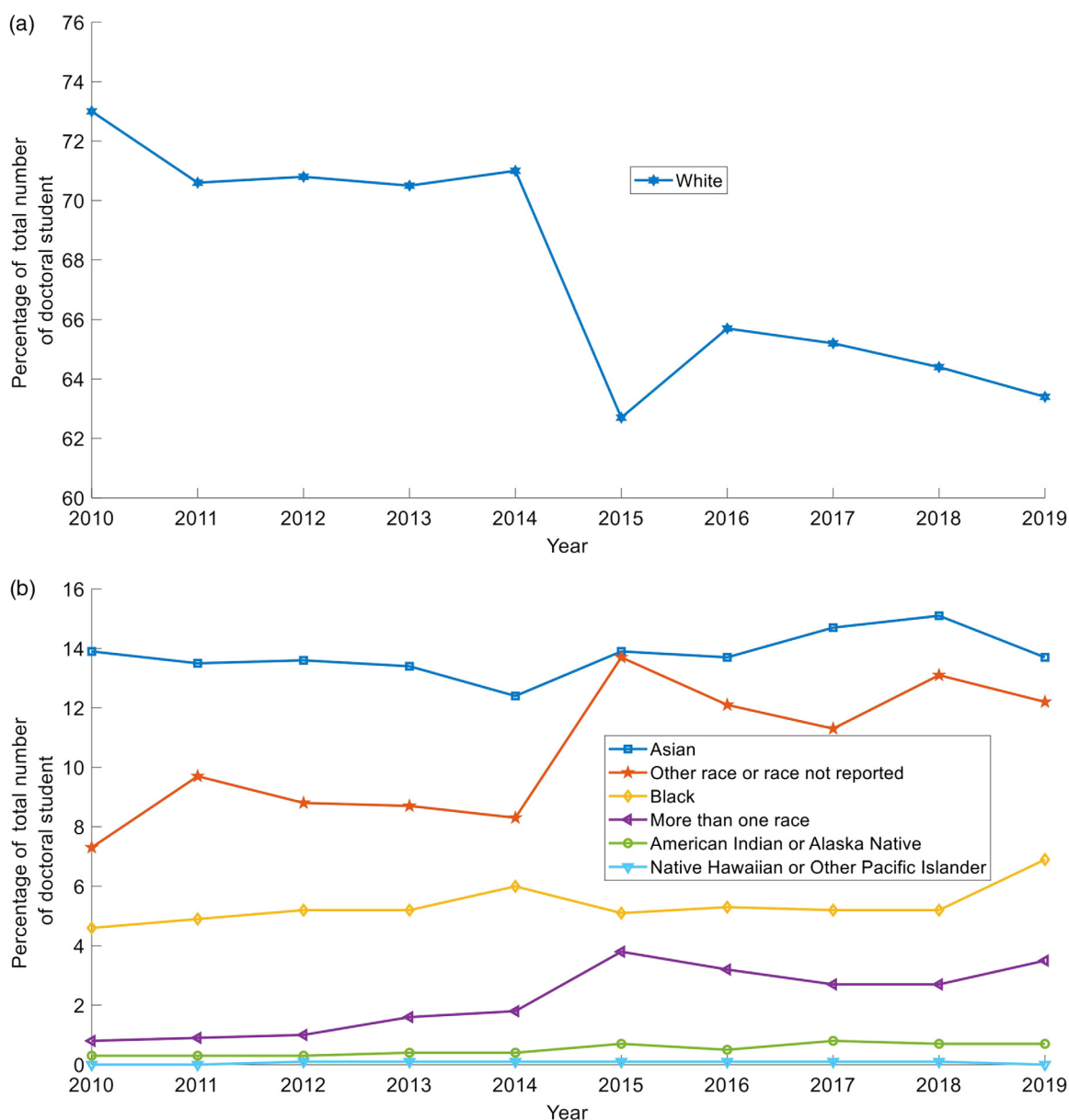


Figure 2 — The percentage of the students studying for a doctoral degree in kinesiology in the United States representing different groups based on race: (a) contribution to the total of White students and (b) contribution to the total of the other race groups in the survey. These graphs combine data from the 2015 and 2020 National Academy of Kinesiology surveys.

by the NAK; the current review presents the current state of the doctoral programs, and collectively, they illustrate the evolution of these programs.

