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Teaching Undergraduates in U.S. Postsecondary Institutions: Fall 1998

Statistical Analysis Report

Executive Summary

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Executive Summary

For some years now, the quality of undergraduate education has been one of the major concerns of public and private postsecondary institutions, state legislatures, the business community, parents, and students (Kerr 1994; Winston 1994). At the heart of this concern lies the issue of “who teaches undergraduates in postsecondary institutions” (Boyer Commission 1998). Although some research has been conducted to address this issue (Chen 2000; Middaugh 1999; Townsend 2000), current descriptive information regarding who teaches undergraduates at postsecondary institutions in the United States is limited. Using the most current national survey of faculty, the 1999 National Study of Postsecondary Faculty (NSOPF:99),¹ this report supplies such information by addressing the following three questions: 1) Who teaches undergraduates in postsecondary institutions?² 2) How much do they teach? and 3) what teaching practices do they use for their undergraduate teaching? The findings, which are summarized below, are based on a nationally representative sample of postsecondary faculty and

¹Sponsored by the U.S. Department of Education’s National Center for Education Statistics (NCES), NSOPF:99 was conducted in 1999 and asked a nationally representative sample of faculty and instructional staff about their employment and work activities in fall 1998.

²Using teaching assistants for undergraduate instruction has become increasingly common in many postsecondary institutions and has recently received much attention from the media (Robin 1999). However, there is little information available concerning the extent to which teaching assistants are being used. Although NSOPF:99 is a survey of faculty (i.e., it did not include teaching assistants in its sample), it did ask several questions about teaching assistants (e.g., whether faculty had teaching assistants in their classes; what percentage of undergraduate student credit hours were assigned to teaching assistants). These questions allowed some analysis of teaching assistants in this report.

instructional staff who reported having some instructional responsibilities for credit in fall 1998.

Who Teaches Undergraduates?

In fall 1998, U.S. colleges and universities employed about 1.1 million faculty and instructional staff. Of these, about 976,000 (91 percent) were identified as instructional faculty and staff who had some for-credit instructional responsibilities, including teaching classes for credit or advising or supervising students about academic activities for credit. These individuals were the core sample for this report. Throughout this report, faculty and staff who had some for-credit instructional responsibilities are called “instructional faculty and staff” or simply “faculty.”

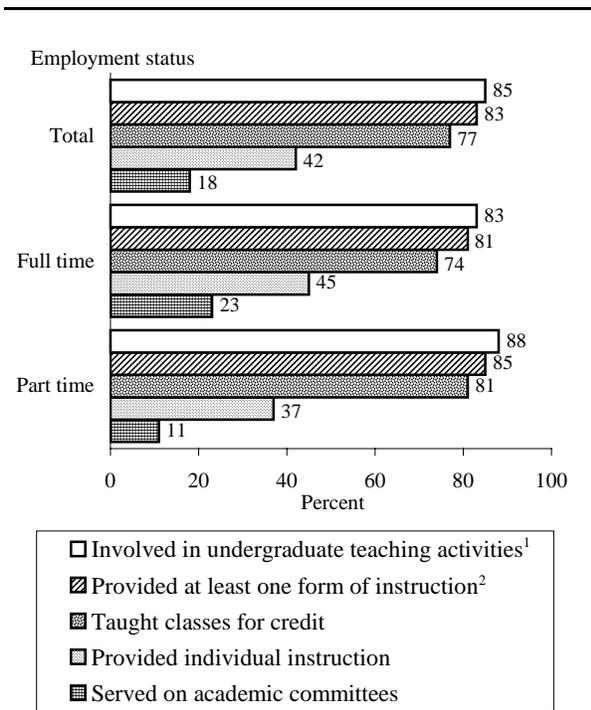
Overall pattern. In fall 1998, a majority of instructional faculty and staff were involved in undergraduate teaching: 85 percent reported being engaged in some kinds of undergraduate teaching activities,³ and 83 percent reported providing at least one type of instruction to undergraduates, which could include for-credit classroom instruction, individual instruction,⁴ and academic committee work⁵ (figure A).

³“Undergraduate teaching activities” were defined broadly and included teaching classes, grading papers, preparing courses, developing new curricula, advising or supervising students, supervising student teachers and interns, and working with student organizations or intramural athletics.

