

NEW CHEMISTRY GRADS IN 2004

No big surprises in the 2003–04 class; the number of degrees was close to long-term levels

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CHEMISTRY DEPARTMENTS WITH bachelor's degree programs approved by the American Chemical Society granted 10,155 bachelor's, 1,840 master's, and 1,963 doctoral degrees in the 2003–04 academic year.

These totals were shy of the all-time highs set in the 1990s. But they were all reasonably close to the long-term averages over the past 30 years of 9,740 bachelor's degrees per year, 1,736 master's, and 1,917 Ph.D.s.

On a shorter term basis, the 2003–04 bachelor's total was up slightly from 10,068 in 2002–03, but it was 1,064 below the 11,219 all-time high set in 1997–98. The master's total of 1,840 was up from an unusually low 1,614 in 2002–03, but it was shy of the high of 2,098 in 1995–96. And the Ph.D. total of 1,963 was slightly lower than the 2,007 in 2002–03 and so continued a downward drift since the recent high of 2,208 in 1997–98 and the all-time high of 2,213 in 1990–91.

In 2003–04, 631 departments had ACS-approved bachelor's programs, and all but four of them produced at least one bachelor's graduate. Of these 631 departments, 309 also had master's programs, and all but 22 of these had at least one graduate. In all, 196 departments had Ph.D.

programs; all but 14 of these had at least one 2003–04 graduate.

These are the key findings from the 2004 report of the American Chemical Society's Committee on Professional Training (CPT). The report was produced by ACS's Office of Professional Training, which has been directed by Cathy A. Nelson since 1992.

The 2003–04 academic year also brought new all-time highs, at all degree levels, in the percentage of chemistry degrees earned by women: 50.9% of the bachelor's degrees, 47.0% of the master's, and 33.1% of the Ph.D.s. Twenty years ago, in 1983–84, women earned 34.3% of bachelor's degrees, 33.2% of master's, and 18.6% of Ph.D.s. In the early 1970s, they earned only about 17%, 23%, and 8%, respectively.

In the late 1990s, the CPT annual report was delayed because of a transition by CPT to electronic data handling. Five years' worth of data, from 1996–97 to 2000–01, were released in 2003 (C&EN, Aug. 25, 2003, page 46). The data for 2001–02 followed in 2004 (C&EN, March 29, 2004, page 48), and the 2002–03 data came earlier this year (C&EN, Feb. 7, page 38). With the availability of 2004–05

data by April of next year, the process will be back on its traditional schedule of publishing data about 10 months after the close of the academic year.

CPT has been assessing, approving, and monitoring undergraduate chemistry programs for the society since 1941. Departments with approved programs are required to report annually to the committee the number of degrees they award at the bachelor's, master's, and Ph.D. levels.

ACS does not approve master's and Ph.D. programs. But CPT does survey such programs occasionally, most recently in the late '90s.

The committee also gathers data annually on chemical engineering degrees at all three levels from departments accredited

CHEMISTRY GRADUATES BY GENDER

Women's share of chemistry graduating classes is still growing

BACHELOR'S GRADUATES	TOTAL	MEN	WOMEN	% WOMEN
1994	9,443	5,594	3,849	40.8%
1995	9,947	5,740	4,207	42.3
1996	10,902	6,260	4,642	42.6
1997	11,184	6,238	4,946	44.2
1998	11,129	6,143	5,076	45.2
1999	10,979	6,012	4,967	45.2
2000	10,628	5,732	4,896	46.1
2001	10,314	5,405	4,909	47.6
2002	9,923	4,958	4,965	50.0
2003	10,068	5,100	4,968	49.3
2004	10,155	4,987	5,168	50.9

MASTER'S GRADUATES

1994	1,803	1,093	710	39.4%
1995	1,878	1,086	792	42.2
1996	2,098	1,186	912	43.5
1997	2,086	1,234	852	40.8
1998	1,980	1,087	893	45.1
1999	1,925	1,097	828	43.0
2000	1,796	1,036	760	42.3
2001	1,831	1,092	739	42.4
2002	1,701	922	779	45.8
2003	1,614	873	741	45.9
2004	1,840	976	864	47.0

DOCTORAL GRADUATES

1994	2,202	1,547	655	29.7%
1995	2,127	1,459	668	31.4
1996	2,127	1,475	652	30.7
1997	2,164	1,519	645	29.8
1998	2,208	1,509	699	31.7
1999	2,093	1,454	639	30.5
2000	1,982	1,339	643	32.4
2001	2,028	1,335	693	34.2
2002	1,955	1,307	648	33.2
2003	2,007	1,368	639	31.8
2004	1,963	1,314	649	33.1

SOURCE: Annual reports of the ACS Committee on Professional Training

CHEMISTRY GRADS

Numbers of graduates at all degree levels remain below recent highs

	BACHELOR'S				MASTER'S	PH.D.
	TOTAL	CERTIFIED	NOT CERTIFIED	% CERTIFIED		
1994	9,443	3,912	5,531	41.4%	1,803	2,202
1995	9,947	3,971	5,976	39.9	1,878	2,127
1996	10,902	4,309	6,593	39.5	2,098	2,127
1997	11,184	4,253	6,931	38.0	2,086	2,164
1998	11,219	4,247	6,972	37.9	1,980	2,208
1999	10,979	4,406	6,573	40.1	1,925	2,093
2000	10,628	4,150	6,478	38.9	1,796	1,982
2001	10,314	3,910	6,404	37.9	1,831	2,028
2002	9,923	3,713	6,210	37.4	1,701	1,955
2003	10,068	3,739	6,329	37.1	1,614	2,007
2004	10,155	3,622	6,533	35.7	1,840	1,963

SOURCE: Annual reports of ACS Committee on Professional Training

by the American Institute of Chemical Engineers (AIChE) and the Accreditation Board for Engineering & Technology (ABET). These data are not as exhaustive as the data on chemists because the chemical engineering departments are not required to respond to CPT.

