



Career Cornerstone News

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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, Mathematics, Computing, and Medicine.

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SCCC to Cover STEM Associate Degrees

Recognizing the broad range of careers that begin with accredited associate degrees in science, engineering, and medicine, the Sloan Career Cornerstone Center (SCCC) will be expanding in 2008 to include more resources for these fields. Over the next year, site visitors can learn about how an associate degree can lead to interesting careers as surgical technologists, clinical laboratory technologists and technicians, nuclear medicine technologists, dental hygienists, veterinary and science technicians — among dozens of others.

An associate degree is a college degree awarded

after the completion of about 60 college credits. That translates into roughly 20 courses. The U.S. Bureau of Labor Statistics projects that among the fastest growing occupations and occupations with plentiful job openings are those often requiring workers with an associate degree.

SCCC already offers extensive resources on associates degrees leading to the full range of engineering technology careers. Of course, the SCCC will also continue to

provide career information for science, mathematics, engineering, technology, computing, and medicine careers leading from bachelors degrees.

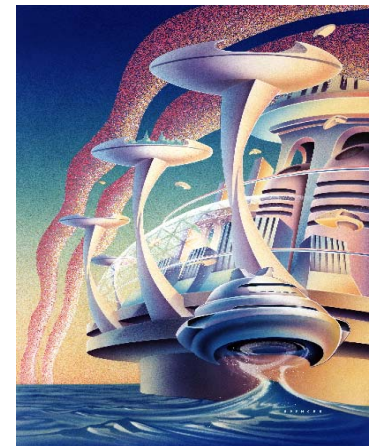
The planned expansion comes at the recommendation of high school counselors nationwide who look to SCCC for career planning assistance for students.



Future City Students Solve Problems

Seventh- and eighth-graders in the National Engineers Week Future City Competition are confronting the world's worst urban disasters. From a small Kansas town destroyed last year by a tornado, to the war ravaged Gaza Strip, to Linfen, China, one of the most polluted cities on earth, Future City students across the country are dealing with real problems, determined to prevent them and build a better tomorrow. Future City, in its 16th year, asks middle school students to create a city, first on computer and

then in a large tabletop model. Students present and defend their designs before volunteer engineer judges from the community at regional competitions. More than 30,000 students from 1,111 schools are participating this year. Working in teams with a teacher and volunteer engineer mentor, they create their cities using the SimCity 3000 videogame software. Regional winning teams attend the Future City National Finals in Washington, DC during Engineers Week, February 17-23. Find out more about the Future City Competition



and dozens of other national programs and projects for precollege students at www.careercornerstone.org/precolprep.htm.

MAYO Freezes Bone Cancer Tumors

Cryoablation, a procedure most commonly associated with destroying kidney and prostate tumors by freezing them, has been shown to offer durable pain relief of cancer that has spread to bone. The procedure freezes and shrinks or destroys cancerous tumors in or near bone.

"Cancer patients are living longer and we need to be able to manage their pain over a long period of time," says Matthew Callstrom, M.D., Ph.D., a radiologist at Mayo Clinic who presented the findings on cryoablation for pain management at the Radiological Society of North America annual meeting. Each year in the United

States approximately 100,000 people develop cancer that spreads to the bone (metastasizes). This type of cancer causes extreme pain and often cannot be managed by standard treatments. New approaches in pain management are needed to help patients living longer with cancer, achieve a higher quality of life. In a recent MAYO Clinic study, cryoablation was used to treat 34 patients whose primary cancers had spread to the bone. These patients either did not have success with conventional pain management treatments or refused such treatments. Eighty percent of the patients experienced a clinically

significant reduction in pain. The treatment also seems to have lasting effects: 24 weeks after undergoing the procedure, patients still reported significantly lower levels of pain.

Find out more about the research at www.mayoclinic.org.

Find out more about careers in medicine at www.careercornerstone.org.



Degree Profile: Optometry

Optometrists, also known as doctors of optometry, or ODs, provide most primary vision care. They examine people's eyes to diagnose vision problems and eye diseases, and they test patients' visual acuity, depth and color perception, and ability to focus and coordinate the eyes. Optometrists prescribe eyeglasses and contact lenses and provide vision therapy and low-vision rehabilitation.

Optometrists analyze test results and develop a treatment plan. They administer drugs to patients to aid in the diagnosis of



vision problems and prescribe drugs to treat some eye diseases. Optometrists often provide preoperative and postoperative care to cataract patients, as well as to patients who have had laser vision correction or other eye surgery. They also diagnose conditions caused by systemic diseases such as diabetes and high blood pressure, referring patients to other health practitioners as needed.

Most optometrists are in general practice. Some specialize in work with the elderly, children, or partially sighted persons who need specialized visual devices. Others develop and implement ways to protect workers' eyes from on-the-job strain or injury.



Some specialize in contact lenses, sports vision, or vision therapy. A few teach optometry, perform research, or consult.

The Doctor of Optometry degree requires the completion of a 4-year program at an accredited optometry school, preceded by at least 3 years of preoptometric study at an accredited college or university. Find out more about careers in optometry at www.careercornerstone.org.