⁴Examples of individual instruction include independent study, supervising student teachers or interns, or one-on-one instruction, such as working with individual students in a clinical or research setting.

⁵Examples of undergraduate academic committees include thesis honors committees, comprehensive exams or oral committees, and examination/certification committees.

Figure A.—Percentage of instructional faculty and staff in postsecondary institutions who were involved in undergraduate instruction, by type of instruction and employment status: Fall 1998



¹“Undergraduate teaching activities” were defined broadly in the survey and included teaching classes, grading papers, preparing courses, developing new curricula, advising or supervising students, supervising student teachers and interns, and working with student organizations or intramural athletics.

²Including classroom instruction, individual instruction, and academic committee work.

NOTE: This figure includes all instructional faculty and staff.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, ‘Faculty Survey’ (NSOPF:99).

While there were different ways of delivering instruction to undergraduates, classroom teaching was the most common: in fall 1998, 77 percent of instructional faculty and staff reported teaching at least one undergraduate class for credit,⁶ compared with 42 percent who provided individual instruction and 18 percent who served on aca-

⁶The term “for credit” may be omitted for brevity throughout this report, but all classes examined are for credit.

demical committees. This pattern held true for both full- and part-time faculty (figure A).⁷

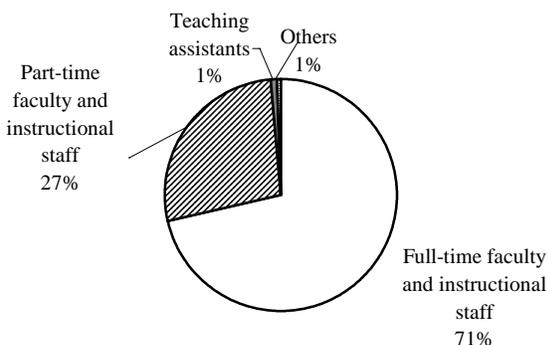
Variation across type of institutions. Overall, instructional faculty and staff at 4-year doctoral institutions were less likely to provide instruction to undergraduates than were their colleagues at 4-year nondoctoral and 2-year institutions. Two-thirds (67 percent) of full-time faculty at 4-year doctoral institutions reported providing at least one type of instruction to undergraduates, compared with 90 percent of their counterparts at 4-year nondoctoral institutions and 98 percent of those at 2-year institutions. Among full-time faculty who taught classes at any level, 69 percent of those at 4-year doctoral institutions reported teaching at least one undergraduate class and 44 percent reported teaching such classes exclusively, again lower than the percentages for their counterparts at 4-year nondoctoral institutions (90 percent and 74 percent, respectively).

Use of part-time faculty and teaching assistants. One issue of great concern to students, parents, administrators, state legislators, and the general public is the use of part-time faculty and teaching assistants to teach undergraduate courses (Cox 2000). Figure B presents NSOPF:99 data collected from institutions regarding the percentage distribution of undergraduate student credit hours assigned to various types of faculty and staff.⁸ In fall 1998, about 71 percent of undergraduate credit hours across all types of institutions were assigned to full-time faculty and instructional staff, a considerably higher percent

⁷The terms “full time” and “part time” in this report refer to the employment status of the person at the sampled institution rather than the amount of time devoted to instruction.

⁸Note that this percentage distribution represents the institutions’ estimates concerning undergraduate credit hours assigned to various groups of faculty and staff rather than those of faculty members who reported actually teaching undergraduate classes in fall 1998.

Figure B.—Percentage distribution of undergraduate student credit hours assigned to various types of faculty and staff: Fall 1998



NOTE: This figure includes all Title IV degree-granting institutions. The percentage distribution represents institutions' estimates of undergraduate credit hours assigned to various groups of faculty and staff rather than those of faculty members who reported actually teaching undergraduate classes in fall 1998.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, (NSOPF:99), "Institution Survey."

age than that assigned to part-time faculty (27 percent) and teaching assistants and other staff (1 percent for each group).