School-by-school data on 2003–04 chemistry and chemical engineering graduates are presented in a table at the end of this article and on the Web at chemistry.org/cpt/annrpt.html.

CPT's data differ in two respects from parallel data available from the Department of Education's National Center for Education Statistics (NCES) on bachelor's and master's graduates and from the National Science Foundation on Ph.D. graduates (C&EN, Feb. 7, page 46).

First, CPT reports all graduates from the departments with undergraduate programs approved by ACS, regardless of the discipline or subdiscipline of their degree. The NCES and NSF counts of chemistry graduates include only those with degrees in the classic chemistry subdisciplines: analytical, organic, inorganic, physical, theoretical, and general chemistry. They do not include, for instance, graduates in biochemistry and materials science, even if those grads received their degrees from chemistry departments.

Second, CPT's data do not include bachelor's graduates from about 400, mostly small, chemistry programs that are counted by NCES. These departments either do not meet ACS's criteria for approval—such as a minimum chemistry faculty of four—or have not applied for approval.

These differences in counting rules can make a major difference for individual schools. But for the bachelor's graduate total, they more or less cancel one another out. CPT's total of 10,068 bachelor's graduates for 2002–03 is within 2% of the 9,894 NCES count.

Bachelor's degrees, as reported by CPT, come in two types, certified and noncertified. Graduates who are awarded certified degrees by their department heads have completed a curriculum that satisfies ACS requirements. They are qualified for immediate and full ACS membership. Those with noncertified degrees are eligible for membership only after three years of professional experience or the acquisition of a higher degree in a chemical science.

The percentage of degrees that are certified has been declining for many years. In 2003–04, it slipped to 35.7% from 37.1% a year earlier, and from 41.4% 10 years earlier.

In recent years, according to CPT, the

TOP 25 CHEMISTRY PRODUCERS IN 2003–04

U of California schools sweep bachelor's, master's, and doctoral graduate rankings

TOTAL BACHELOR'S GRADUATES

1	California, U of, Los Angeles	186
1	Washington, U of, Seattle	186
3	Texas, U of, Austin	122
4	California, U of, San Diego	119
5	North Carolina State U	113

6	Virginia, U of	106
7	Illinois, U of, Chicago	94
8	Indiana U, Bloomington	73
9	New York U	72
10	Illinois, U of, Urbana-Champaign	71

10	North Carolina, U of, Chapel Hill	71
12	Brigham Young U	67
13	California, U of, Berkeley	61
13	California, U of, Irvine	61
13	Oklahoma, U of	61

13	State U of New York, Binghamton	61
17	Florida, U of	59
18	Maryland, U of, College Park	57
18	Minnesota, U of, Twin Cities	57
20	Colorado, U of, Boulder	56

20	Michigan, U of, Ann Arbor	56
22	California, U of, Santa Barbara	55
23	Purdue U	54
24	Utah, U of	53
25	Puerto Rico, U of, Rio Piedras	52

CERTIFIED BACHELOR'S GRADUATES

1	Texas, U of, Austin	122
2	California, U of, San Diego	74
3	Michigan, U of, Ann Arbor	56
4	North Carolina, U of, Chapel Hill	52
4	Virginia, U of	52

6	California, U of, Santa Barbara	47
7	Michigan State U	44
8	Illinois, U of, Chicago	39
9	North Carolina State U	37
10	William & Mary, C of	36

11	U.S. Naval Academy	35
11	Utah, U of	35
13	Delaware, U of	34
13	Purdue U	34
15	Charleston, C of	31

16	Pennsylvania, U of	30
17	Massachusetts Inst. of Technology	27
18	Georgia Inst. of Technology	25
19	Furman U	24
20	North Carolina, U of, Wilmington	23

20	Truman State U	23
22	Georgia Southern U	22
22	Minnesota, U of, Twin Cities	22
24	Boston U	21
24	Northern Illinois U	21
24	Southern California, U of	21
24	Texas A&M U, College Station	21

MASTER'S GRADUATES

1	California, U of, San Diego	50
2	Michigan, U of, Ann Arbor	45
3	Chicago, U of	37
4	Cornell U	30
4	Harvard U	30

6	Lehigh U	29
7	Columbia U	28
8	Oregon, U of	26
9	Illinois, U of, Urbana-Champaign	25
10	City U of New York, Grad Center	22

10	Pennsylvania, U of	22
12	North Carolina, U of, Chapel Hill	21
12	Rice U	21
14	California, U of, Irvine	20
14	Rochester, U of	20

16	Illinois Inst. of Technology	19
16	Washington U	19
18	Ohio State U	18
19	Johns Hopkins U	17
20	California, U of, Los Angeles	16

20	Puerto Rico, U of, Mayaguez	16
20	Wisconsin, U of, Madison	16
23	Florida, U of	15
23	Michigan State U	15
23	Oklahoma, U of	15

DOCTORAL GRADUATES

1	California, U of, Berkeley	61
2	Purdue U	44
3	North Carolina, U of, Chapel Hill	41
4	Florida, U of	40
5	Massachusetts Inst. of Technology	38

6	Michigan, U of, Ann Arbor	35
7	California, U of, San Diego	34
8	Illinois, U of, Urbana-Champaign	33
9	Pennsylvania State U	32
9	Washington, U of	32

11	Wisconsin, U of, Madison	30
12	Minnesota, U of, Twin Cities	29
12	Stanford U	29
12	Texas, U of, Austin	29
15	Arizona, U of	28

15	California Inst. of Technology	28
15	Texas A&M U, College Station	28
18	California, U of, Los Angeles	27
19	Harvard U	26
20	Yale U	24

21	Cornell U	22
21	Georgia Inst. of Technology	22
21	Ohio State U	22
21	Pennsylvania, U of	22
21	Rutgers U, New Brunswick	22

POWERHOUSES IN CHEMISTRY

Six schools make top 25 for all degree levels

	BACHELOR'S	MASTER'S	PH.D.
California, U of, Los Angeles	186	16	27
California, U of, San Diego	119	50	34
Florida, U of	59	15	40
Illinois, U of, Urbana-Champaign	71	25	33
Michigan, U of, Ann Arbor	56	45	35
North Carolina, U of, Chapel Hill	71	21	41