Acknowledgments

The members of the NAK Doctoral Program Committee (2015–2020) for their contributions to the review process: David Bassett (NAK Fellow #495), Kim Graber (NAK Fellow #526), Diane Gill (NAK Fellow #331), Jane Kent (NAK Fellow #477), Duane Knudson (NAK Fellow #588), Jeff McCubbin (NAK Fellow #400), Karl Newell (NAK Fellow #319), Cesar Torres (NAK Fellow #531), Patricia Verinsky (International Fellow), and Howard Zelaznik (NAK Fellow #337). The presidents of the NAK over the period of the review for their support of the process: Karl Newell (NAK Fellow #319), Debra Rose

(NAK Fellow #447), Bradley Hatfield (NAK Fellow #452), Bradley J. Cardinal (NAK Fellow #475), and Dave Perrin (NAK Fellow #401). The analysis team for their work on this project: Matthew Mahar (NAK Fellow #521) and Nicholas D. Myers from Michigan State University. The authors would like to thank Kim Scott for all of her work in the background.

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Appendix A: Lists of Universities That Participated and Those Programs Invited That Elected Not to Participate

Participating university	Program title	Nonparticipating university	Program name
Auburn University	Kinesiology	Arizona State University	Exercise & Nutritional Sciences
Colorado State University	Human Bioenergetics	Ball State University	Human Bioenergetics
East Carolina University	Kinesiology	Baylor University	Exercise & Nutrition Sciences
Florida State University	Exercise Physiology	Brigham Young University	Exercise Sciences
Indiana University	Kinesiology	Georgia State University	Kinesiology
Iowa State University	Kinesiology	Kansas State University	Kinesiology
Louisiana State University	Kinesiology	Kent State University	Exercise Physiology
Michigan State University	Kinesiology	Middle Tennessee State University	Human Performance
Mississippi State University	Kinesiology	New Mexico State University	Kinesiology
The Ohio State University	Human Sciences	North Dakota State University	Exercise Science & Nutrition
Oregon State University	Kinesiology	Springfield College	Exercise Physiology & Psychology
Pennsylvania State University	Kinesiology	Temple University	Kinesiology
Purdue University	Health & Kinesiology	Texas A&M University	Kinesiology
Rutgers University	Kinesiology & Applied Physiology	Texas Christian University	Health Sciences
Syracuse University	Exercise Science	Texas Tech University	Exercise Physiology
Teachers College, Columbia University	Kinesiology	Texas Woman's University	Kinesiology
The University of Alabama	Kinesiology	University of Hawaii	Kinesiology
University of Arkansas	Exercise Science	University of Houston	Kinesiology
University of Central Florida	Exercise Physiology	University of Idaho	Exercise Science
University of Connecticut	Exercise Science	University of Iowa	Health & Human Physiology
University of Delaware	Kinesiology & Applied Physiology	University of Kansas	Health, Sport Management, & Exercise Science
University of Florida	Applied Physiology & Kinesiology	University of Kentucky	Exercise Science
University of Georgia	Kinesiology	University of Miami	Exercise Physiology
University of Illinois, Chicago	Kinesiology & Nutrition	University of Nevada, Las Vegas	Kinesiology
University of Illinois, Urbana-Champaign	Kinesiology & Community Health	University of New Mexico	Exercise Science
University of Maryland, College Park	Kinesiology	University of Northern Colorado	Sport & Exercise Science
University of Massachusetts, Amherst	Kinesiology	University of Toledo	Exercise Science
University of Michigan	Movement Science	University of West Florida	Health & Physical Activity
University of Minnesota	Kinesiology	University of Wisconsin—Milwaukee	Kinesiology
The University of Mississippi	Health & Kinesiology	Wayne State University	Kinesiology
University of Nebraska Omaha	Exercise Science	West Virginia University	Sport, Exercise & Performance Psychology
University of North Carolina at Chapel Hill	Human Movement Science		
University of North Carolina at Greensboro	Kinesiology		
The University of Oklahoma	Health & Exercise Science		
University of South Carolina	Exercise Science		