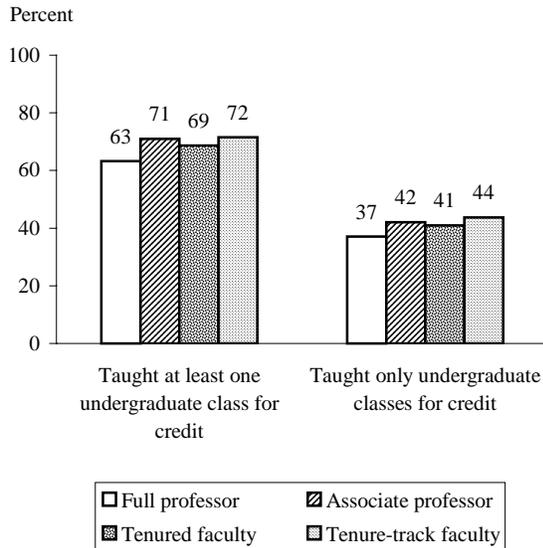
Furthermore, the analysis of the faculty-level data did not find that part-time faculty had a higher likelihood of teaching undergraduate students than their full-time colleagues. For example, at 4-year doctoral institutions, there was no difference found between part- and full-time faculty in terms of their percentages of being engaged in undergraduate teaching activities (69 percent and 70 percent, respectively) or teaching at least one undergraduate class (58 percent and 57 percent, respectively). At 4-year nondoctoral institutions,

part-time faculty were even less likely than full-time faculty to report providing at least one type of instruction to undergraduates (85 percent vs. 90 percent, respectively) and, in particular, teaching undergraduate classes (80 percent vs. 86 percent, respectively).

Involvement of senior faculty teaching undergraduates. One indicator that might be of interest to researchers, students, and parents is the proportion of senior faculty members (i.e., full professors and tenured faculty), particularly those at research and doctoral institutions, who teach undergraduates. Figure C presents this information for 4-year doctoral institutions. Among full-time instructional faculty and staff who taught one or more classes at 4-year doctoral institutions in fall 1998, 63 percent of full professors reported teaching at least one undergraduate class and 37 percent of them reported teaching such classes exclusively. About 69 percent of full-time tenured faculty at 4-year doctoral institutions reported teaching at least one undergraduate class and 41 percent of them reported that all of their classes were at the undergraduate level.

Characteristics of faculty who taught undergraduate classes. There was considerable variation among postsecondary instructional faculty and staff regarding the extent to which they taught undergraduates. For example, among both part- and full-time instructional faculty and staff who taught classes at 4-year doctoral institutions, instructors/lecturers were more likely than assistant, associate, or full professors to teach undergraduate classes, and to teach such classes exclusively (table A). Faculty with a lower degree (e.g., a bachelor's or lower degree) were generally more likely than those with a doctoral or first-professional degree to teach undergraduate classes and to teach them exclusively.

Figure C.—Of full-time instructional faculty and staff who taught classes for credit at 4-year doctoral institutions, percentage who taught at least one undergraduate class for credit and percentage who taught only undergraduate classes for credit, by academic rank and tenure status: Fall 1998



NOTE: This figure includes only full-time instructional faculty and staff who taught one or more classes for credit at 4-year doctoral institutions. Detailed information about classes could be reported for a maximum of five classes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty, (NSOPF:99), "Faculty Survey."

At 4-year doctoral institutions, part-time faculty were more likely than full-time faculty to indicate that all of their classes were at the undergraduate level, although no difference was found between the two groups regarding teaching at least one undergraduate class. In addition, at 4-year doctoral institutions, nontenure-track faculty were more likely than tenured faculty to report teaching undergraduate classes exclusively. There was also variation across teaching fields. At 4-year doctoral institutions, both full- and part-time faculty in the humanities were more likely than average to report teaching undergraduate classes

and teaching such classes exclusively, whereas those in the health sciences were less likely to do so.

Independent relationship of specific variables to teaching undergraduate classes. Most relationships described above remained after taking into consideration various academic and demographic characteristics of instructional faculty and staff. Specifically, after controlling for principal field of teaching, employment status, academic rank, highest degree, gender, race/ethnicity, and age, faculty at 4-year doctoral institutions were still less likely to teach undergraduate classes and to teach such classes exclusively than were their colleagues at 4-year nondoctoral institutions.⁹ In addition, when other faculty characteristics were held constant, full professors were less likely to teach undergraduate classes or teach such classes exclusively than were instructors/lecturers. Faculty with a doctoral or first-professional degree were also less likely to do so than those with only a bachelor's or master's degree.