SOURCE: 2004 report of the ACS Committee on Professional Training

University of California, Los Angeles; the University of Washington, Seattle; and the University of Texas, Austin, have been the big three producers of chemistry bachelor's graduates. Over the 2000–01 through 2003–04 academic years, they produced four-year totals of

TOP 10 CHEMICAL ENGINEERING PRODUCERS

U of Texas, Austin, and U of Michigan, Ann Arbor, rank at all three degree levels

BACHELOR'S GRADUATES

1 Texas, U of, Austin	118
2 Pennsylvania State U	114
3 Purdue U	105
4 North Carolina State U	100
5 Georgia Inst. of Technology	97
6 Western Michigan U	91
7 California, U of, Berkeley	90
8 Michigan, U of, Ann Arbor	89
9 Puerto Rico, U of, Mayaguez	87
10 Florida, U of	73
10 Wisconsin, U of, Madison	73

MASTER'S GRADUATES

1 Illinois Inst. of Technology	38
2 Massachusetts Inst. of Technology	35
3 Stanford U	28
4 Michigan, U of, Ann Arbor	27
5 Lamar U	23
5 Louisville, U of	23
7 Illinois, U of, Urbana-Champaign	22
8 Rochester, U of	21
8 Texas, U of, Austin	21
10 Louisiana, U of, Lafayette	20

DOCTORAL GRADUATES

1 Massachusetts Inst. of Technology	28
2 Texas, U of, Austin	21
3 Delaware, U of	18
4 Wisconsin, U of, Madison	17
5 Texas A&M U, College Station	16
6 Georgia Inst. of Technology	15
7 California, U of, Berkeley	14
8 Illinois Inst. of Technology	12
8 Illinois, U of, Urbana-Champaign	12
8 Michigan, U of, Ann Arbor	12
8 Minnesota, U of, Twin Cities	12
8 North Carolina State U	12
8 Princeton U	12
8 Stanford U	12
8 Washington, U of	12

SOURCE: 2004 report of the ACS Committee on Professional Training

788, 664, and 484 graduates, respectively. Because year-to-year data can be erratic, using data for the past few years combined gives a more firm indication of the relative size of schools.

Rounding out the top five producers are the University of California, San Diego, with 432 graduates in that four-year period and North Carolina State University, with 426.

The dominant producer of doctoral chemists over these same four years has been the University of California, Berkeley, with between 59 and 62 graduates each year and a four-year total of 242. The next

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CPT DATA, 2003-04

Chemistry and chemical engineering degrees awarded by schools offering an ACS-approved program

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED		M.S.	PH.D.	B.S.	M.S.	PH.D.
	YES	NO					
A							
Abilene Christian U	0	13	—	—			
Agnes Scott C	3	4	—	—			
Akron, U of	9	0	3	2	36	7	6
Alabama, U of							
Birmingham	2	14	3	0			
Huntsville	3	2	2	—	15		
Tuscaloosa	1	9	5	8	4		
Alaska Fairbanks, U of	7	0	8	0			
Albion C	3	17	—	—			
Albright C	9	4	—	—			
Alfred U	2	1	—	—			
Allegheny C	0	14	—	—			
Alma C	1	16	—	—			
American U	1	7	9	5			
Amherst C	5	7	—	—			
Andrews U	3	0	—	—			
Appalachian State U	3	3	—	—			
Arcadia U	1	0	—	—			
Arizona, U of	19	10	5	28	25	5	3
Arizona State U	17	27	5	11	32	12	9
Arkansas, U of							
Fayetteville	5	21	2	5	22	6	4
Little Rock	1	5	3	—			
Arkansas State U	7	10	4	—			
Arkansas Tech U	1	5	—	—			
Armstrong Atlantic State U	0	10	—	—			
Ashland U	1	0	—	—			
Auburn U	3	1	1	8	58	10	1
Augsburg C	2	6	—	—			
Augustana C							
Illinois	3	9	—	—			
South Dakota	2	5	—	—			
Austin C	0	21	—	—			
Austin Peay State U	0	2	—	—			
B							
Baldwin-Wallace C	1	19	—	—			
Ball State U	10	17	3	—			
Barnard C	3	4	—	—			
Bates C	0	6	—	—			
Baylor U	4	30	2	9			
Beloit C	1	9	—	—			
Bemidji State U	3	5	—	—			
Benedictine U	6	1	—	—			
Berry C	0	8	—	—			
Birmingham-Southern C	0	5	—	—			
Bloomsburg U	1	9	—	—			
Boise State U	1	4	—	—			
Boston C	11	16	1	16			
Boston U	21	5	6	7			
Bowdoin C	1	22	—	—			
Bowling Green State U	2	9	10	8			
Bradley U	2	11	0	—			
Brandeis U	0	10	13	4			
Bridgewater State C	11	3	—	—			
Brigham Young U	19	48	8	5	58	3	9
Brown U	0	9	7	10	3	0	3
Bryn Mawr C	11	0	3	0			
Bucknell U	5	26	3	—	25	3	—
Butler U	2	27	—	—			

