



Abstract: Disabilities and Diversity in Science and Engineering



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Today, more students with disabilities are in higher education than ever before, as a result of special education, legally mandated services, and structural accommodations, and more are enrolling in science and engineering fields. If the United States is to have effective and productive learning environments in higher education, updating the nation's understanding of disability and its implications and updating educational practices are critical. Many leading scientists and engineers have disabilities. The United States needs more scientists and engineers with disabilities to build a competitive workforce and to participate and lead in developing assistive technologies and architectures that accommodate a wider range of abilities. Society and educational systems will benefit from greater participation of people with disabilities.

A revolution in policy, values, and services in the late 20th century spawned a new climate and environment for students with disabilities. Higher education began providing services to disabled veterans returning from World War II, including a model program at the University of Illinois in 1948. Universal design for instruction, a comprehensive set of principles and guidelines for changing instructional practices, was developed in 1998 to make learning more accessible.

A number of higher education alliances sponsored by the National Science Foundation offer comprehensive, campus-based services for students with disabilities who are concentrating in STEM fields. In addition, many studies are looking at aspects of instruction to make STEM courses more accessible to students with reduced-hearing, vision, mobility, speech, and learning disabilities. Several experimental programs in STEM fields have targeted minority and female students with disabilities.

The field of disability studies emerged in the late 20th century out of medical and rehabilitation research. The *Disability Studies Quarterly* began publication in 1986. Studies that specialize in educational access in STEM fields are an even more recent phenomenon. The National Science Foundation's Research in Disabilities Education program has funded 182 grants from 1992 through 2010. Only a fraction of them are strictly education research or social and behavioral science research yielding academic publications. A database and pending annotated bibliography at the Georgia Institute of Technology's Center for Assistive Technology and Environmental Access capture the knowledge base on disability and provide access to STEM courses and careers.

References:

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