How Much Do Faculty Teach?

Time allocated to undergraduate teaching activities. The analysis of faculty time allocation indicated that undergraduate teaching remained the primary focus of postsecondary instructional faculty and staff. In fall 1998, instructional faculty and staff across all types of institutions devoted

⁹When taking into consideration a number of academic and demographic variables, these variables accounted for 18 percent of the variance in faculty teaching at least one undergraduate class and 21 percent of the variance in faculty teaching undergraduate classes exclusively. Bivariate correlations showed that the effect sizes of the independent variables on faculty teaching at least one undergraduate class or teaching undergraduate classes exclusively were small to moderate, with correlations ranging in absolute value from .004 to .285. The most important factor in accounting for the variance was type of institution, with a correlation of -.230 with faculty teaching at least one undergraduate class and -.285 with faculty teaching undergraduate classes exclusively. See appendix B for methodological details.

Table A.—Of instructional faculty and staff who taught classes for credit at 4-year doctoral institutions, percentage who taught at least one undergraduate class for credit and percentage who taught only undergraduate classes for credit, by employment status and academic characteristics of instructional faculty and staff: Fall 1998

Academic characteristics of instructional faculty and staff	Taught at least one undergraduate class for credit		Taught only undergraduate classes for credit	
	Part time	Full time	Part time	Full time
Total	69.6	68.6	59.5	43.9
Academic rank*				
Full professor	48.5	63.3	34.2	37.1
Associate professor	59.7	70.9	41.3	42.0
Assistant professor	46.7	68.6	34.0	44.0
Instructor or lecturer	79.7	83.1	70.6	71.0
Tenure status				
Tenured	59.9	68.7	50.6	40.9
On tenure track	(#)	71.6	(#)	43.7
Not on tenure track	71.4	66.7	61.7	54.1
No tenure system	54.7	49.6	41.8	24.6
Highest degree obtained				
Doctoral/first-professional degree	55.5	65.6	42.9	39.7
Master's	81.7	85.5	74.0	68.0
Bachelor's or less	88.0	81.0	80.5	68.1
Principal field of teaching				
Agriculture and home economics	(#)	87.4	(#)	65.7
Business	74.0	78.8	67.8	47.6
Education	65.2	65.7	46.3	29.3
Engineering	62.7	77.7	50.9	45.3
Fine arts	93.5	89.3	84.9	58.8
Health sciences	37.8	37.2	25.6	19.6
Humanities	94.2	92.4	91.4	67.1
Natural sciences	88.1	68.1	74.8	45.0
Social sciences	73.7	79.2	62.3	53.1
All other programs	57.4	60.4	47.9	39.0

#Too small to report.

*Included in the total but not shown separately were those with other or no academic rank.

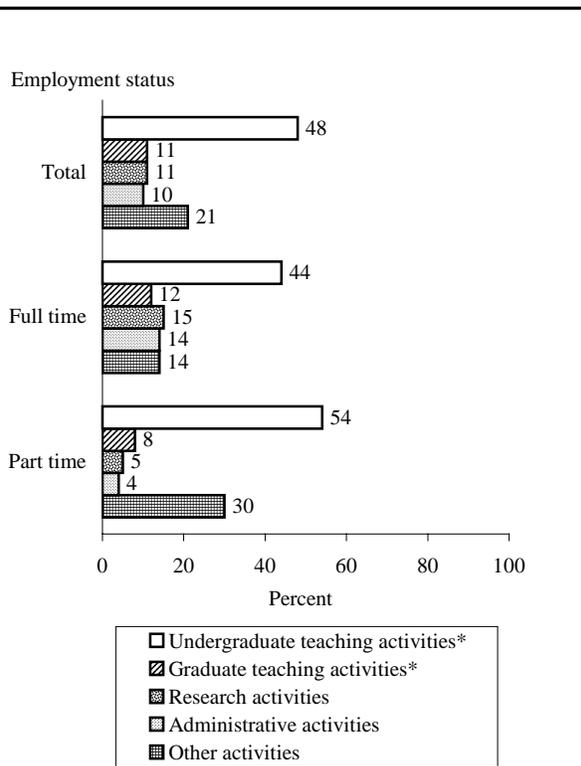
NOTE: This table includes only instructional faculty and staff who taught classes for credit at 4-year doctoral institutions. Detailed information about classes could be reported for a maximum of five classes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), "Faculty Survey."

nearly one-half of their work time (48 percent) to undergraduate teaching activities, a higher percentage than that devoted to graduate teaching activities (11 percent), research (11 percent), administrative tasks (10 percent), and all other tasks (21 percent) (figure D). Similar patterns were observed among full- and part-time faculty.

