



*Supporting Structures: Innovative Collaborations to Enhance
STEM Research at CCCU Member Institutions*

2021 Report on STEM at CCCU Institutions

Jeff Clawson, Pete Jordan, Megan Loumagne Ulishney, and Stan Rosenberg
September 2021

This report was made possible through the support of a grant from the John Templeton Foundation. The opinions expressed in this report are those of the authors and do not necessarily reflect the views of the John Templeton Foundation.

© 2021 Scholarship and Christianity in Oxford and the Council for Christian Colleges and Universities.

This report on U.S. Governing Member (n=112) and US-based Collaborative Partner (n=7; Baylor University not included) institutions of the Council for Christian Colleges and Universities (CCCU) covers the years 1994-95 through 2018-19 (or 2017-18 if the more recent data is not available). The institutions included in the study were members as of April 2020.

The data in this report comes from the U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS). Some data (such as faculty ethnicity) were not mandatory to report to IPEDS in some of the years covered by this report. Therefore, some years contain data from fewer institutions. Where relevant, sample sizes are indicated.

IPEDS reports their STEM-related data according to five primary STEM categories: Biological and Biomedical Science (Bio), Computer Information Systems (CompSys), Engineering (Engin), Mathematics and Statistics (Math/Stats), and Physical Science (Phys). Please see the Appendix for the specific STEM areas included in each of these categories.

Throughout the report, “degrees” refers to bachelor degrees.

Table A: Number Of Degrees Awarded Across All Subjects And Disciplines

The total number of degrees awarded per year in all subjects and disciplines across all institutions increased from 30,149 in 1994-95 to 50,129 in 2018-19.

The average number of degrees awarded per year per institution increased from 262 to 421.

Table A: Number Of Degrees Awarded Across All Subjects And Disciplines

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Total Number Of Degrees Awarded	30,149	36,902	42,075	45,276	45,598	46,017	47,482	48,081	48,776	49,824	50,395	49,090	50,129
Average Number Of Degrees Awarded Per Institution	262.2	320.9	359.6	387.0	389.7	393.3	405.8	410.9	413.4	418.7	423.5	412.5	421.3
100 th Percentile For Number Of Degrees Awarded	885	936	1,101	1,137	1,308	1,401	1,568	1,741	1,783	1,692	1,586	1,623	1,678
75 th Percentile For Number Of Degrees Awarded	371	448	480	497	490	512	519	513	534	534	575	574	564
50 th Percentile For Number Of Degrees Awarded	225	279	316	346	364	364	369	371	365	379	360	348	339
25 th Percentile For Number Of Degrees Awarded	127	163	202	226	235	215	214	234	230	224	224	216	220

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Table B: Number Of STEM Degrees Awarded

The total number of STEM degrees awarded per year across all institutions increased from 2550 in 1994-95 to 5311 in 2018-19. As a percentage of the total number of all degrees awarded, this represents an increase from 8.4% to 10.6%.

The average number of STEM degrees awarded per year per institution increased from 22 to 44.

Table B: Number Of STEM Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Total Number Of STEM Degrees Awarded	2550	3196	3325	3390	3448	3725	3978	4246	4403	4756	5017	5161	5311
Average Number Of STEM Degrees Awarded Per Institution	22.2	27.8	28.4	29.0	29.5	31.8	34.0	36.3	37.3	40.0	42.2	43.4	44.6
100 th Percentile For Number Of STEM Degrees Awarded	134	229	162	176	165	148	146	177	178	202	218	221	229
75 th Percentile For Number Of STEM Degrees Awarded	31	38	38	41	44	46	50	52	51	55	58	57	59
50 th Percentile For Number Of STEM Degrees Awarded	16	19	19	22	22	24	25	26	27	29	29	28	31
25 th Percentile For Number Of STEM Degrees Awarded	5	7	9	8	9	9	10	11	11	13	13	12	13
STEM Degrees As Percentage Of Total Degrees Awarded	8.4%	8.6%	7.9%	7.4%	7.5%	8.0%	8.3%	8.8%	8.9%	9.4%	9.9%	10.4%	10.6%

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Figure B1: Total Number Of STEM Degrees Awarded