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED		M.S.	PH.D.	B.S.	M.S.	PH.D.
	YES	NO					
C							
California, U of							
Berkeley	9	52	6	61	90	5	14
Davis	16	22	4	14	31	3	7
Irvine	6	55	20	19	28	8	4
Los Angeles	6	180	16	27	60	6	2
Riverside ^a	10	13	9	9			
San Diego	74	45	50	34	18	5	2
Santa Barbara	47	8	10	14	24	4	9
Santa Cruz	10	18	2	7			
California Inst. of Tech.	15	0	4	28	3	8	9
California Poly. State U	5	32	—	—			
California State Poly. U	5	8	4	—	19	—	—
California State U							
Bakersfield	4	6	—	—			
Chico	3	4	—	—			
Dominguez Hills	5	3	—	—			
Fresno	2	22	1	—			
Fullerton	0	35	7	—			
Hayward	3	21	5	—			
Long Beach	14	17	2	—	17	0	—
Los Angeles	5	23	7	—			
Northridge	19	5	7	—			
Sacramento	5	20	1	—			
San Bernardino	1	19	—	—			
San Marcos	4	4	—	—			
Stanislaus	3	3	—	—			
Calvin C	1	16	—	—			
Canisius C	1	10	—	—			
Capital U	0	3	—	—			
Carleton C	5	20	—	—			
Carnegie Mellon U	11	3	5	8	61	15	11
Carroll C	1	10	—	—			
Carthage C	3	2	—	—			
Case Western Reserve U	6	35	4	12	35	9	1
Catholic U of America	1	1	0	2			
Centenary C of Louisiana	0	6	—	—			
Central Arkansas, U of	3	5	—	—			
Central C	5	4	—	—			
Central Conn. State U	9	0	0	—			
Central Florida, U of	8	0	7	0			
Central Michigan U	7	0	1	—			
Central Missouri State U	1	2	—	—			
Central Oklahoma, U of	2	26	—	—			
Centre C	1	9	—	—			
Charleston, C of	31	7	—	—			
Chatham C	1	3	—	—			
Chestnut Hill C	0	1	—	—			
Chicago, U of	14	6	37	11			
Chicago State U	0	9	—	—			
Christian Brothers C ^b					5	—	—
Cincinnati, U of	16	0	9	18	38	9	10
Citadel, The	0	3	—	—			
City U of New York							
Brooklyn C	0	13	3	—			
City C ^a	0	8	11	—			
Graduate Center	—	—	22	10			
Herbert H. Lehman C	3	11	—	—			
Hunter C	0	22	—	—			
Queens C	0	6	1	—			
Clarion U	0	1	—	—			
Clark U	5	11	1	1			

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
Clarkson U	2	4	4	4	28	9	1
Clemson U	18	1	3	9	26	4	3
Cleveland State U	9	0	3	4	7	12	6
Coe C	0	3	—	—			
Colby C	1	10	—	—			
Colgate U	7	7	—	—			
Colorado, U of							
Boulder	2	54	7	19	40	9	9
Colorado Springs	7	10	—	—			
Denver	2	9	7	—			
Colorado C	2	13	—	—			
Colorado School of Mines	11	0	6	2	66	5	6
Colorado State U	7	8	3	6	22	9	2
Colorado State U, Pueblo (formerly Southern Colorado, U of)	0	9	3	—			
Columbia U	8	14	28	16	20	10	6
Concordia C	11	13	—	—			
Connecticut, U of	15	2	5	14	19	9	5
Connecticut C	2	11	0	—			
Cooper Union ^b					15	5	—
Cornell C	1	3	—	—			
Cornell U	8	39	30	22	46	3	11
Creighton U	12	6	—	—			

D

Dartmouth C	0	26	0	2			
Davidson C	3	7	—	—			
Dayton, U of	4	8	0	—	37	6	—
Delaware, U of	34	10	9	17	51	5	18
Delaware State U	8	0	0	—			
Delaware Valley C	7	0	—	—			
Delta State U	0	11	—	—			
Denison U	0	11	—	—			
Denver, U of	1	16	2	0			
DePaul U	1	10	6	—			
DePauw U	0	20	—	—			
Detroit Mercy, U of	2	3	4	—	7	—	—
Dickinson C	1	11	—	—			
Dist. of Columbia, U of the	0	1	—	—			
Drake U	2	0	—	—			
Drew U	4	4	—	—			
Drexel U	7	1	11	4	44	14	4
Duke U	8	30	1	18			
Duquesne U	4	1	4	2			

E

Earlham C	1	11	—	—			
East Carolina U	8	13	5	—			
East Stroudsburg U	3	5	—	—			
East Tennessee State U	4	15	6	—			
Eastern Illinois U	5	3	5	—			
Eastern Kentucky U	0	29	4	—			
Eastern Michigan U	4	29	4	—			
Eastern New Mexico U	0	3	2	—			
Eastern Washington U	3	9	—	—			
Eckerd C	5	6	—	—			
Elizabethtown C	3	1	—	—			
Elmhurst C	2	6	—	—			
Elon U	3	4	—	—			
Emory U	0	46	9	14			
Emporia State U	1	9	1	—			
Evansville, U of	2	4	—	—			

F

Fairfield U	5	0	—	—			
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	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
Fairleigh Dickinson U, Madison	4	0	12	—			
Fisk U	3	1	1	—			
Florida, U of	0	59	15	40	73	10	5
Florida A&M U	7	10	5	—			
Florida A&M U/ Florida State U ^b					32	2	0
Florida Atlantic U	8	19	5	1			
Florida Institute of Tech.	2	1	1	0	13	4	0
Florida International U	15	29	9	3			
Florida State U	3	47	7	13			
Fordham U	1	6	—	—			
Fort Lewis C	1	6	—	—			
Framingham State C	2	1	—	—			
Francis Marion U	1	4	—	—			
Franklin & Marshall C	13	1	—	—			
Furman U	24	0	2	—			

G

Geneva C	0	2	—	—			
George Mason U	8	8	5	—			
George Washington U	7	3	0	3			
Georgetown U	8	4	2	4			
Georgia, U of	12	6	4	13			
Georgia Institute of Tech.	25	0	11	22	97	13	15
Georgia Southern U	22	1	—	—			
Georgia State U	4	20	9	5			
Gettysburg C	2	8	—	—			
Gonzaga U	4	3	—	—			
Goucher C	1	8	—	—			
Governors State U	6	1	8	—			
Grambling State U	1	3	—	—			
Grand Valley State U	2	16	—	—			
Grinnell C	2	21	—	—			
Gustavus Adolphus C	3	19	—	—			