However, faculty with a higher academic rank spent more of their time on research and graduate

Figure D.—Percentage distribution of time spent on various work activities by instructional faculty and staff, by employment status: Fall 1998



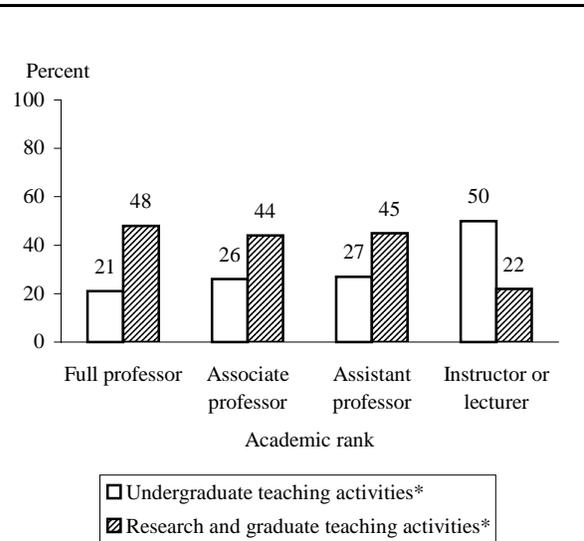
*“Teaching activities” were defined broadly in the survey and included teaching classes, grading papers, preparing courses, developing new curricula, advising or supervising students, supervising student teachers and interns, and working with student organizations or intramural athletics.

NOTE: This figure includes all instructional faculty and staff at Title IV degree-granting institutions. Percentages may not add to 100 because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), “Faculty Survey.”

teaching activities and less of their time on undergraduate teaching activities than their junior colleagues. For example, at 4-year doctoral institutions, full-time full professors spent 48 percent of their work time on research and graduate teaching activities, a higher percentage than that spent by full-time instructors/lecturers (22 percent) (figure E). Conversely, full-time instructors/lecturers spent one-half of their work time on undergraduate teaching activities, compared with the 21 percent spent by full-time full professors.

Figure E.—Percentage of time spent by full-time instructional faculty and staff at 4-year doctoral institutions on undergraduate teaching activities and on research and graduate teaching activities, by academic rank: Fall 1998



*“Teaching activities” were defined broadly in the survey and included teaching classes, grading papers, preparing courses, developing new curricula, advising or supervising students, supervising student teachers and interns, and working with student organizations or intramural athletics.

NOTE: This figure includes only full-time instructional faculty and staff at 4-year doctoral institutions.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), “Faculty Survey.”

Undergraduate teaching loads. In fall 1998, full-time postsecondary faculty who taught at least one undergraduate class taught an average of three undergraduate classes (worth approximately 10 credit hours), with a total of 86 undergraduate students in these classes (table B). They spent about 11 hours each week teaching undergraduates in class and generated a total of 309 undergraduate student classroom contact hours.¹⁰ Most of these faculty members (77 percent) lacked a teaching assistant for their undergraduate classes.

Teaching loads varied among those who did some undergraduate teaching. In general, instructional faculty and staff at 4-year doctoral institutions had lighter teaching loads than those at 4-year nondoctoral institutions, who in turn had lighter loads than those at 2-year institutions. At the same time, instructional faculty and staff at 4-year doctoral institutions were more likely than their colleagues at 4-year nondoctoral and 2-year institutions to have teaching assistants in some or all of their undergraduate classes.

With some exceptions, undergraduate teaching loads at 4-year institutions were inversely related to faculty's academic rank and tenure status. Instructional faculty and staff with higher academic ranks or tenure status (e.g., full professors or tenured faculty) generally had lighter teaching loads than those with lower academic ranks and tenure status (e.g., instructors/lecturers or nontenure-track faculty). This relationship was more apparent at 4-year doctoral institutions than at 4-year nondoctoral institutions.