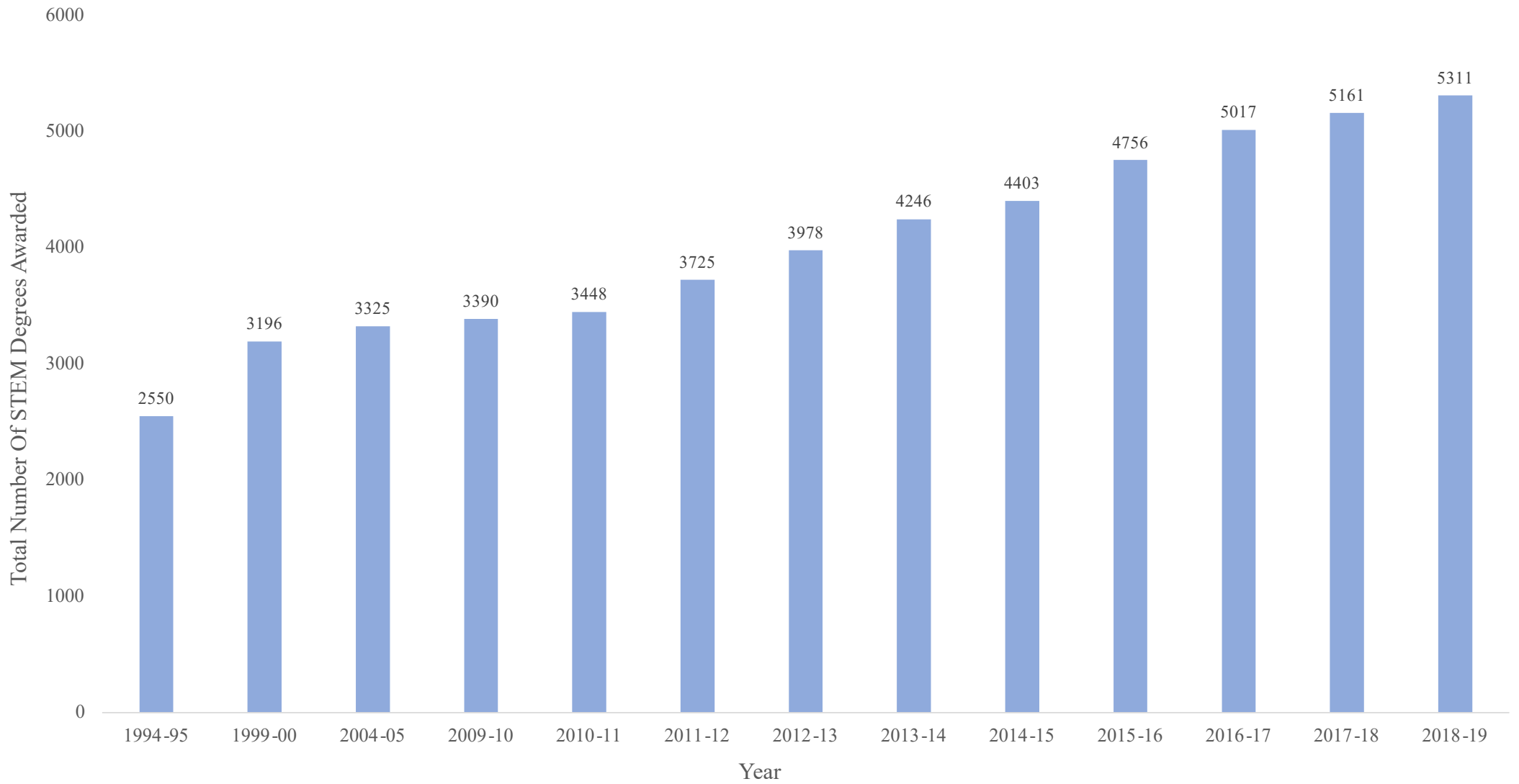


Figure B2: STEM Degrees As Percentage Of Total Degrees Awarded

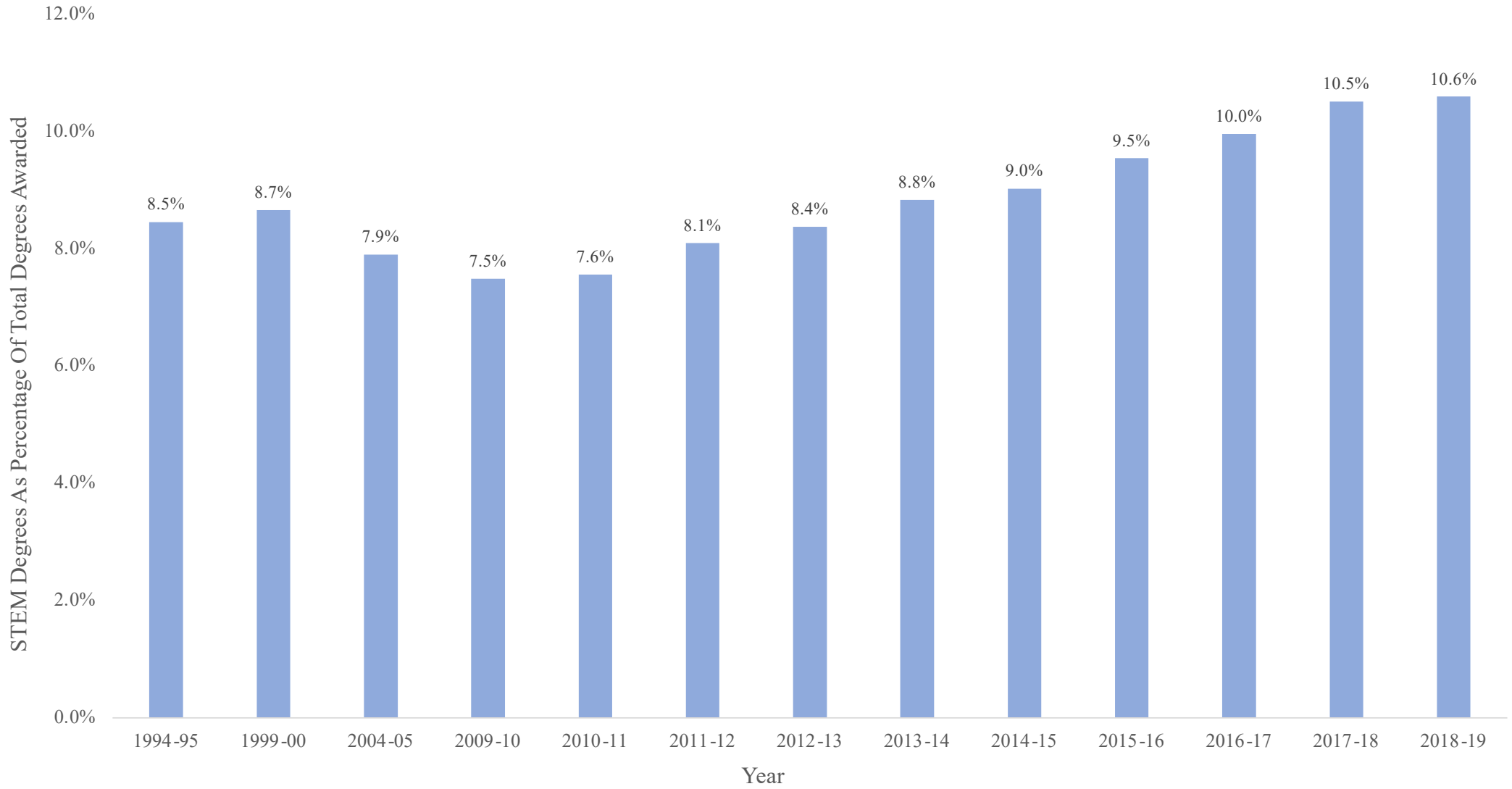


Figure B3: Average Number Of STEM Degrees Awarded Per Institution

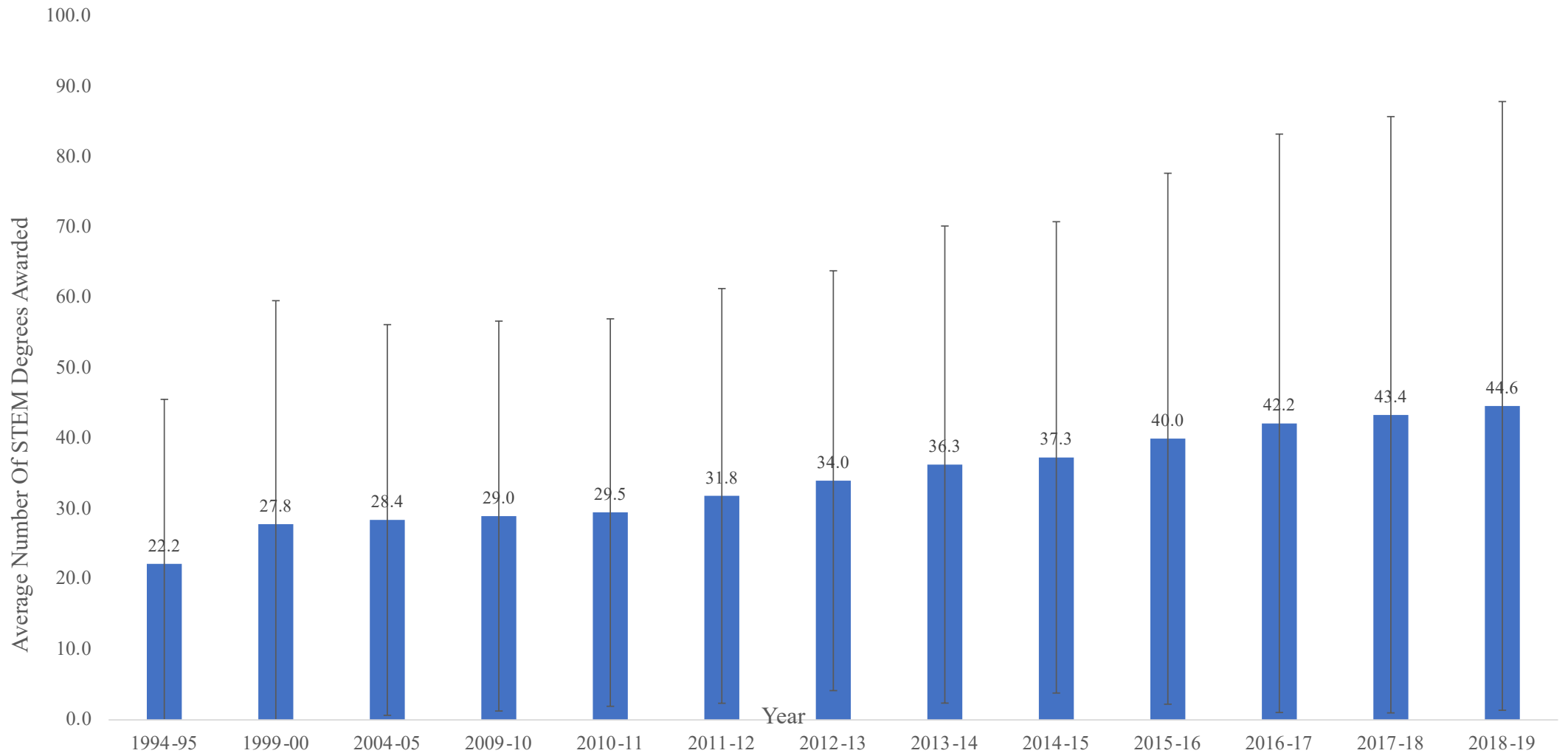


Table C: Total Number Of STEM Degrees Awarded By STEM Category

As Table B indicates, the total number of STEM degrees awarded per year across all institutions doubled between 1994-95 and 2018-19. As Table C shows, much of this increase can be accounted for by the increase in the number of degrees awarded in Biological and Biomedical Sciences, Computer Information Systems, and Engineering.

Although the number of degrees awarded across all STEM categories between 1994-95 and 2018-19 increased, as a percentage of total STEM degrees awarded, Biology and Biomedical Sciences and Computer Information Systems changed little, while Mathematics and Statistics and Physical Sciences decreased. The percentage of Engineering degrees grew from 10% to nearly 19%.

Table C: Number Of STEM Degrees Awarded By STEM Category