H

Hamilton C	8	8	—	—			
Hamline U	3	1	—	—			
Hampden Sydney C	3	1	—	—			
Hampton U	6	0	0	—	10	—	—
Hartford, U of	0	1	—	—			
Hartwick C	3	5	—	—			
Harvard U	16	1	30	26			
Harvey Mudd C	17	0	—	—			
Haverford C	13	7	—	—			
Hawaii, U of, Manoa	6	4	2	2			
Hendrix C	6	8	—	—			
Hiram C	3	2	—	—			
Hobart & William Smith C	5	11	—	—			
Hofstra U	11	0	—	—			
Holy Cross, C of the	15	2	—	—			
Hope C	12	13	—	—			
Houston, U of	7	2	6	18	37	16	5
Houston-Clear Lake, U of	3	3	2	—			
Howard U	3	11	2	4	13	3	—
Humboldt State U	3	3	—	—			

I

Idaho, U of	7	3	6	5	15	1	0
Idaho State U	5	1	2	—			
Illinois, U of							
Chicago	39	55	5	18	33	5	4
Springfield	2	1	—	—			
Urbana-Champaign	16	55	25	33	62	22	12
Illinois Institute of Tech.	4	0	19	4	24	38	12

	CHEMISTRY			CHEMICAL ENGINEERING			
	BACHELOR'S CERTIFIED			B.S.	M.S.	PH.D.	
	YES	NO	M.S.	PH.D.			
Illinois State U	18	9	13	—			
Illinois Wesleyan U	4	5	—	—			
Indiana State U	2	3	1	—			
Indiana U							
Bloomington	2	71	5	18			
South Bend	2	0	—	—			
Indiana U Northwest	2	3	—	—			
Indiana U of Pennsylvania	12	2	1	—			
Indiana U-Purdue U							
Fort Wayne	2	3	—	—			
Indianapolis	8	9	9	2			
Indiana U Southeast	0	3	—	—			
Interamerican U of P.R.	5	17	—	—			
Iowa, U of	14	0	8	12	18	7	5
Iowa State U	12	3	2	14	72	4	4
Ithaca C	4	0	—	—			

J

Jackson State U	0	8	2	0			
James Madison U	8	10	—	—			
John Carroll U	1	15	1	—			
Johns Hopkins U	12	0	17	11	13	7	6
Juniata C	2	9	—	—			

K

Kalamazoo C	2	22	—	—			
Kansas, U of	7	14	0	14	36	11	2
Kansas State U	4	6	3	5	17	3	6
Kean U	3	4	—	—			
Kennesaw State U	3	14	—	—			
Kent State U	7	6	3	0			
Kentucky, U of	8	20	5	10	40	3	3
Kenyon C	8	4	—	—			
King's C	4	1	—	—			
Knox C	1	11	—	—			

L

La Salle U	2	1	—	—			
Lafayette C	4	10	—	—	23	—	—
Lake Forest C	3	3	—	—			
Lamar U	5	0	2	—	14	23	2
Lawrence Technological U	3	1	—	—			
Lawrence U	5	7	—	—			
Lebanon Valley C	8	3	—	—			
Lehigh U	3	12	29	2	47	15	7
LeMoyne C	4	3	—	—			
Lewis & Clark C	1	2	—	—			
Lincoln U	0	4	—	—			
Lipscomb U	0	8	—	—			
Long Island U							
Brooklyn Campus	0	2	3	—			
C. W. Post Campus	1	1	—	—			
Louisiana, U of							
Lafayette	6	6	—	—	13	20	
Monroe	0	1	3	—			
Louisiana State U							
Baton Rouge	15	8	2	12	62	9	4
Shreveport	1	0	—	—			
Louisiana Tech. U ^a	3	3	3	—			
Louisville, U of	3	19	4	5	16	23	4
Loyola C in Maryland	7	7	—	—			
Loyola Marymount U	7	3	—	—			
Loyola U of Chicago	15	1	2	2			
Loyola U of New Orleans	7	5	—	—			
Luther C	0	7	—	—			
Lycoming C	2	2	—	—			

	CHEMISTRY			CHEMICAL ENGINEERING			
	BACHELOR'S CERTIFIED			B.S.	M.S.	PH.D.	
	YES	NO	M.S.	PH.D.			
M							
Macalester C	6	2	—	—			
Maine, U of	1	0	0	2	30	4	2
Manhattan C ^c	2	0	—	—	13	4	—
Marietta C	2	3	—	—			
Marist C	3	5	—	—			
Marquette U	4	2	1	3			
Marshall U	1	16	5	—			
Maryland, U of							
Baltimore County	4	40	7	7	15	9	2
College Park	1	56	11	11	20	3	7
Eastern Shore	5	0	—	—			
Massachusetts, U of							
Amherst	4	17	12	12	33	5	11
Boston	2	8	3	0			
Dartmouth	1	3	4	—			
Lowell	0	0	10	9	10	16	—
Mass. Inst. of Tech.	27	0	3	38	44	35	28
McDaniel C	2	10	—	—			
McNeese State U	2	1	5	—			
Memphis, U of	2	14	2	2			
Mercer U	2	7	—	—			
Merrimack C	4	0	—	—			
Metropolitan State C	0	28	—	—			
Miami, U of	2	15	6	6			
Miami U	6	35	6	6			
Michigan, U of							
Ann Arbor	56	0	45	35	89	27	12
Dearborn	6	16	—	—			
Flint	5	4	—	—			
Michigan State U	44	0	15	20	70	9	5
Michigan Technological U	12	0	2	1	63	3	4
Middle Tennessee State U	4	17	9	2			
Middlebury C	4	6	—	—			
Midwestern State U	6	4	—	—			
Millersville U	10	10	—	—			
Millikin U	0	7	—	—			
Millsaps C	1	9	—	—			
Minnesota, U of							
Duluth	18	14	9	—	22	—	—
Twin Cities	22	35	14	29	60	8	12
Minnesota State U							
Mankato	3	21	0	—			
Moorhead	1	18	—	—			
Mississippi, U of	1	25	3	4	6	4	0
Mississippi C	2	8	2	—			
Mississippi State U	1	3	1	1	61	9	0
Missouri, U of							
Columbia	5	11	4	8	26	8	1
Kansas City	2	37	3	3			
Rolla	10	0	7	11	34	10	0
St. Louis	4	4	6	5			
Missouri Western State C	4	4	—	—			
Monmouth U	1	6	—	—			
Montana, U of	11	0	1	2			
Montana State U	15	0	4	10	30	4	0
Montana Tech, U of Montana	2	4	1	—			
Montclair State U	3	14	3	—			
Moravian C	3	3	—	—			
Morehouse C	16	0	—	—			
Morgan State U	8	4	2	—			
Mount Holyoke C	0	12	—	—			
Mount Saint Joseph, C of	2	1	—	—			
Mount Saint Vincent, C of ^c	0	0	—	—			