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Participating university	Program title	Nonparticipating university	Program name
University of Southern California	Biokinesiology		
The University of Tennessee, Knoxville	Kinesiology & Sport Studies		
The University of Texas at Arlington	Kinesiology		
The University of Texas at Austin	Kinesiology & Health Education		
The University of Utah	Health & Kinesiology		
University of Virginia	Kinesiology		
University of Wisconsin—Madison	Kinesiology		
Virginia Commonwealth University	Rehabilitation & Movement Science		

Appendix B: Instructional Guide

B.1. Introduction

This guide provides definitions and specific instructions for completing and returning data for the NAK doctoral program evaluation. The required data falls into four categories:

Faculty Data—data specific to each faculty member in a program.

Program Funding Data—total amount of funding by year.

Student Data—data related to students in the program.

Doctoral Student Demographics—student demographic data.

These data are all entered into an Excel spreadsheet. As explained in this guide, some data are used in the evaluation process, and other data are requested to help provide a clearer picture of the range of doctoral programs.

B.1.1. Review Period

Data to be included are for five calendar years (2015, 2016, 2017, 2018, and 2019). You can report data for faculty members who are currently conducting doctoral activities in your program (see detailed description below). Data for faculty who left the program (e.g., retired or resigned) before the end of this period cannot be reported. Student data include all doctoral students enrolled in the program at any time in the 5-year period of 2015–2019 as described later in this Instructional Guide.

B.1.2. Questions

There is a list of frequently asked questions which can be viewed at <https://nationalacademyofkinesiology.org/SubPages/Pages/Frequently%20Asked%20Questions>

If you still have questions regarding the information requested, please contact Kim Scott in the NAK Business Office.

B.1.3. Program Eligibility

A program is represented by a grouping of faculty who graduate doctoral students under a common degree title; it might run within a department or across departments. The following are the criteria for a program to be eligible to participate in the review.

- The program must graduate an average of at least one doctoral student per year.
- The program must be offered by a college or university that has current regional higher education accreditation.
- At least one third of the faculty members in the program must be kinesiologists, where kinesiology is broadly defined; it is up to individual programs to determine if their expertise falls under this umbrella term.

B.1.4. Returning the Data

There are four items to be returned,

- Excel File*—four tabs to complete.
- Individual Faculty/Student Data Verification Page*—this requires one signature, the Program Chairperson. Please print, sign, scan, and send electronically as a PDF.
- Program Funding Verification Page*—this requires two signatures, the Program Chairperson and the program Budget Officer. Please print, sign, scan, and send electronically as a PDF.
- Bibliography*—this is a list of all unique refereed publications and book publications (listing to include all publications used to arrive at values for “Journal Publications” and “Book Publications” in the Excel spreadsheet). Send electronically as a Word file (see specific instructions below).

Please name the files as follows,

Excel Spreadsheet: “University Name–NAK–2020”

PDF of Faculty/Student Data Verification: “University Name–NAK–Data–2020”

PDF of Funding Verification: “University Name–NAK–Funding–2020”

Word File of Bibliography: “University Name–NAK–Bibliography-2020”

B.2. Faculty Data

The faculty data relate to publications, conference presentations, editorial boards, fellowships, and items related to workload.

B.2.1. Criteria for Inclusion of Faculty

To include a faculty member, all three of the following criteria must be met.