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Bio	1223	1455	1531	1763	1799	1892	2066	2138	2198	2315	2356	2419	2466
As % Of Total STEM Degrees Awarded	47.4%	45.2%	45.7%	51.7%	52.1%	50.8%	52.4%	50.8%	50.4%	49.2%	47.2%	47.2%	46.7%
CompSys	442	857	831	485	526	620	555	644	714	776	857	912	975
As % Of Total STEM Degrees Awarded	17.1%	26.6%	24.8%	14.2%	15.2%	16.7%	14.1%	15.3%	16.4%	16.5%	17.2%	17.8%	18.5%
Engin	270	274	362	435	407	454	520	631	649	766	929	953	997
As % Of Total STEM Degrees Awarded	10.5%	8.5%	10.8%	12.7%	11.8%	12.2%	13.2%	15.0%	14.9%	16.3%	18.6%	18.6%	18.9%
Math/Stats	337	355	357	368	355	381	409	419	413	478	419	431	470
As % Of Total STEM Degrees Awarded	13.1%	11.0%	10.6%	10.8%	10.3%	10.2%	10.4%	9.9%	9.5%	10.2%	8.4%	8.4%	8.9%
Phys	278	255	244	339	361	378	428	414	429	421	456	446	403
As % Of Total STEM Degrees Awarded	10.8%	7.9%	7.3%	9.9%	10.5%	10.2%	10.9%	9.8%	9.8%	8.9%	9.1%	8.7%	7.6%

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Figure C1: Number Of STEM Degrees Awarded By STEM Category