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
Muhlenberg C	9	4	—	—			
Murray State U	2	9	2	—			
Muskingum C	2	6	—	—			

N

Nazareth C of Rochester	2	0	—	—			
Nebraska, U of							
Kearney	1	6	—	—			
Lincoln	0	11	5	11	12	2	3
Omaha	4	0	—	—			
Nebraska Wesleyan U	3	7	—	—			
Nevada, U of							
Las Vegas	3	9	8	—			
Reno	3	7	2	4	10	2	0
New Hampshire, U of	5	3	9	2	15	1	0
New Haven, U of ^b					2	—	—
New Jersey, C of	9	0	—	—			
New Jersey Inst. of Tech. ^b					34	16	3
New Mexico, U of	0	9	1	4	15	13	4
New Mexico Highlands U	0	0	2	—			
New Mexico Inst. of Mining & Tech.	6	0	2	1	14	—	—
New Mexico State U	0	25	3	3	18	3	2
New Orleans, U of	2	5	2	12			
New York U	0	72	10	13			
Niagara U	2	3	—	—			
Nicholls State U	4	3	—	—			
Norfolk State U	7	5	—	—			
North Alabama, U of	2	6	—	—			
North Carolina, U of							
Asheville	2	4	—	—			
Chapel Hill	52	19	21	41			
Charlotte	4	11	8	—			
Greensboro	3	18	5	—			
Pembroke	1	21	—	—			
Wilmington	23	11	13	—			
North Carolina A&T State U	6	0	2	—	22	19	—
North Carolina Central U	1	3	2	—			
North Carolina State U	37	76	7	9	100	15	12
North Central C	1	7	—	—			
North Dakota, U of	2	11	2	3	17	3	0
North Dakota State U	9	0	1	2			
North Florida, U of	8	0	—	—			
North Texas, U of	7	6	13	6			
Northeastern U	6	0	10	5	35	4	2
Northeastern Illinois U	2	9	2	—			
Northern Arizona U	1	26	9	—			
Northern Colorado, U of	6	11	6	2			
Northern Illinois U	21	1	7	7			
Northern Iowa, U of	10	12	1	—			
Northern Kentucky U	5	2	—	—			
Northern Michigan U	3	7	3	—			
Northwest Missouri State U	2	0	—	—			
Northwestern State U	4	2	—	—			
Northwestern U	12	23	3	19	29	7	8
Notre Dame, U of	6	19	6	9	41	4	5

O

Oakland U	10	16	5	3			
Oberlin C	10	6	—	—			
Occidental C	4	4	—	—			
Ohio U	2	23	2	7	27	2	1
Ohio Northern U	5	0	—	—			

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
Ohio State U	0	45	18	22	58	2	7
Ohio Wesleyan U	1	2	—	—			
Oklahoma, U of	1	60	15	10	53	10	7
Oklahoma State U	3	5	2	6	29	6	5
Old Dominion U	4	10	3	—			
Oregon, U of	0	26	26	7			
Oregon State U	7	13	5	5	31	5	3
Otterbein C	0	3	—	—			

P

Pace U							
New York	3	2	—	—			
Pleasantville	0	3	—	—			
Pacific, U of the	1	9	1	1			
Pacific Lutheran U	1	2	—	—			
Pennsylvania, U of	30	12	22	22	11	11	9
Pennsylvania State U	20	19	7	32	114	9	10
Penn. State U, Behrend C	6	0	—	—			
Philadelphia U	5	0	—	—			
Pittsburg State U	6	4	3	—			
Pittsburgh, U of	13	37	6	15	47	6	4
Pomona C	0	16	—	—			
Portland, U of	10	1	—	—			
Portland State U	1	15	6	3			
Prairie View A&M U ^b					10	—	—
Princeton U	9	2	0	15	9	4	12
Providence C	2	6	—	—			
Puerto Rico, U of							
Mayaguez	0	46	16	0	87	8	2
Rio Piedras	11	41	2	9			
Puget Sound, U of	5	11	—	—			
Purdue U	34	20	6	44	105	5	9
Purdue U Calumet	4	0	—	—			

R

Ramapo C of New Jersey	2	0	—	—			
Randolph-Macon C	2	2	—	—			
Randolph-Macon Woman's C	1	0	—	—			
Redlands, U of	2	3	—	—			
Reed C	3	7	—	—			
Regis U	3	4	—	—			
Rensselaer Polytech. Inst.	9	0	1	14	43	6	10
Rhode Island, U of ^a	4	4	8	1			
Rhode Island C	1	7	—	—			
Rhodes C	1	6	—	—			
Rice U	1	4	21	11	16	2	4
Richard Stockton C of New Jersey	4	19	—	—			
Richmond, U of	4	14	—	—			
Rider U	4	0	—	—			
Roanoke C	2	3	—	—			
Rochester, U of	6	12	20	9	20	21	1
Rochester Inst. of Tech.	11	9	11	—			
Rockford C	1	2	—	—			
Roger Williams U	7	7	—	—			
Rollins C	1	1	—	—			
Roosevelt U	3	0	—	—			
Rose-Hulman Inst. of Tech.	10	0	—	—	49	4	—
Rowan U	6	2	—	—	16	6	—
Russell Sage C	0	0	—	—			
Rutgers U							
Camden	0	7	0	—			
New Brunswick	14	26	6	22	36	13	7
Newark	6	7	4	6			