1. Currently teach doctoral-serving courses, and/or direct doctoral dissertations, and/or serve on doctoral advisory committees.
2. Hold a doctoral degree and be in a tenured or tenure-earning position at the rank of assistant, associate, or full professor.
3. At least 25% of their base salary support is provided by the academic unit sponsoring the doctoral program.

B.2.2. Data Entry

All of the following items were used for program evaluation except those marked with an *, where this information is not used for evaluation of the programs, but is being collected as potentially useful program demographics, which will be presented as group statistics with individual programs not identified.

Faculty Member Name—for each eligible faculty member, please enter their name (first and last).

Journal Publications—enter the number of full-length scholarly articles in peer-reviewed journals published during the review period (calendar years 2015–2019) by each faculty member.

Each publication is counted only one time, so if a publication has multiple authors who are also members of the program, then the publication should be assigned to one of the authors only. Therefore, the sum of the numbers in this column will be the total number of unique research publications produced by the program.

A bibliography must be submitted which reports all of the publications, so the total number of publications in the bibliography is the same as the total number of *Journal Publications* listed for all faculty members.

If the journal is published both online and in print, the publication date is that associated with the hard copy.

Do not include abstracts or proceedings.

Book Chapter Publications—enter the number of chapters in books published during the review period (calendar years 2015–2019) by each faculty member. If more than one edition is published in the 5-year period, count each edition.

Each publication is counted only one time, so if a publication has multiple authors who are also members of the program then the publication should be assigned to one of the authors only. Therefore, the sum of the numbers in this column will be the total number of unique book chapter publications produced by the program.

A bibliography must be submitted which reports all of the publications, so the total number of publications in the bibliography is the same as the total number of *Book Publications* listed for all faculty members.

Do not include project reports.

Conference Presentations—enter the number of conference presentations whether presenter or coauthor during the review period (calendar years 2015–2019) by each faculty member.

Each presentation is counted only one time, so if a presentation has multiple authors who are also members of the program then the presentation should be assigned to one author only. Therefore, the sum of the numbers in this column will be the total number of unique research presentations produced by the program.

Include only scholarly presentations at national and international meetings. Do not include sessions for which the faculty member simply acted as a presenter.

Editorial Boards—enter the number of editorships and editorial boards for scholarly journals that each faculty member

has held for any period over the review period (calendar years 2015–2019).

Do not include journals for which a faculty member simply serves as a reviewer.

These data are used in the evaluation of the programs.

NAK Fellow—simply enter a 1 next to each faculty member who is an active fellow of the NAK in 2019.

These data are used in the evaluation of the programs.

Other Fellowships—enter the number of other fellowships of societies, other than the NAK, of which the faculty is a member in 2019, for example, American College of Sports Medicine Fellow, Society of Gerontology Fellow, and SHAPE (Society of Health and Physical Educators) America Research Fellow.

**Courses per Semester*—for each faculty member, give the number of courses taught per semester. The number of courses taught may vary by semester in which case give the mean. If a course is team taught assign in proportion to the relative contribution to the course. At most institutions there is a typical size of course, report courses per semester in proportion to this typical course (e.g., if typical class is three credits, and the faculty member teaches one course of six credits, this would count as two).

**Percentage Effort*—for each faculty member, give their percentage effort for Teaching (Column J), Research (Column K), and Service and Administration (Column L) in the Excel spreadsheet. This should reflect the workload for 9 months, and not account for any classes the faculty member may have bought out. The sum of these three columns for each faculty member should equal 100%.

**Sabbatical Frequency*—give the time interval between eligibility for sabbaticals for each faculty member. For example, if a faculty member is eligible for a sabbatical every 6 years enter “6.” If a sabbatical is not an option, leave the cell blank.

**h-index*—using Google Scholar, enter for each faculty member their h-index. Faculty will need to register on Google Scholar to have a profile so that the citation count can be determined. Google Scholar was selected for two primary reasons. First, the faculty who have had a name change, for example, due to marriage, can ensure that their publications from all used names can be included. Second, because Google Scholar includes books, in some research domains, books are considered more important than journal publications.