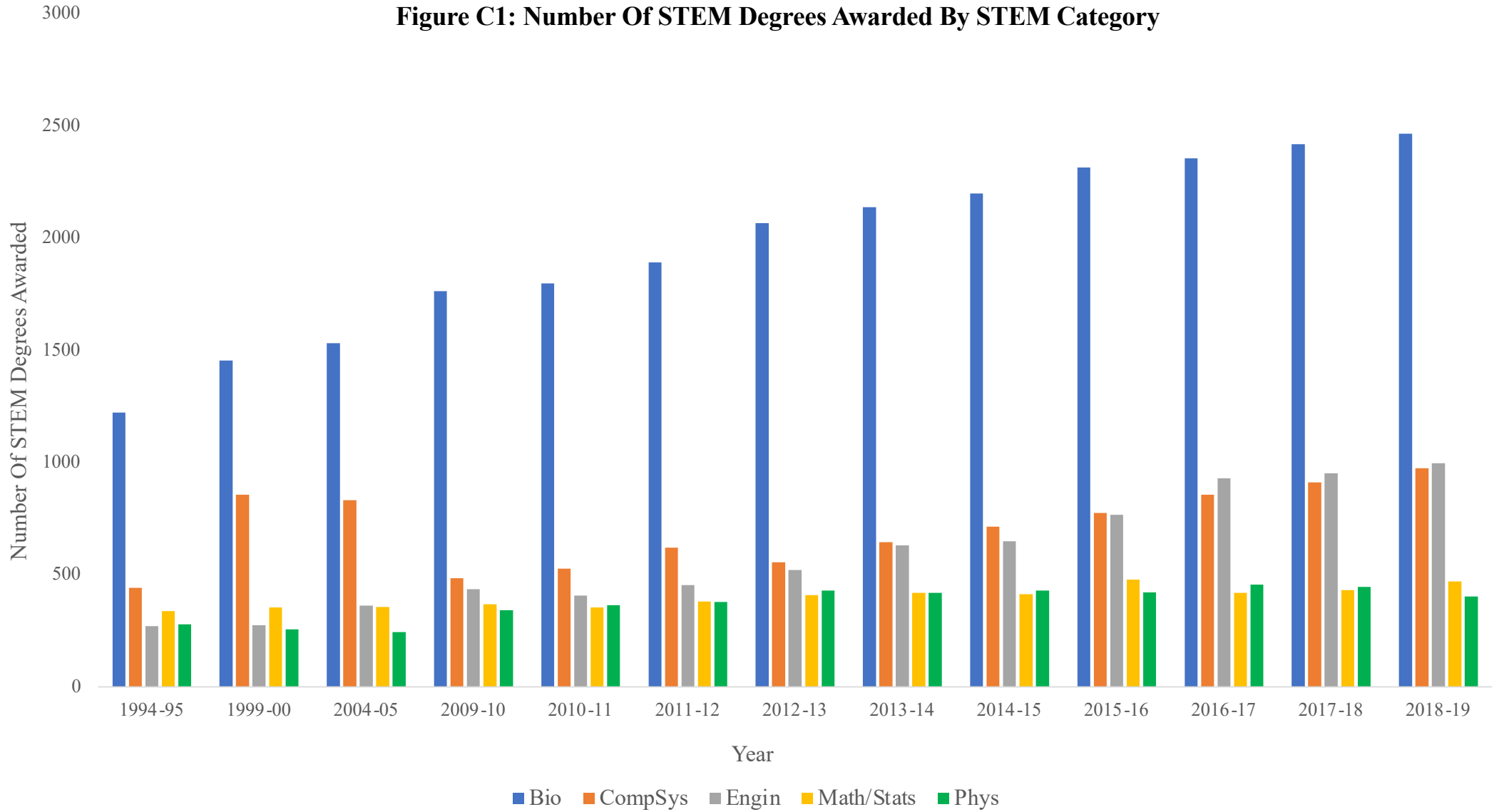
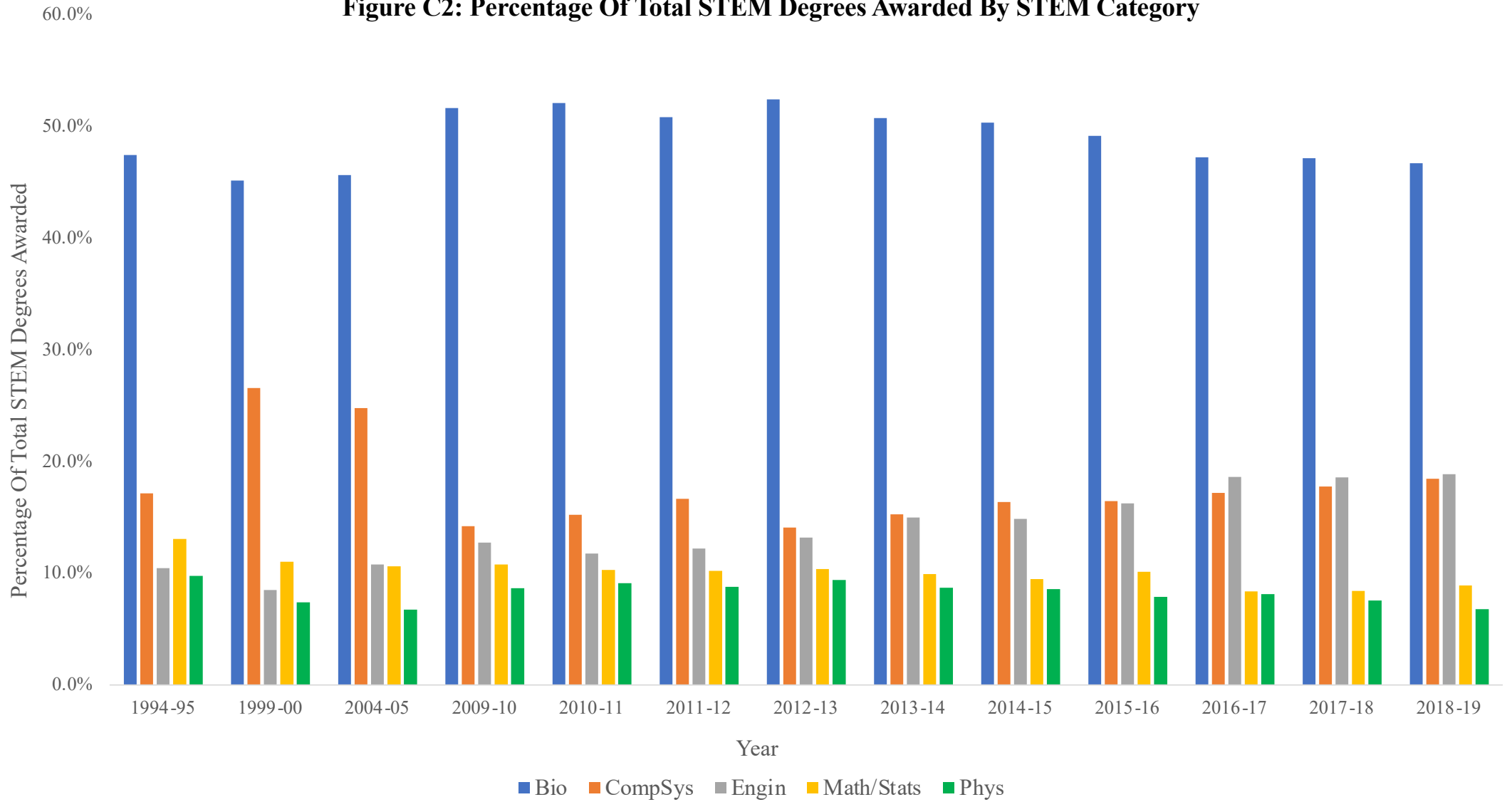


Figure C2: Percentage Of Total STEM Degrees Awarded By STEM Category



Tables D-H: Number Of STEM Degrees Awarded By STEM Category

The average number of Biological and Biomedical Sciences, Computer Information Systems, and Engineering degrees awarded per year per institution increased between 1994-95 and 2018-19. The most dramatic growth occurred in the number of large (75th Percentile) and very large (100th Percentile) Engineering programs (Table F).

Table D: Number Of Biological And Biomedical Science Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Average Number Of Degrees Awarded	10.5	12.5	13.1	15.1	15.4	16.2	17.7	18.3	18.6	19.5	19.8	20.3	20.7
100 th Percentile For Number Of Degrees Awarded	76.0	66.0	59.0	69.0	72.0	73.0	73.0	76.0	70.0	85.0	77.0	78.0	75.0
75 th Percentile For Number Of Degrees Awarded	19.0	20.0	21.0	23.0	24.0	23.8	27.0	26.5	27.5	26.0	30.0	29.0	30.0
50 th Percentile For Number Of Degrees Awarded	10.0	11.0	12.5	14.0	13.0	13.5	16.0	16.5	17.0	15.0	15.0	16.0	16.0
25 th Percentile For Number Of Degrees Awarded	6.0	5.0	6.0	7.0	7.0	8.0	8.0	8.8	8.0	8.0	8.0	8.0	8.0

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Table E: Number Of Computer Information System Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Average Number Of Degrees Awarded	3.8	7.4	7.1	4.1	4.5	5.3	4.7	5.5	6.1	6.5	7.2	7.7	8.2
100 th Percentile For Number Of Degrees Awarded	46.0	208.0*	95.0	34.0	36.0	55.0	41.0	60.0	53.0	61.0	83.0	62.0	67.0
75 th Percentile For Number Of Degrees Awarded	8.3	12.0	10.5	8.0	9.0	9.0	9.0	9.0	13.0	11.0	13.0	16.0	16.0
50 th Percentile For Number Of Degrees Awarded	5.0	7.0	7.0	5.0	5.0	5.0	5.0	6.0	6.0	8.0	8.0	9.0	9.5
25 th Percentile For Number Of Degrees Awarded	2.0	4.0	3.0	2.0	3.0	3.0	3.0	4.0	3.0	5.0	4.0	4.0	5.0

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

*This figure may represent a data entry error in IPEDS. The same institution constituted the 100th Percentile data point in 1994-95, 1999-2000, and 2004-05.

