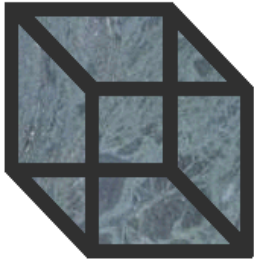


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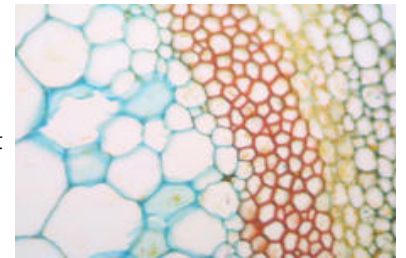


Career Cornerstone News is a Publication of the Sloan Career Cornerstone Center... the Premier Online Resource for Exploring Career Paths in Science, Technology, Engineering, and Mathematics.

Career Cornerstone Center Expands Biology Resources

The Sloan Career Cornerstone Center has recently expanded its Biology resources to offer more information on a variety of degree fields within the broad field of Biology. These include Bioinformatics and Biostatistics, Cell and Molecular Biology, Ecology/Environmental Science, Genetics,

Nutrition and Food Science, and many others. The new Biology section includes salary information, employment data, ideas for preparing to study Biology, links to associations and employers, and career path forecasts for those with degrees in Biology. All Career Cornerstone Biology resources are



available to download in PDF format on the site. Find out more under "Biology" www.careercornerstone.org.

Nuclear Engineer Profile: Douglas Osborn

Douglas Osborn is a research scientist and risk analyst working at Sandia National Laboratories in New Mexico. Since 1949, Sandia National Laboratories has developed science-based technologies that support U.S. national security. Osborn's work focuses on the safe and secure transport and packaging of nuclear materials. He earned both a B.S. in Chemical Engineering and an M.S. in Nuclear Engineering from The Ohio State University.

Prior to entering college, he spent 6-years in the US Navy, and felt that being a nontraditional student offered him a unique perspective. He feels that college and his

naval experience prepared him well for work in the real world. "My technical and engineering knowledge were well developed, but my writing abilities were somewhat lacking," Osborn says.

His advice to students? "I highly suggest that students earn graduate level degrees, and pay special attention to their communication skills. Your writing and speaking abilities will become very important once you enter the workforce. Also try to intern or co-op with companies that deal with nuclear issues. The co-ops and internships will provide you with vital experience that may ultimately separate you



from others when applying for your first position. Don't worry about starting your career before 25; spend a few extra years preparing yourself and maturing so that you can be a true and respected professional when you enter the workforce. "

Read more about Douglas Osborn in the Career Cornerstone "Profiles of Nuclear Engineers" website section.

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Study Shows Gains for Women in Mathematics

A recently-concluded study (sponsored by the Mathematical Association of America, the American Mathematical Society, the American Statistical Association, and the Institute of Mathematical Statistics) shows that women are participating in mathematics in increasing numbers. The study, which was published in the August 2005 issue of the "Notices" of the AMS, shows that about one third of all doctorates in the mathematical sciences during 2003-2004 went to women. This continues a long-term trend of increasing

participation by women that has persisted since the 1980s, when gender records began to be kept.

The study used the ranking of graduate mathematics departments by the National Research Council to investigate the status of women in 48 mathematics departments in the United States.

Women received 25% of the doctorates at these institutions, up from 21% the previous year. Also noted were the large percentage of women among



undergraduate mathematics majors, and the increased visibility of women in mathematics competitions such as the Mathematical Olympiad and the Putnam Competition.

To view the full report, visit www.ams.org/notices/200507/survey.pdf.

Degree Profile: Physics

Physics describes the world around us, from explaining the workings and making possible the luxuries and conveniences inside our homes -- such as energy efficient heat pumps, cel phones, microwave ovens, and DVD players -- to describing the motions of the galaxies in our universe.

Physicists contribute to meeting the needs and the challenges of the future, to making things more simple and beneficial, and to

A physics degree is a passport into a broad range of careers.

furthering our understanding of the way the world works. Their studies range from the tiniest particles of matter to the largest objects identified.

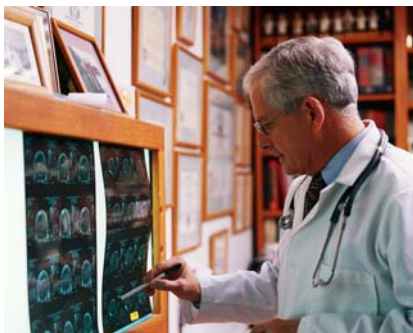
Physics underlies all other basic sciences and is the basis for much of technology because it is concerned with fundamental aspects of matter and energy as well as the laws that govern their interactions -- interactions which make the physical universe work. Much of the technological equipment and techniques used by other scientists were originally developed by physicists, such as, x-rays, MRIs and other medical instruments.

More than most other majors, a physics degree is a passport into a broad range of science, engineering, and education careers. Where you are likely to work will differ by the level of your highest degree.



Find out more about Careers in Physics and explore a variety of "Profiles of Physicists" at www.careercornerstone.org.

(Source: American Institute of Physics)



Graduate Enrollment in Science and Engineering Programs Up in 2003, But Declines for First-Time Foreign Students

According to a new report by the National Science Foundation, graduate enrollment in science and engineering (S&E) programs reached an all-time high of 474,203 students in fall 2003, a gain of 4 percent over S&E enrollment in 2002 and a gain of 9 percent over 1993. The report, "Graduate Students and Postdoctorates in Science and Engineering," also showed that graduate enrollment in 2003 grew in all major S&E fields and in all subfields except computer sciences. Computer sciences enrollment dropped 3 percent from the previous year, the first decrease in that field since 1995. Of the fields of study with the largest graduate enrollments (10,000 or more), mechanical engineering led with an 8 percent gain, followed by mathematical sciences and physics, each with 7 percent gains.