¹⁰Undergraduate student classroom contact hours were calculated as follows: For each undergraduate class taught (a maximum of five classes could be reported by respondents), the number of hours per week spent teaching the class was multiplied by the number of students in the class. The products were then summed to obtain the total number of undergraduate student classroom contact hours.

What Kinds of Teaching Practices Do Faculty Use in Their Undergraduate Classes?

Instructional faculty and staff with classroom teaching duties were asked about their use of various methods—lecture/discussion, seminar, lab/clinic, and apprenticeship/field work—as primary teaching methods in their classes. According to their responses, the predominant teaching method for undergraduate classes was lecture/discussion. In fall 1998, 83 percent of instructional faculty and staff who taught undergraduate classes reported using lecture/discussion in at least one of their undergraduate classes (table C). Compared with lecture/discussion, faculty less frequently relied on other teaching methods as primary methods in at least one of their undergraduate classes: 21 percent of faculty used labs or clinics, 11 percent used seminars, and only 5 percent used field work, such as internships and apprenticeships. This pattern held true among both full- and part-time faculty.

Instructional faculty and staff also used a variety of methods to make assignments, assess students, and grade students' performance. In fall 1998, 60 percent of instructional faculty and staff who taught at least one undergraduate class indicated that they assigned term/research papers in some or all of their undergraduate classes; 44 percent asked students to evaluate each other's work; and 40 percent asked students to submit multiple drafts of written work. To assess students, 62 percent used short-answer midterm or final exams in some or all of their undergraduate classes; 60 percent used essay exams; and 58 percent used multiple-choice exams. To grade students' performance in some or all of their undergraduate classes, instructional faculty and staff were more likely to report using competency-based grading than

Table B.—Undergraduate teaching loads of full-time instructional faculty and staff who taught at least one undergraduate class for credit, by type of institution, academic rank, and tenure status: Fall 1998

Type of institution, academic rank, and tenure status	Number of undergraduate classes taught for credit	Number of undergraduate classroom credit hours	Hours per week spent in the classroom teaching undergraduates	Number of undergraduates taught in the classroom	Number of undergraduate classroom contact hours ¹	Percentage who had teaching assistants in some/all undergraduate classes
Total	3.0	10.4	10.9	86.0	309.0	22.7
4-year doctoral	2.1	7.5	7.1	83.3	268.6	38.2
Academic rank ²						
Full professor	1.9	6.2	5.9	83.9	256.7	43.8
Associate professor	2.1	6.9	6.9	75.5	233.0	35.0
Assistant professor	2.1	7.1	7.3	74.0	254.5	35.6
Instructor or lecturer	3.0	13.4	10.9	122.7	418.7	35.4
Tenure status						
Tenured	2.0	6.5	6.3	81.3	249.4	40.7
On tenure track	2.1	6.8	7.1	71.4	234.9	37.7
Not on tenure track	2.6	10.9	9.4	102.4	362.7	32.7
No tenure system	(#)	(#)	(#)	(#)	(#)	(#)
4-year nondoctoral	3.1	9.8	10.5	78.9	277.4	16.0
Academic rank ²						
Full professor	2.9	9.1	9.8	75.9	259.8	18.0
Associate professor	3.1	10.0	10.5	81.0	287.2	13.9
Assistant professor	3.3	10.4	11.6	82.3	285.0	15.7
Instructor or lecturer	3.0	9.9	10.5	80.0	303.3	15.7
Tenure status						
Tenured	3.0	9.6	10.1	81.3	274.3	16.4
On tenure track	3.2	9.8	10.8	76.7	262.0	15.3
Not on tenure track	2.9	8.9	9.8	74.9	253.9	15.1
No tenure system	3.3	12.3	13.0	78.0	365.0	16.8
2-year	4.0	15.5	17.0	102.3	418.6	12.0
Academic rank ²						
Full professor	4.0	14.6	15.7	108.5	415.5	12.5
Associate professor	3.8	14.2	15.2	101.9	399.4	12.1
Assistant professor	4.1	13.9	15.7	108.3	419.1	13.5
Instructor or lecturer	4.2	17.6	20.0	99.4	453.8	12.1
Tenure status						
Tenured	4.0	16.2	17.0	109.8	439.2	12.5
On tenure track	4.1	14.6	15.9	104.0	391.9	11.5
Not on tenure track	3.3	12.9	13.7	79.2	335.0	16.3
No tenure system	4.0	15.2	18.5	93.0	415.0	10.2

#Too small to report.