Table F: Number Of Engineering Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Average Number Of Degrees Awarded	2.3	2.4	3.1	3.7	3.5	3.9	4.4	5.4	5.5	6.4	7.8	8.0	8.4
100 th Percentile For Number Of Degrees Awarded	43.0	47.0	65.0	75.0	61.0	61.0	64.0	82.0	85.0	104.0	108.0	101.0	114.0
75 th Percentile For Number Of Degrees Awarded	17.0	19.0	21.0	21.0	20.3	26.0	30.0	29.0	33.0	33.5	41.8	39.5	39.0
50 th Percentile For Number Of Degrees Awarded	6.0	9.5	10.0	11.0	14.0	12.0	17.0	11.0	13.0	10.0	10.0	15.0	9.0
25 th Percentile For Number Of Degrees Awarded	3.5	3.3	6.5	3.0	4.3	2.0	4.0	3.0	4.0	4.0	3.8	5.5	3.0

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Table G: Number Of Mathematics And Statistics Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Average Number Of Degrees Awarded	2.9	3.1	3.1	3.1	3.0	3.3	3.5	3.6	3.5	4.0	3.5	3.6	3.9
100 th Percentile For Number Of Degrees Awarded	21.0	14.0	21.0	21.0	19.0	18.0	25.0	24.0	15.0	35.0	26.0	24.0	21.0
75 th Percentile For Number Of Degrees Awarded	5.0	6.0	5.0	6.0	5.0	6.0	5.0	7.0	6.0	7.0	5.8	5.3	6.0
50 th Percentile For Number Of Degrees Awarded	3.0	3.0	3.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	3.5	3.0	3.5
25 th Percentile For Number Of Degrees Awarded	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Table H: Number Of Physical Sciences Degrees Awarded

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Average Number Of Degrees Awarded	2.4	2.2	2.1	2.9	3.1	3.2	3.7	3.5	3.6	3.5	3.8	3.7	3.4
100 th Percentile For Number Of Degrees Awarded	25.0	14.0	16.0	26.0	28.0	36.0	40.0	34.0	40.0	48.0	31.0	33.0	32.0
75 th Percentile For Number Of Degrees Awarded	5.0	5.0	4.0	6.3	6.0	6.0	5.0	6.5	6.0	7.0	7.0	7.0	6.0
50 th Percentile For Number Of Degrees Awarded	3.0	3.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
25 th Percentile For Number Of Degrees Awarded	2.0	1.0	1.0	2.0	2.0	1.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Table I: Number Of Institutions Awarding At Least One Degree Within STEM Category

Within each of the five STEM categories, the number of institutions awarding at least one degree increased between 1994-95 and 2018-19. All STEM categories experienced growth, with the number of institutions awarding degrees in Engineering almost doubling.

Table I: Number Of Institutions Awarding At Least One Degree Within STEM Category

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Bio	89	97	102	104	107	106	109	108	111	112	113	113	114
CompSys	64	69	83	74	72	73	70	66	77	77	79	81	78
Engin	23	22	23	25	24	29	26	31	29	34	36	35	41
Math/Stats	79	84	80	87	88	92	94	89	96	97	94	100	98
Phys	65	69	68	68	72	70	79	75	78	74	75	75	75

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Figure I1: Number Of Institutions Awarding At Least One Degree Within STEM Category

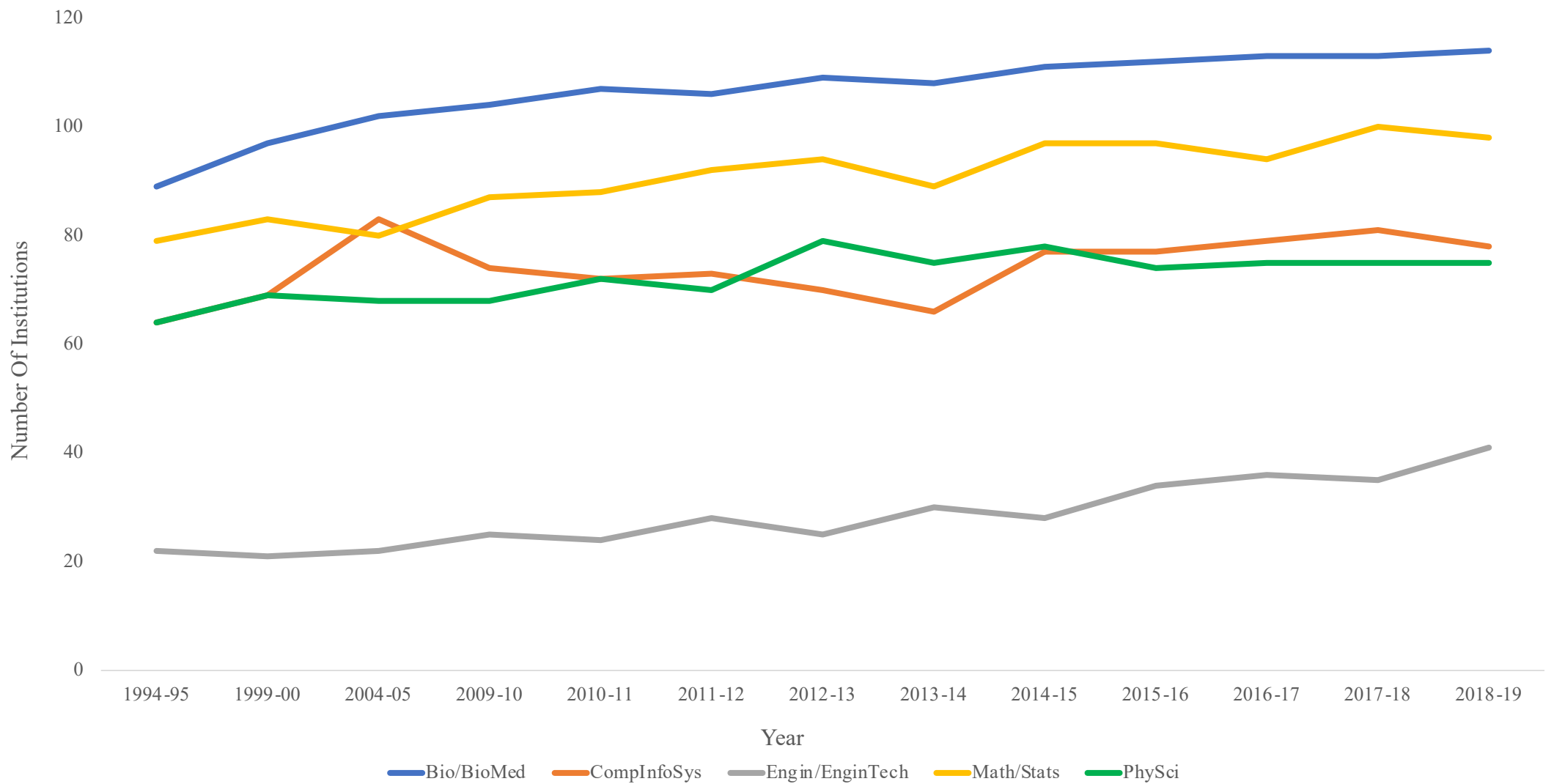


Table J: Number Of Institutions Awarding 0, 1-20, 21-40, 41-60, ... 201+ STEM Degrees

The number of institutions awarding zero STEM degrees decreased from 22 to 1 between 1994-95 and 2018-19. The number of institutions awarding 101 or more STEM degrees increased from 2 to 12. STEM degree programs became more common, and the number of institutions with larger STEM programs increased.