Other highlights:

- ◆ The proportion of women among S&E graduate students grew from 36 percent in 1993 to 42 percent in 2003.
- ◆ Over the past decade, enrollment of minority students in graduate S&E programs has grown, whereas enrollment of white students has declined. White, non-Hispanic students accounted for 68 percent of all U.S. citizens and permanent residents enrolled in S&E graduate programs in 2003, down from 78 percent in 1993.
- ◆ The number and proportion of foreign students (graduate students with temporary visas) increased every year from 1997 through 2002. Although the number of temporary-visa holders rose in

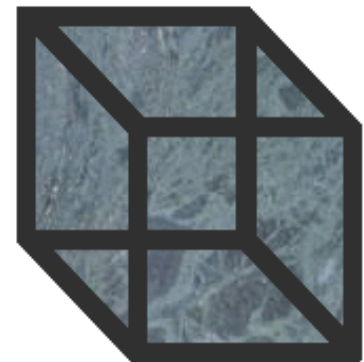
2003, temporary-visa holders as a proportion of all S&E graduate students declined slightly, from 32 to 31 percent.

- ◆ In 2003 students with temporary visas were more likely to enroll full time in a graduate S&E program than were U.S. citizens and permanent residents. Eighty-six percent of temporary-visa holders were enrolled full time, compared with 65 percent of U.S. citizens and permanent residents. But for the first time since 1994, the growth in full-time enrollment was greater for U.S. citizens and permanent residents (7 percent) than it was for foreign students (less than 1 percent).

The full report may be viewed at www.nsf.gov/statistics/infbrief/nsf05317.

Career Cornerstone Explores Career Paths in...

- Aerospace Engineering
- Bioengineering
- Biology
- Chemical Engineering
- Chemistry
- Civil Engineering
- Information Technology
- Electrical Engineering and Computer Science
- Engineering Technology
- Geosciences
- Industrial Engineering
- Materials Science and Engineering
- Mathematics
- Mechanical Engineering
- Nuclear Engineering
- Physics



Find out more at www.careercornerstone.org

Student Corner: Why Accreditation is Important



Students who are interested in a career in engineering or engineering technology should consider reviewing engineering programs and engineering technology programs that are accredited. In the U.S., engineering program accreditation is handled by the Accreditation Board for Engineering and Technology, Inc. (ABET). ABET accreditation is based on an evaluation of an engineering program's student achievement, program improvement, faculty, curricular content, facilities, and institutional commitment.

Accreditation is a voluntary, peer-review process that requires programs to undergo comprehensive, periodic

evaluations. The evaluations, conducted by teams of volunteer professionals working in industry, government, academe, and private practice within the ABET disciplines, focus on program curricula, faculty, facilities, and other important areas.

One of the key elements of ABET accreditation is the requirement that programs continuously improve the quality of education provided. As part of this continuous improvement requirement, programs set specific, measurable goals for their students and graduates, assess their success at reaching those goals, and improve their programs based on the results of their assessment.

Accreditation demonstrates a program's commitment to providing its students with a quality education. It enables employers and graduate schools to recruit graduates they know are well-prepared. Accreditation is also used by registration, licensure, and certification boards to screen applicants. Therefore, prospective engineering students should investigate curricula and check accreditations carefully before selecting a college.

To review lists of accredited engineering and engineering technology programs, or find out more about accreditation, visit www.careercornerstone.org/accreditation.htm.

Precollege STEM Projects

Precollege students with an interest in careers in science, technology, engineering, or mathematics (STEM) should consider participating in STEM programs and projects. Many projects are national in scope, but have local components. Some are designed for high school students, while others are designed for those in the middle grades, or younger. Each presents an opportunity to network with other students, meet professionals in the field, and gain experience in problem solving and teamwork. The Sloan Career Cornerstone Center links to many programs and projects at www.careercornerstone.org/precprep.htm. The following are a few examples of STEM programs and projects:

- ◆ American Mathematics Competitions
- ◆ Craftsman/NSTA Young Inventors Awards Program
- ◆ DaVinci Competition
- ◆ Discovery Channel Young Scientist Challenge
- ◆ ExploraVision
- ◆ FIRST Robotics Competition
- ◆ Future City Competition
- ◆ INTEL International Science and Engineering Fair
- ◆ MATHCOUNTS
- ◆ NASA Quest
- ◆ National Engineering Design Challenge
- ◆ Odyssey of the Mind
- ◆ ThinkQuest Programs
- ◆ West Point Bridge Design Contest
- ◆ ZOOM into Engineering

Organizations Contributing Content to the Sloan Career Cornerstone Center:

- ◆ American Chemical Society
- ◆ American Geological Institute
- ◆ American Institute of Chemical Engineers
- ◆ American Institute of Physics
- ◆ American Mathematical Society
- ◆ American Nuclear Society
- ◆ American Society of Civil Engineers
- ◆ ASME
- ◆ IEEE
- ◆ JG Perpich, LLC
- ◆ Mathematical Association of America
- ◆ NASA
- ◆ Society for Industrial and Applied Mathematics
- ◆ The Minerals, Metals & Materials Society
- ◆ US Department of Labor, Bureau of Labor Statistics
- ◆ Whitaker Foundation