	CHEMISTRY			CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED			B.S. M.S. PH.D.		
	YES	NO	M.S. PH.D.	B.S.	M.S.	PH.D.
S						
Saginaw Valley State U	6	10	—	—		
St. Anselm C	2	2	—	—		
St. Benedict, C of/ St. John's U	1	16	—	—		
St. Catherine, C of	2	1	—	—		
St. Cloud State U	9	6	—	—		
St. John Fisher C	3	0	—	—		
St. John's U	9	0	2	—		
Saint Joseph C	0	2	3	—		
St. Joseph's U	4	3	—	—		
St. Lawrence U	3	4	—	—		
St. Louis U	5	29	8	—		
Saint Mary's C	5	6	—	—		
St. Michael's C	1	1	—	—		
St. Olaf C	1	29	—	—		
St. Peter's C	0	3	—	—		
St. Thomas, U of	5	17	—	—		
Saint Vincent C ^d	2	3	—	—		
Salem State C	1	4	—	—		
Salisbury U	2	4	—	—		
Sam Houston State U	8	6	1	—		
San Diego, U of	2	17	—	—		
San Diego State U	18	0	8	3		
San Francisco, U of	2	6	3	—		
San Francisco State U	4	26	10	—		
San Jose State U	9	10	5	—	9	10
Santa Clara U	3	6	—	—		
Sciences in Philadelphia, U of	1	5	2	1		
Scranton, U of	5	10	10	—		
Seattle U	4	16	—	—		
Seton Hall U	2	9	6	4		
Seton Hill C ^d	1	0	—	—		
Shippensburg U	5	12	—	—		
Siena C	3	10	—	—		
Simmons C	3	17	—	—		
Skidmore C	0	11	—	—		
Smith C	2	14	—	—		
Sonoma State U	9	5	—	—		
South Alabama, U of	6	3	—	—	17	16
South Carolina, U of	8	29	5	13	33	5
South Dakota, U of	2	9	1	—		
South Dakota School of Mines & Tech.	5	3	—	—	12	11
South Dakota State U	3	10	1	1		
South Florida, U of	14	37	4	11	26	9
Southeast Missouri State U	1	8	5	—		
Southeastern Louisiana U	1	2	—	—		
Southern California, U of	21	3	4	17	12	10
Southern Conn. State U	10	3	4	—		
Southern Illinois U						
Carbondale	0	13	5	0		
Edwardsville	6	2	9	—		
Southern Indiana, U of	4	2	—	—		
Southern Methodist U	4	19	2	0		
Southern Mississippi, U of	4	10	2	2		
Southern Oregon U	7	11	—	—		
Southern U and A&M C	10	1	4	—		
Southwest Minn. State U (formerly Southwest State U)	5	5	—	—		
Southwest Missouri State U	7	17	9	—		

	CHEMISTRY			CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED			B.S. M.S. PH.D.		
	YES	NO	M.S. PH.D.	B.S.	M.S.	PH.D.
T						
Southwestern Okla. State U	0	2	—	—		
Southwestern U	0	13	—	—		
Stanford U	0	14	7	29	30	28
State U of New York						
Albany	0	1	2	2		
Binghamton	11	50	0	8		
Buffalo	13	30	2	13	34	12
New Paltz	3	9	2	—		
Stony Brook	3	14	9	9		
C at Brockport	2	2	—	—		
C at Buffalo	1	12	1	—		
C at Cortland	4	1	—	—		
C at Fredonia	2	4	0	—		
C at Geneseo	5	20	—	—		
C at Old Westbury	2	1	—	—		
C at Oneonta	1	2	—	—		
C at Oswego	7	6	1	—		
C at Plattsburgh	2	10	—	—		
C at Potsdam	1	4	—	—		
C at Purchase	2	2	—	—		
State U of West Georgia	4	11	—	—		
Stephen F. Austin State U	0	8	3	—		
Stetson U	0	4	—	—		
Stevens Inst. of Tech.	14	0	10	0	16	8
Stonehill C	0	11	—	—		
Suffolk U	0	1	—	—		
Susquehanna U	4	3	—	—		
Swarthmore C	7	4	—	—		
Syracuse U	0	33	1	15	8	1
T						
Temple U	5	16	5	7		
Tennessee, U of						
Chattanooga	5	11	—	—		
Knoxville	3	19	3	12	24	5
Martin	1	5	—	—		
Tennessee Technological U	1	16	5	—	17	8
Texas, U of						
Arlington	19	4	3	5		
Austin	122	0	13	29	118	21
Dallas	7	9	7	1		
El Paso	6	0	4	—		
Pan American	7	4	—	—		
San Antonio	11	3	1	—		
Texas A&M U						
College Station	21	18	7	28	68	7
Commerce	0	1	3	—		
Kingsville	4	0	3	—	22	12
Texas Christian U	3	0	1	3		
Texas Southern U	2	2	3	—		
Texas State U, San Marcos (formerly Southwest Texas State U)						
Texas State U	12	6	5	—		
Texas Tech U	1	18	9	9	32	4
Texas Woman's U	0	6	0	—		
Thiel C	2	2	—	—		
Toledo, U of	3	5	2	6	27	7
Towson U	1	14	—	—		
Tri-State U ^b					10	—
Trinity U	8	12	—	—		
Truman State U	23	0	—	—		
Tufts U	7	12	6	3	34	10
Tulane U	0	16	1	6	18	0
Tulsa, U of	3	7	9	—	16	9
Tuskegee U	1	10	2	—	11	—