Table J: Number Of Institutions Awarding 0, 1-20, 21-40, 41-60, ... 201+ STEM Degrees

Number of Degrees	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
0	22	14	11	8	9	7	5	4	3	3	2	2	1
1 - 20	48	47	50	47	48	46	46	45	45	45	44	43	43
21 - 40	26	28	28	31	28	32	26	29	29	33	30	29	29
41-60	12	12	11	15	17	13	19	15	15	12	14	17	17
61-80	5	10	12	12	8	9	12	9	13	8	9	7	8
81-100	0	2	2	2	6	6	5	8	6	9	10	7	8
101-200	2	1	3	2	1	4	4	7	7	8	8	12	12
201+	0	1	0	0	0	0	0	0	0	1	2	2	1

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Figure J1: Number Of Institutions Awarding 0, 1-20, 21-40, 41-60, ... 201+ STEM Degrees

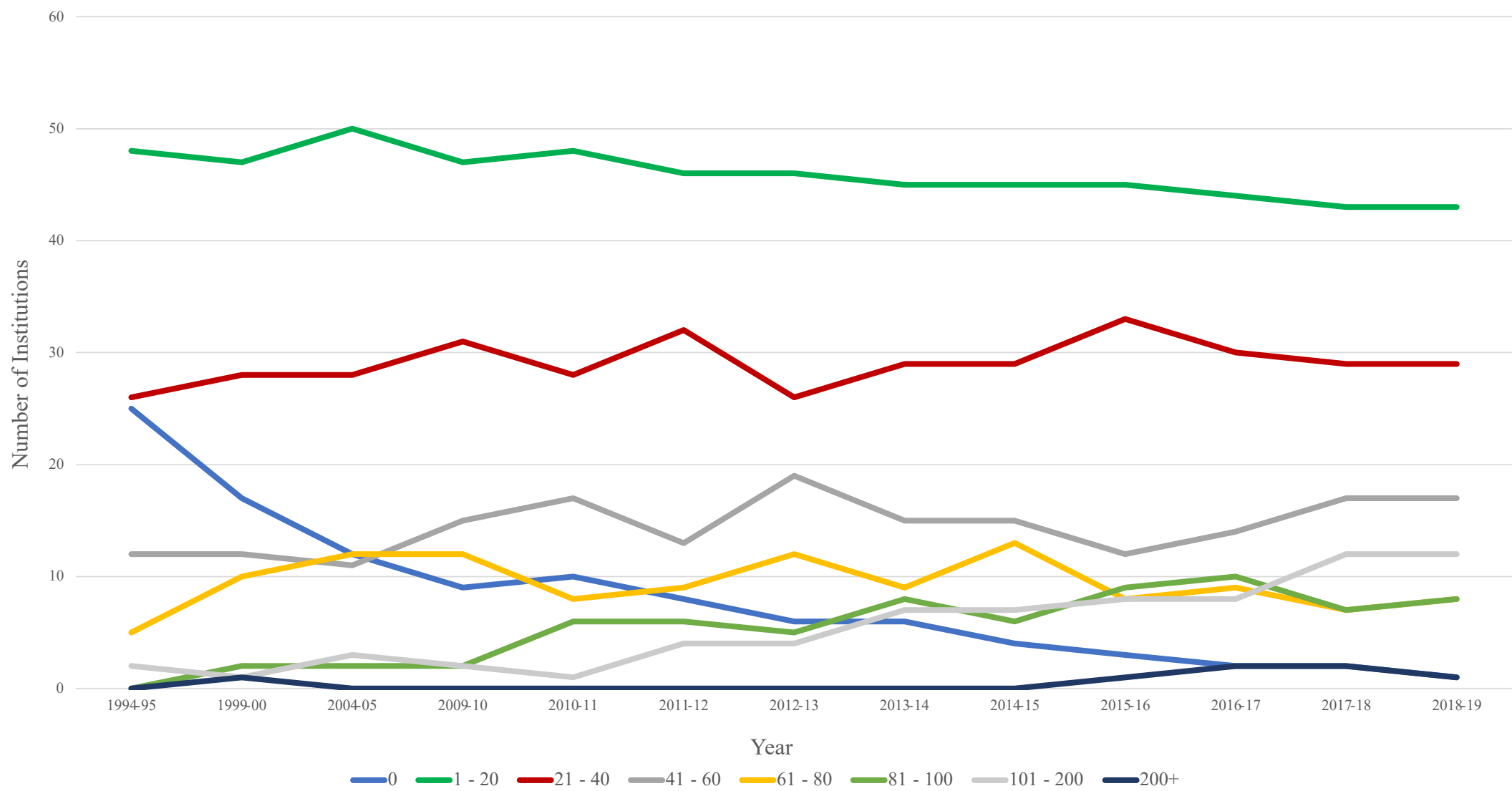


Table K: Number Of Institutions Awarding Degrees in 0, 1, 2, ... 5 STEM Categories

Table K depicts the number of institutions awarding degrees in 0,1, 2 ... 5 STEM categories between 1994-95 and 2018-19. The number of institutions awarding degrees in 1 or 2 STEM categories increased, as did the number of institutions awarding degrees in all 5 STEM categories. [NB: As Table J indicated, the number of institutions issuing zero STEM degrees decreased from 25 to 1 between 1994-95 and 2018-19. In Table K, the same figures are present as the number of institutions awarding degrees in zero STEM categories.]

Figure K3 (data not included in Table K) depicts the change at each institution between 1994-95 and 2018-19 in the number of STEM categories in which degrees were awarded. 41 institutions awarded degrees in the same number of STEM categories in 2018-19 as they had in 1994-95. 43 institutions awarded degrees in one additional STEM category in 2018-19 compared to the number of STEM categories in which they had awarded degrees in 1994-95, and 16 institutions awarded degrees in two more STEM categories. 7 institutions awarded degrees in one fewer STEM category in 2018-19 compared to the number of STEM categories in which they had awarded degrees in 1994-95, and 5 institutions awarded degrees in two fewer STEM categories.

Table K: Number Of Institutions Awarding Degrees In 0, 1, 2, ... 5 STEM Categories

	1994-95	1999-00	2004-05	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
0 STEM Categories	22	14	11	8	9	7	5	4	3	3	2	2	1
1 STEM Category	7	9	12	11	11	11	11	19	12	13	13	10	14
2 STEM Categories	10	14	14	16	13	17	12	12	18	17	20	17	18
3 STEM Categories	25	25	23	28	30	25	32	24	21	23	20	27	18
4 STEM Categories	37	36	38	39	35	35	38	36	40	37	36	36	38
5 STEM Categories	14	17	19	15	19	22	19	22	24	26	28	27	30
Average Number Of STEM Degree Categories Offered Per Institution (Max. 5)	2.71	2.89	3.02	3.03	3.07	3.14	3.20	3.13	3.29	3.31	3.34	3.39	3.41
Standard Deviation	1.72	1.62	1.56	1.43	1.48	1.47	1.37	1.48	1.39	1.38	1.38	1.30	1.37

Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Figure K1: Number of Institutions Offering Degrees in 0, 1, 2, ... 5 STEM Categories