**Number of Citations*—using Google Scholar, enter for each faculty member their total number of citations.

B.2.3. Verification

The Program Chairperson must sign and submit the “Verification Page for Faculty and Student Data.” In addition, include a bibliography in a Word file that reports all of the publications, so the total number of publications in the bibliography is the same as the total number of *Journal Publications* listed for all faculty members. A separate section of the bibliography should report all of the *Book Chapter Publications*. Please report the publications using APA format, listed alphabetically by author, ensuring to include the names of all authors.

B.3. Program Funding Data

These data reflect the funding which the program has had for each year in the review period (2015–2019). They are reported separately for each year.

The funding reflects support provided to faculty members in the program, that is those faculty listed for the “Faculty Data” in the Excel spreadsheet.

These should reflect funds processed through the program's budget for the review period (2015–2019).

Report the program total extramural dollars (direct costs) for all contracts, grants, training program grants, and so forth.

If the grant is for instruction, but not for research, then these funds should only be reported if the funds are for graduate education.

B.3.1. Data Entry

These data are all used in the evaluation of the programs, except for “Cost to Buyout of a Class.”

Federal Funding—list the program total extramural dollars for all federal contracts, for example, grants and program grants. These reported expenditures, direct costs, should be for the program faculty that were processed through the department's budget for each of the past 5 years (2015, 2016, 2017, 2018, and 2019).

Nonfederal Funding—list the program total extramural dollars for all nonfederal contracts, for example, foundations and corporations. These are expenditures, direct costs, for the program faculty that were processed through the department's budget for each of the past 5 years (2015, 2016, 2017, 2018, and 2019).

Internal Funding—list the program total university or college intramural dollars for research received for each of the past 5 years (2015, 2016, 2017, 2018, and 2019). Awards should not be reported that come from within the departmental unit, funding must come from the college or university level. Faculty start-up packages would not be included as funding in this category.

Cost to Buyout of a Class—outline in 50 words or less the cost for a faculty member to buyout of teaching one class. This may, for example, be a dollar amount (e.g., \$10,000) or a percentage of salary (e.g., 15%).

B.3.2. Verification

The Program Chairperson and a Budget Officer must sign and submit the “NAK Doctoral Program Funding Verification Page.”

B.4. Student Group Data

To include data associated with a student, they must have been a student in the doctoral program at any point during the review period (2015, 2016, 2017, 2018, and 2019), unless otherwise stated.

B.4.1. GRE Scores

Report GRE values using the score range from 130 to 170 (https://www.ets.org/gre/revised_general/scores/). If some students have scores based on the previous GRE reporting method (200–800), they must be converted to the 130–170 system (https://www.ets.org/s/gre/pdf/concordance_information.pdf).

B.4.2. Data Entry

All of the following items were used for program evaluation except those marked with an *, where this information is not used for evaluation of the programs, but is being collected as potentially useful program demographics, which will be presented as group statistics with individual programs not identified.

**Minimum GRE Verbal Score*—enter the current minimum GRE verbal score required for admission to the doctoral program. If there is no minimum, leave this cell blank.

**Minimum GRE Quantitative Score*—enter the current minimum GRE quantitative score required for admission to the doctoral program. If there is no minimum, leave this cell blank.

Mean GRE Verbal Score—enter the mean GRE verbal score for all doctoral students currently in the program in calendar year 2019. If a student has completed the GRE more than once, use only the scores used to make the admission decision. In computing the mean, use all full- and part-time students enrolled in the doctoral program in this field during the 2019 calendar year (spring, summer and/or fall 2019).

Mean GRE Quantitative Score—enter the mean GRE quantitative score for all doctoral students currently in the program in calendar year 2019. If a student has completed the GRE more than once, use only the scores used to make the admission decision. In computing the mean, use all full- and part-time students enrolled in the doctoral program in this field during the 2019 calendar year (spring, summer and/or fall 2019).