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
U							
Union C	2	1	—	—			
Union U	5	1	—	—			
U.S. Air Force Academy	13	0	—	—			
U.S. Naval Academy	35	0	—	—			
Ursinus C	5	3	—	—			
Utah, U of	35	18	16	20	25	5	4
Utah State U	4	6	0	7			
V							
Valdosta State U	0	7	—	—			
Valparaiso U	8	22	—	—			
Vanderbilt U	5	18	7	6	17	2	2
Vassar C	0	9	0	—			
Vermont, U of	6	4	2	1			
Villanova U	17	0	3	—	19	11	—
Virginia, U of	52	54	9	18	29	7	5
Virginia Commonwealth U	6	27	1	3	18	3	1
Virginia Military Inst.	4	1	—	—			
Virginia Polytechnic Inst. & State U	14	26	7	14	46	2	7
Viterbo U	2	2	—	—			
W							
Wabash C	2	6	—	—			
Wagner C	2	8	—	—			
Wake Forest U	10	14	4	3			
Washburn U of Topeka	0	5	—	—			
Washington & Jefferson C	2	8	—	—			
Washington & Lee U	0	11	—	—			
Washington, U of	9	177	0	32	54	9	12
Washington C	1	2	—	—			
Washington State U	5	1	3	2	17	8	2
Washington U in St. Louis	0	47	19	13	22	10	1
Wayne State U ^a	15	17	10	13			
Waynesburg C	2	1	—	—			
Weber State U	12	9	—	—			
Wellesley C	3	12	—	—			
Wesleyan U	0	7	2	4			
West Chester U	5	13	3	—			
West Florida, U of	4	1	—	—			
West Virginia Inst. of Tech. ^b					5	—	—
West Virginia State C	1	2	—	—			
West Virginia U	8	16	3	6	13	5	3
Western Carolina U	2	12	5	—			
Western Connecticut State U	1	1	—	—			
Western Illinois U	0	7	3	—			
Western Kentucky U	1	43	8	—			
Western Michigan U	1	12	3	0	91	—	—
Western Washington U	20	14	3	—			
Westminster C	0	3	—	—			

	CHEMISTRY				CHEMICAL ENGINEERING		
	BACHELOR'S CERTIFIED				B.S.	M.S.	PH.D.
	YES	NO	M.S.	PH.D.			
Wheaton C							
Illinois	0	11	—	—			
Massachusetts	0	4	—	—			
Whitman C	1	6	—	—			
Whittier C	0	5	—	—			
Wichita State U	5	15	4	1			
Widener U	1	1	—	—	5	9	—
Wilkes U	3	1	—	—			
Willamette U	2	18	—	—			
William & Mary, C of	36	6	2	—			
Williams C	0	18	—	—			
Winona State U	4	7	—	—			
Wisconsin, U of							
Eau Claire	5	24	—	—			
Green Bay	2	6	—	—			
La Crosse	6	8	—	—			
Madison	1	40	16	30	73	5	17
Milwaukee	1	9	3	2			
Oshkosh	6	3	—	—			
Parkside	3	1	—	—			
Platteville	2	4	—	—			
River Falls	2	4	—	—			
Stevens Point	2	11	—	—			
Superior	1	5	—	—			
Whitewater	1	11	—	—			
Wittenberg U	4	8	—	—			
Wooster, C of	2	27	—	—			
Worcester Polytech. Inst.^a							
	0	18	4	1			
Wright State U	5	16	6	—			
Wyoming, U of	4	2	0	7	13	2	1
X							
Xavier U	7	4	—	—			
Xavier U of Louisiana	1	45	—	—			
Y							
Yale U	13	0	9	24	5	12	5
Youngstown State U	11	0	6	—	13	0	—
TOTAL	3,622	6,533	1,840	1,963	4,764	1,119	644

NOTE: For brevity, "B.S." and "M.S." are used to denote all bachelor's and master's degrees, respectively, in each column. Polytechnic U submitted no data, so it is not listed in this table. **a** Chemical engineering data not submitted. **b** Listed on basis of accreditation by the American Institute of Chemical Engineers/Accreditation Board for Engineering & Technology. **c** The chemistry program at Mount Saint Vincent and Manhattan C are integrated into a combined department with instruction in chemistry located at Manhattan C. **d** Saint Vincent C and Seton Hill C are integrated into a combined department.

AN APPEAL FROM CPT

In order to keep pace with changes occurring in the chemistry profession and education, the Committee on Professional Training (CPT) is undertaking an effort to revise the American Chemical Society guidelines for approval of undergraduate chemistry programs.

To begin this process, CPT is soliciting input from the entire chemistry community about the requirements for ACS approval.

CPT encourages you to send your comments about curriculum, skills, pedagogy, infrastructure and personnel requirements, the approval process, or any other issues to cpt@acs.org with the subject line "ACS Guidelines Revision."

CPT will use this information to develop proposals for revising the guidelines, which will be published with a request for further comments.—F. FLEMING CRIM, CPT CHAIR, AND WILLIAM F. POLIK, CPT VICE CHAIR

CHEMISTRY GRADS IN 2004

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four departments are Purdue University, with 179 graduates; the University of Illinois, Urbana-Champaign, with 171; the University of North Carolina, Chapel Hill, with 151; and the University of California, Los Angeles, with 129.

The University of California, San Diego, has been the biggest producer of master's chemistry graduates for three of the past

four years and has a four-year total of 153. Columbia University was the biggest producer in 2001–02, with 37 graduates.

On the four-year basis, Cornell University was the second largest producer, with 126 graduates, followed by the University of Chicago and the University of Michigan, Ann Arbor, each with 109, and Harvard University, with 103.

The 4,764 tally of bachelor's chemical engineering graduates reported to CPT for 2003–04 was down by 200 from the previous year. The decline would have been larger but for the inclusion of 91 graduates from Western Michigan University in 2003–04. This program was recently accredited by AIChE/ABET and had not been included in the CPT count previously.

The largest producer of 2003–04 chemical engineering bachelor's graduates was the University of Texas, Austin, with 118, followed by Pennsylvania State University, with 114, and Purdue University, with 105.

Illinois Institute of Technology was the largest producer of master's chemical engineering graduates in 2003–04, with 38, and Massachusetts Institute of Technology topped the Ph.D. ranking, with 28. ■