

National Science Foundation

Washington, D.C. 20550

Official Business

PENALTY FOR PRIVATE USE: \$300

Science and Engineering Baccalaureates Declined for Both Men and Women from 1986 to 1989

Although the number of baccalaureates awarded to both women and men in science and engineering (S&E) increased in the early eighties, this trend was reversed between 1986 and 1989. Conversely, the number and proportion of baccalaureates awarded in nonscience and non-engineering (non-S&E) fields continued to increase through 1989. These contrary trends reflect a declining interest in science and engineering on the part of undergraduates of both sexes, although the diminishing population of 22-year-olds is also a factor in the decline in S&E baccalaureates.

The 1986-89 period was the first period in which the number of bachelor's degrees awarded to women declined in the natural sciences and engineering. In some fields, such as engineering, the representation of women had reached only 15 percent in 1986, when the proportion began to decline.¹ In a 1986 survey that followed a sample of 1980 high school graduates, it was found that a much lower proportion of women than men graduated with a baccalaureate in a natural science or engineering, regardless of grades in high school, courses taken, or intentions in high school of earning a baccalaureate in an S&E field. For example, of the students who had earned mostly As in high school, 48 percent of the men and 26 percent of the women later earned a bachelor's degree in natural science or engineering. Twice as many men as women took physics in high school; of those who had taken physics, 49 percent of the men and 30

percent of the women later earned a baccalaureate in a natural science or engineering field.²

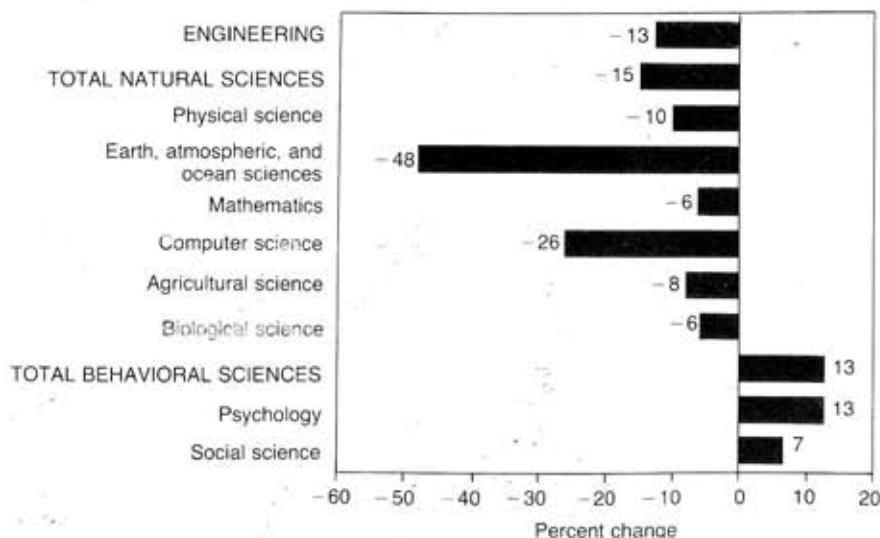
Although the number of students who earned baccalaureates in the behavioral sciences did increase between 1986 and 1989, the number of those earning degrees in the natural sciences and engineering declined overall. There was considerable variation, however, in the natural science fields. Among the natural sciences, the percentage decline in baccalaureates was the greatest in earth, atmospheric, and oceanographic sciences and in computer sciences. The next largest decline occurred in the physical sciences, although the changes varied significantly among the various subfields; there was a 14 percent decline in chemistry, for example, and a 3 percent increase in physics.

The decline in S&E baccalaureates does not bode well for S&E graduate enrollment or doctorate production in this country. Recent baccalaureate recipients make up the pool from which most graduate students emanate. The current increases in graduate enrollment and doctorate awards in science and engineering may not be sustained in the future unless interest in undergraduate work in these fields can be rekindled.

¹National Science Foundation, *Science and Engineering Degrees: 1966-89, Detailed Statistical Tables*, NSF 91-314.

²National Center for Education Statistics, *Who? Majors in Science? College Graduates in Science, Engineering, or Mathematics from the High School Class of 1980* (Washington, D.C., 1990); American Institute of Physics, *Who Takes Science? A Report on Student Coursework in High School Science and Mathematics* (New York, 1989).

Percent change from 1986 to 1989 in number of S/E baccalaureates awarded, by field



NOTE: S/E = science and engineering

SOURCE: National Science Foundation/SRS