Number of Publications—for doctoral students who were/are enrolled any time during the 5-year review period (2015, 2016, 2017, 2018, and 2019), count the number of publications that they have had where they were the first author. Include any publications for 2 years following their graduation if they are (a) the first author and (b) the publication is based on work they conducted while a student in your program. Do not include abstracts, proceedings, or project reports.

Student Support—enter the total number of FTE for which your program had graduate student (master's and doctoral) support for the calendar year 2019 (Spring, Summer, and Fall). These could be Research Assistants, Graduate Assistants, Teaching Fellows, Teaching Assistants, and so forth.

Number of Applications—enter the number of completed doctoral applications received for the doctoral program for the 5-year review period (2015, 2016, 2017, 2018, and 2019). This is the number of applications that have reached your program's decision point. (This might be the Graduate School, the Department Chair, or the Graduate Coordinator, etc.)

Number Accepted Students—enter the number of doctoral students who have been accepted into this doctoral program for the 5-year review period (2015, 2016, 2017, 2018, and 2019).

**Number Admitted Students*—enter the number of doctoral students who were admitted into this doctoral program for the 5-year review period (2015, 2016, 2017, 2018, and 2019).

Number in Postdoctoral positions—enter the total number of doctoral graduates in the 5-year review period (2015, 2016, 2017, 2018, and 2019) who on graduating accepted postdoctoral positions. This does not include regular faculty positions.

Number with Employment in Field—enter the total number of doctoral graduates in the 5-year review period (2015, 2016, 2017, 2018, and 2019) who on graduating accepted full-time professional positions that required a doctoral degree. Examples of such positions would include university faculty positions and research positions. Positions in industry and institutes should also be included. This does not include postdoctoral positions.

B.4.3. Verification

The Program Chairperson must sign and submit the “Verification Page for Faculty and Student Data.”

B.5. Doctoral Student Demographics

This information is not used for evaluation of the programs, but is being collected as potentially useful program demographics, which

will be presented as group statistics with individual programs not identified.

B.5.1. Data Entry

These data require data for each of the 5 years of the review period (2015, 2016, 2017, 2018, and 2019). The number of students is required by race/ethnicity using the same categories used by the National Science Foundation. Therefore, the number of students each year, separated by sex, should be reported for each of the following categories,

- American Indians or Alaska Natives
- Asians
- Native Hawaiians or Other Pacific Islanders
- Blacks
- Hispanic/Latina
- Whites
- More than one Race
- Unknown or Not Reported

The totals for each column are automatically calculated.

B.5.2. Verification

The Program Chairperson must sign and submit the “Verification Page for Faculty and Student Data.”

B.6. Ranking Procedure

The raw data for the faculty and student variables will be converted to z scores. From the z scores T -scores will be calculated and weightings for individual variables applied. The total T -score will be determined by summing across weighted variables. Programs’ total T -scores will then be ranked in two ways:

- (a) adjusted for faculty size and
- (b) unadjusted for faculty size.

The faculty indices contribute 66% toward the overall score, comprising measures of productivity (30%), funding (26%), and visibility (10%). The student indices contribute 34% toward the overall score. The detailed weightings of the variables are as follows:

Faculty Indices (66%)

Productivity 30%

Journal publications 20%

Book chapters 5%

Presentations 5%

Funding 26%

Federal research funds 15%

Nonfederal research funds 8%

Internal grant funds 3%

Visibility 10%

Editorial boards 6%

NAK fellow 2%

Other fellowships 2%

Students Indices (34%)

Admissions 12%

Selectivity 2%

GRE verbal 5%

GRE quantitative 5%

Graduate assistant support 13%

Doctoral publications 2%

Employment 7%

Postdoctoral positions 4%

Employment in the field 3%

All other reported data are not used for ranking purposes but will be presented using descriptive statistics but without identifying individual programs.