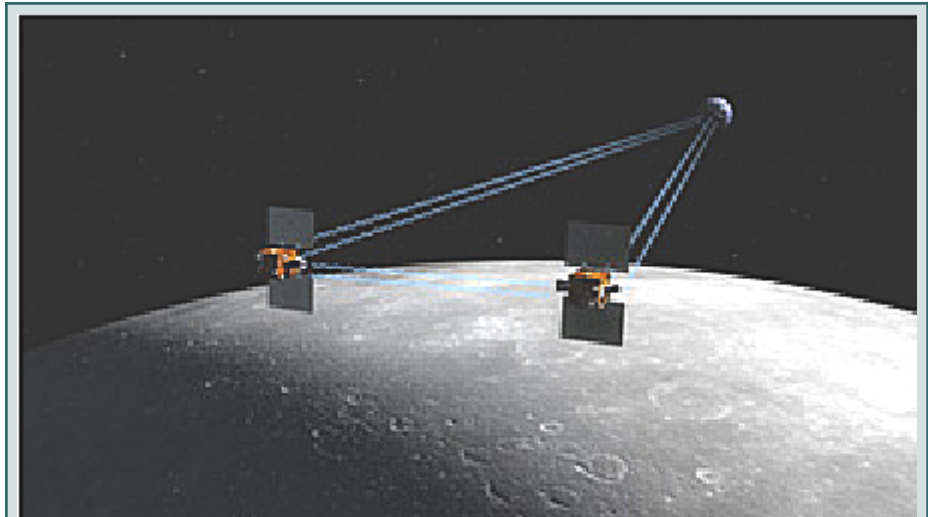
NASA Gravity Recovery and Interior Laboratory

NASA has recently announced the selection of a new mission that will peer deep inside the moon to reveal its anatomy and history.

The Gravity Recovery and Interior Laboratory, or GRAIL, mission is a part of NASA's Discovery Program. It will cost \$375 million and is scheduled to launch in 2011. GRAIL will fly twin spacecraft in tandem orbits around the moon for several months to measure its gravity field in unprecedented detail. The mission also will answer longstanding questions about Earth's moon and provide scientists a better understanding of how Earth and other rocky planets in the solar system formed.

Scientists will use the gravity field information from the two satellites to X-ray the moon from crust to core to reveal the moon's subsurface structures and, indirectly, its thermal history.

GRAIL will support NASA's exploration goals as the agency returns humans to the moon by



Artist concept of Grail mission. Grail will fly twin spacecraft in tandem orbits around the moon for several months to measure its gravity field in unprecedented detail.
Image credit: NASA/JPL

2020. In 2008, the agency will launch the Lunar Reconnaissance Orbiter, or LRO, to circle the moon for at least a year and take measurements to identify future robotic and human landing sites. The orbiter also will look for potential lunar resources and document aspects of the lunar radiation environment. After a 30-year hiatus, LRO represents NASA's first step toward returning humans

to the moon. Find out more at www.nasa.gov.

Find out about careers in aerospace engineering at www.careercornerstone.org/aerospace/aerospace.htm, or learn more about aerospace parts and products manufacturing at www.careercornerstone.org/industries/aerospace.htm.

The Sloan Career Cornerstone Center Offers...

- Resources for Women
- Degree Summaries
- Careers Newsletter
- Pre-college Ideas
- Current Salary Data
- Employer Lists & Links
- University Lists & Links
- Association Support
- Career Path Options
- Science Centers
- Video Profiles
- Career Planning
- Job Hunting Tips
- Diversity Issues
- Summer Camps
- National Programs
- Podcasts, PDFs, and PowerPoints!



Find out more at www.careercornerstone.org

HS Math Coursetaking and Achievement

A recent study from the National Center for Education Statistics found that high school students who take advanced courses such as precalculus and algebra II learn more than their peers who take intermediate courses such as geometry and those who do not take mathematics courses.

While the study showed evidence of learning gains in mathematics across the board during the last two years of high school, it found that students who followed a geometry–algebra II sequence or an algebra II–trigonometry sequence show the greatest improvement in intermediate skills, such as operations with whole numbers and basic algebraic expressions, while students who follow an algebra II–precalculus sequence or a precalculus–calculus sequence show the greatest

improvements in advanced skills such as multistep analytical problems. The study is available at <http://nces.ed.gov/pubs2008/2008319.pdf>.

Depending upon which degree a student then decides to focus on in post secondary education, these advanced skills can have a strong impact on college coursework. For most engineering, science, mathematics, medicine, and computing fields, it is recommended that high school students take as many advanced math and science courses as possible while still maintaining the normal course load.

And, those with an interest in math and science don't need to wait until junior and senior year to expand



coursework and extracurricular educational opportunities. Many middle and high schools offer expanded curriculum, and after school courses. Also, students can consider participating in national programs and projects in math, science, and engineering that provide hands-on experiences with these fields.

Find out about other precollege career planning tips online at www.careercornerstone.org/precolprep.htm.

Planning & Funding Postsecondary Education

A postsecondary education gives you more opportunities. Those who receive education credentials beyond a high school diploma have more jobs to choose from and earn much more than those who do not pursue an education beyond high school. For example, according to the U.S. Census Bureau, a person with a bachelor's degree earns almost double what someone with only a high school diploma earns. Pursuing education beyond high school is an opportunity you should not deny yourself simply because you are not sure what path to take. Many students aren't sure which career path to follow. But exposure to different academic subjects, people, and points of view can help narrow your career decisions. Talking with a counselor is also a good idea. The Sloan Career Cornerstone Center is also a great place to explore career paths in science, engineering, mathematics, computing, and medicine.



And, funding a postsecondary education can often be challenging. "Funding Education Beyond High School," is a new guide to federal student aid from the U.S. Department of Education. The document helps provide a wide range of opportunities to help ease the financial aspect of college planning. You can find it at <http://studentaid.ed.gov> or at www.careercornerstone.org.