¹For each for-credit undergraduate class taught (a maximum of five classes could be reported by respondents), the number of hours per week spent teaching the class was multiplied by the number of students in the class. The products were then summed to obtain the total number of undergraduate student classroom contact hours.

²Included in the total but not shown separately were those with other or no academic rank.

NOTE: This table includes only instructional faculty and staff who taught at least one undergraduate class for credit. Detailed information about classes could be reported for a maximum of five classes.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), "Faculty Survey."

Table C.—Of instructional faculty and staff who taught undergraduate classes for credit, percentage who used various teaching practices in at least one of their undergraduate classes, by employment status: Fall 1998

Instructional method	Total	Full time	Part time
Primary instructional method*			
Lecture/discussion	83.1	87.0	78.2
Seminar	11.2	13.4	8.5
Lab/clinic	21.4	23.5	18.9
Apprenticeship/field work	4.7	5.4	3.8
Assignment method			
Student evaluations	44.2	44.8	43.5
Term/research papers	60.4	64.6	55.2
Multiple written drafts	39.5	42.7	35.5
Assessment method			
Multiple-choice exams	57.9	56.7	59.4
Short-answer exams	62.2	64.1	59.8
Essay exams	59.8	63.1	55.7
Grading methods			
Grading on a curve	29.7	31.8	27.2
Competency-based grading	60.6	59.8	61.6

*A maximum of five classes could be reported by respondents regarding the primary instructional method used in their classes.

NOTE: This table includes only instructional faculty and staff who taught undergraduate classes for credit.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1999 National Study of Postsecondary Faculty (NSOPF:99), "Faculty Survey."

grading on a curve to assess students' performance (61 percent vs. 30 percent).

While lecture/discussion was popular, faculty's use of other instructional methods was related to their teaching disciplines. For example, at 4-year doctoral institutions, full-time faculty in the fine arts (32 percent) and health sciences (30 percent) were more likely than average (16 percent) to use labs/clinics as their primary instructional method in one or more of their undergraduate classes, while their colleagues in the humanities (4 percent), business (7 percent), and social sciences (7 percent) were less likely to do so. Full-time faculty in the health sciences (11 percent) were more likely than their colleagues in business, humanities, natural sciences, and social sciences (1 per-

cent to 2 percent) to use apprenticeship/field work as the primary method of teaching.

Conclusions

This report indicates that a majority of instructional faculty and staff were involved in some kinds of undergraduate teaching activities in fall 1998, and that most provided direct instruction to undergraduates. This finding held true in all types of institutions examined in this report. Furthermore, according to institution reports, part-time faculty and teaching assistants were assigned a relatively small share of undergraduate credit hours (27 percent for part-time faculty and 1 percent for teaching assistants). Full-time faculty, with 71 percent of undergraduate credit hours, still

constituted the major group in undergraduate teaching in fall 1998.

This report also reveals that a majority of full-time senior faculty members (i.e., full professors or tenured faculty), including those at 4-year doctoral institutions, taught at least one undergraduate class in fall 1998. About 40 percent of full-time senior faculty who had classroom instruction responsibilities at 4-year doctoral institutions reported teaching undergraduate classes exclusively.

There were, however, variations regarding those who taught undergraduates and how much

they taught. First, whether or not faculty taught undergraduates was related to the role and mission of the institution. Instructional faculty and staff at 4-year doctoral institutions were less likely than their colleagues at 4-year nondoctoral and 2-year institutions to teach undergraduates and also had lighter teaching loads if they did teach. Second, within institutions, especially 4-year doctoral institutions, undergraduate teaching behaviors were somewhat related to faculty's seniority. Compared with junior faculty, senior faculty were less likely to teach undergraduates, and if they did, they typically had lighter teaching loads and also were more likely to have teaching assistants.