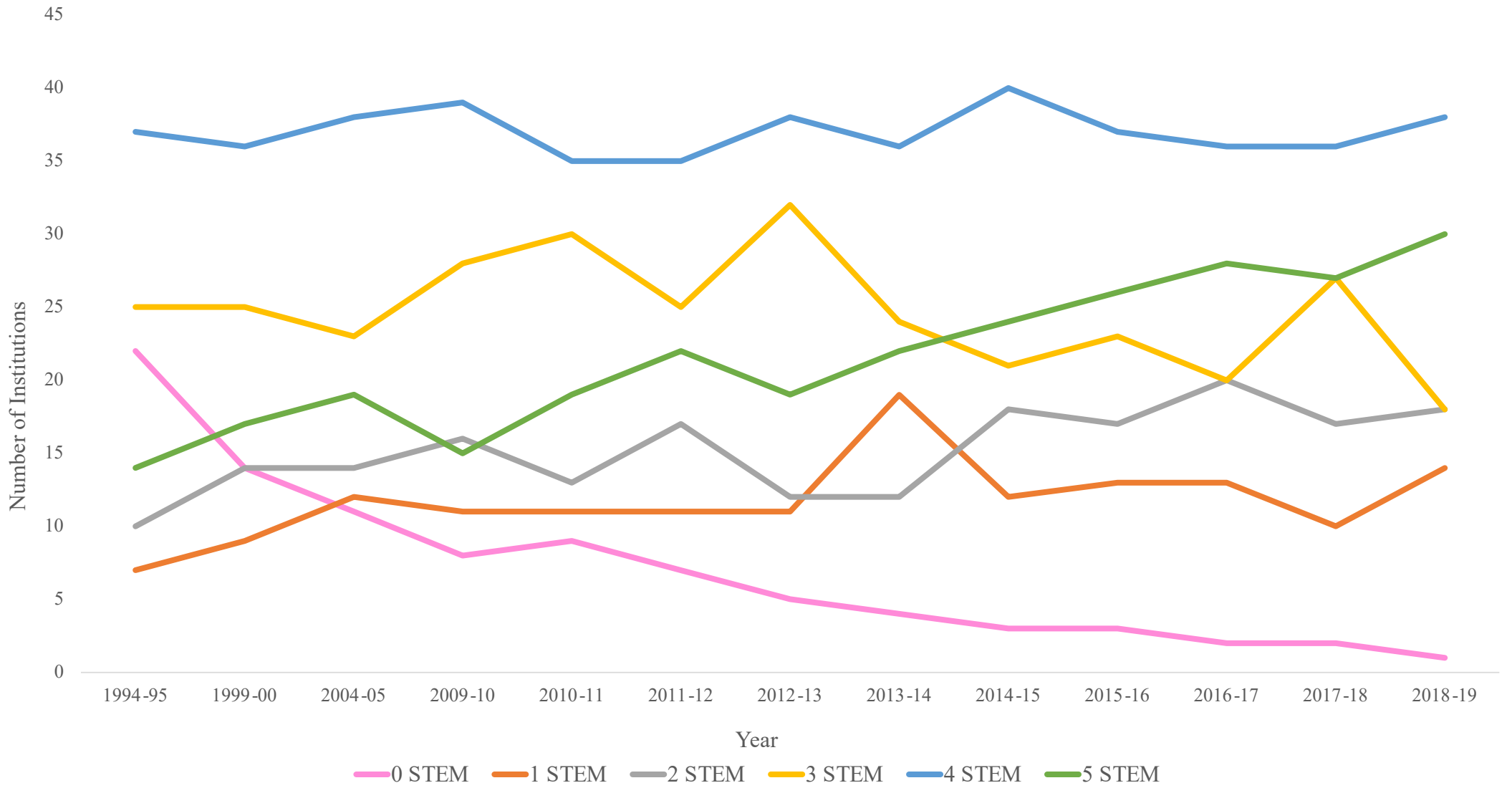


Figure K2: Average Number Of STEM Degree Categories Offered Per Institution (Max. = 5)

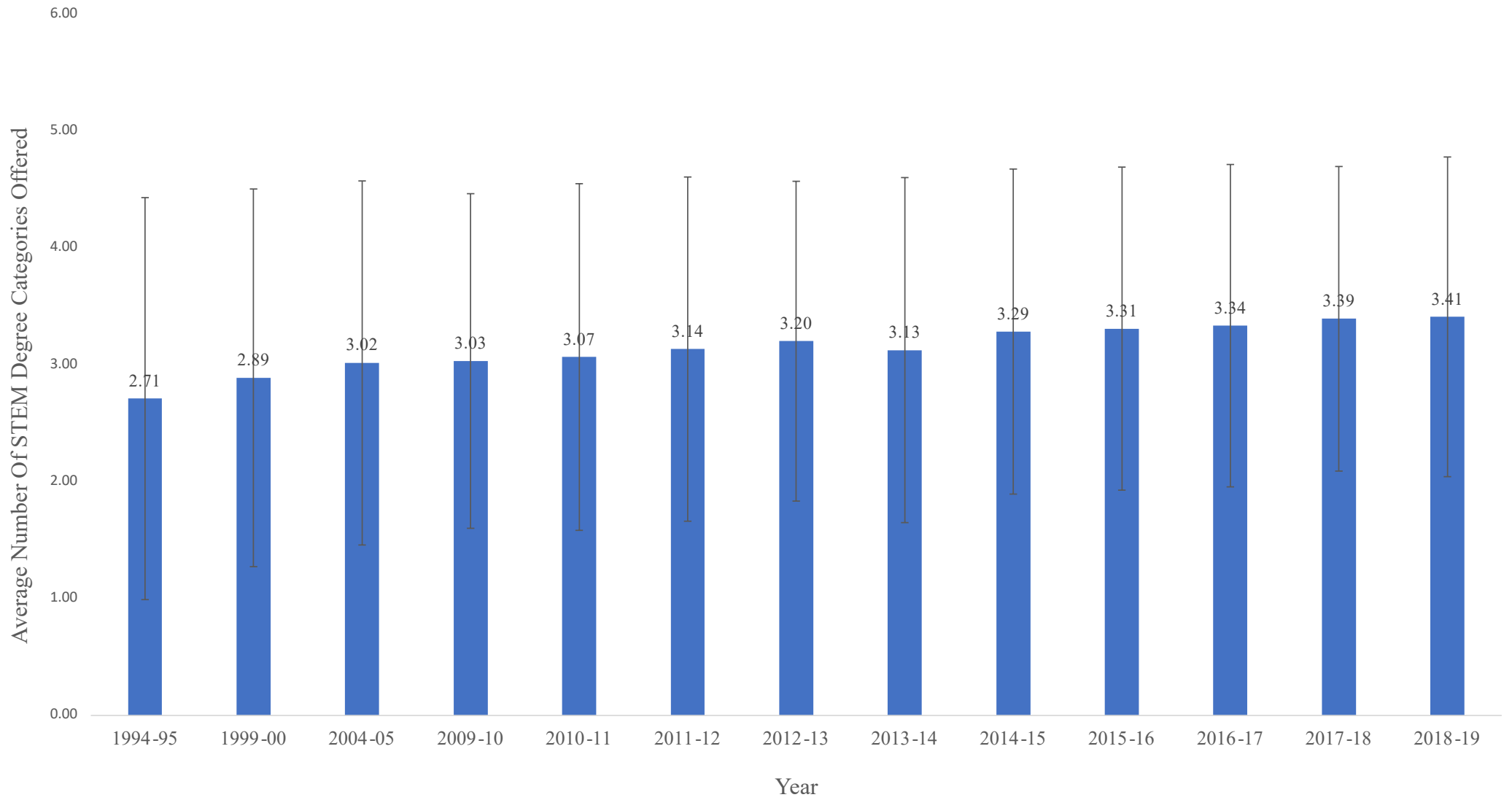
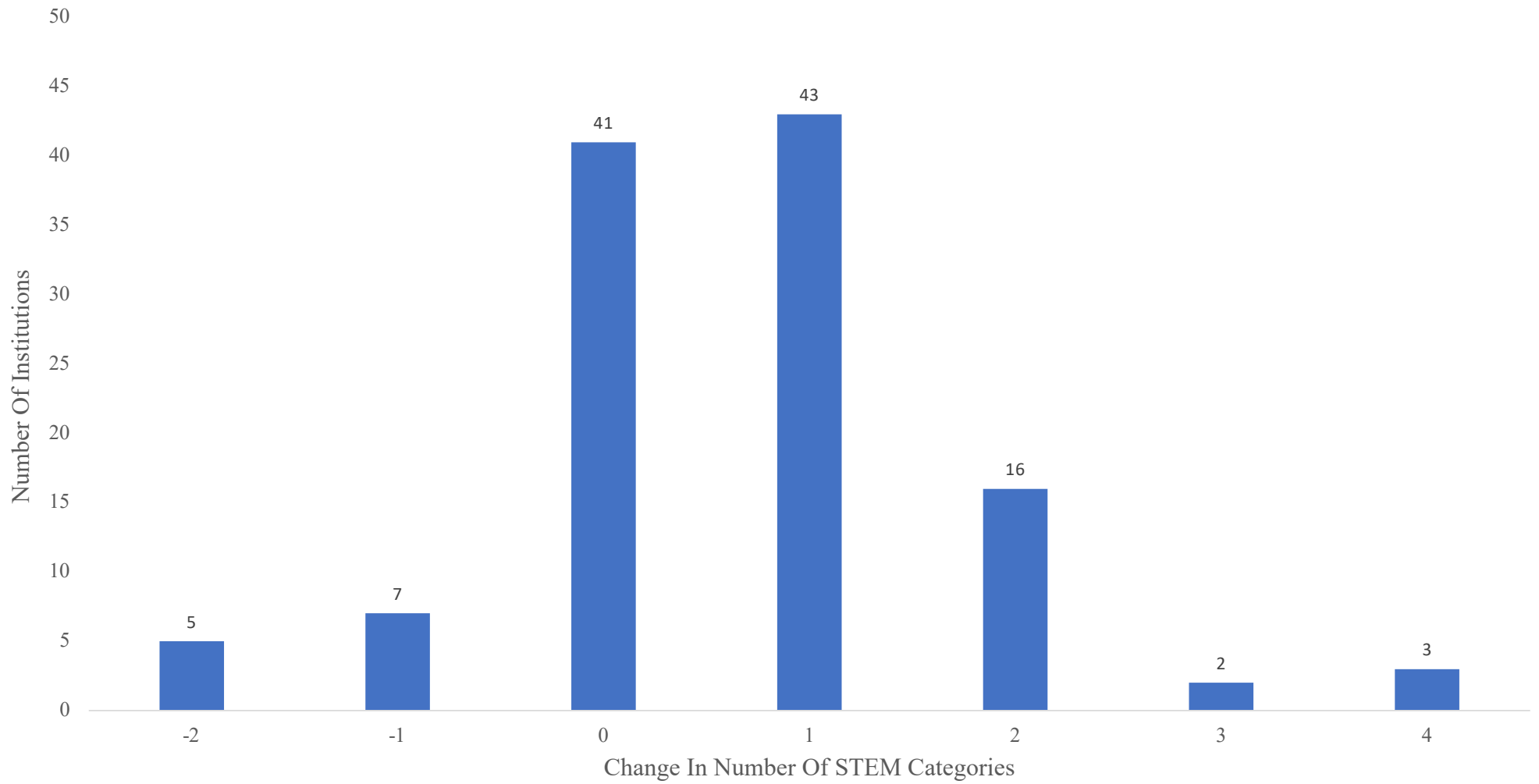


Figure K3: Change Between 1994-95 and 2018-19 In Number Of STEM Categories In Which Degrees Were Awarded



Appendix

Degree Areas Within IPEDS STEM Categories

Biological and Biomedical Sciences

1. **Biology, General**
2. **Biochemistry, Biophysics and Molecular Biology**
3. Botany/Plant Biology
4. **Cell/Cellular Biology and Anatomical Sciences**
5. Microbiological Sciences and Immunology
6. **Zoology/Animal Biology**
7. **Genetics**
8. **Physiology, Pathology and Related Sciences**
9. Pharmacology and Toxicology
10. Biomathematics, Bioinformatics, & Computational Bio.
11. **Biotechnology**
12. **Ecology, Evolution, Systematics, and Populations Bio.**
13. Molecular Medicine
14. Neurobiology and Neurosciences
15. **Biological and Biomedical Sciences, Other**

Computer Information Sciences and Support Services

1. **Computer and Information Services, General**
2. **Computer Programing**
3. Data Processing
4. Information Sciences/Studies
5. **Computer Systems Analysis**
6. Data Entry/ Microcomputer Applications
7. **Computer Science**
8. **Computer Software and Media Applications**
9. **Computer Systems Networking and Telecommunications**
10. **Computer/Information Technology Administration and Management**
11. **Computer and Information Sciences and Support Services, Other**

*Degrees in areas marked in **Bold** were awarded by at least one CCCU Governing Member institution during the period studied.

Engineering

1. **Engineering, General**
2. Aerospace, Aeronautical and Astronautical Engineering
3. Agricultural Engineering
4. Architectural Engineering
5. **Biomedical/Medical Engineering**
6. Ceramic Sciences and Engineering
7. **Chemical Engineering**
8. **Civil Engineering**
9. **Computer Engineering**
10. **Electrical, Electronics and Communications Engineering**
11. Engineering Mechanics
12. **Engineering Physics**
13. **Engineering Science**
14. **Environmental/Environmental Health Engineering**
15. Materials Engineering
16. **Mechanical Engineering**
17. **Metallurgical Engineering**
18. Mining and Mineral Engineering
19. Naval Architecture and Marine Engineering
20. Nuclear Engineering
21. Ocean Engineering
22. Petroleum Engineering
23. Systems Engineering
24. Textile Sciences and Engineering
25. Polymer/Plastics Engineering
26. Construction Engineering
27. Forest Engineering
28. **Industrial Engineering**
29. Manufacturing Engineering
30. Operations Research
31. Surveying Engineering
32. Geological/Geophysical Engineering
33. Paper Science and Engineering
34. Electromechanical Engineering
35. Mechatronics, Robotics, and Automation Engineering
36. Biochemical Engineering
37. Engineering Chemistry
38. Biological/Biosystems Engineering
39. **Engineering, Other**

*Degrees in areas marked in **Bold** were awarded by at least one CCCU Governing Member institution during the period studied.

Mathematics and Statistics

1. **Mathematics**
2. **Applied Mathematics**

3. **Statistics**
4. **Mathematics and Statistics, Other**

Physical Sciences

1. **Physical Sciences**
2. **Astronomy and Astrophysics**
3. Atmospheric Sciences and Meteorology
4. **Chemistry**

5. **Geological and Earth Sciences/Geosciences**
6. **Physics**
7. Material Sciences
8. **Physical Sciences, Other**

*Degrees in areas marked in **Bold** were awarded by at least one CCCU Governing Member institution during the period studied.