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# For Your Information

## Return of the CBMS Survey

The Conference Board of the Mathematical Sciences (CBMS) is an umbrella organization whose members are the presidents of sixteen professional associations in the mathematical and statistical sciences (these associations are listed at [http://www.cbmsweb.org/Members/member\\_societies.htm](http://www.cbmsweb.org/Members/member_societies.htm)). Every five years since 1965 the CBMS has sponsored a national survey of undergraduate mathematical and statistical sciences in the nation's universities and colleges, both four-year and two-year. With National Science Foundation support, there will be a new CBMS survey in 2005, called CBMS2005.

The CBMS2005 project is supervised by a steering committee with members representing the AMATYC (American Mathematical Association of Two-Year Colleges), the AMS, the ASA (American Statistical Association), and the MAA (Mathematical Association of America). CBMS2005 will use carefully designed random sampling to study curriculum, pedagogy, enrollment levels, number of bachelor's graduates, and faculty in the nation's undergraduate mathematical and statistical sciences departments and programs. In addition to continuing numerous long-term studies, CBMS2005 will investigate certain "topics of opportunity", i.e., issues identified as being of timely interest to the national mathematical and statistical community. The final survey report will follow the general pattern of the CBMS2000 report (available for free download at the website <http://www.ams.org/cbms/>).

The CBMS2005 steering committee will finalize the list of topics of opportunity early in 2005. Professional society committees and officers have suggested several topics as deserving of further study, including: the growing dichotomy (detected in CBMS2000) between doctoral and bachelor's-only mathematics departments in the availability of advanced undergraduate courses, growth and quality control issues associated with dual-enrollment courses, changes in calculus pedagogy, the mathematical education of preservice K-8 teachers, the statistical background of faculty who teach statistics in mathematics departments, the apparent shift away from tenure-stream appointments in mathematical sciences departments and toward faculty appointments outside of the tenure stream, and self-assessment methods used by mathematical science departments. The steering committee welcomes

further suggestions from the mathematics and statistics community about important issues that might become part of the 2005 survey. Please send suggestions to David Lutzer at [Lutzer@math.wm.edu](mailto:Lutzer@math.wm.edu).

Increased coordination with the Joint Data Committee of the AMS/ASA/IMS/MAA will allow considerable simplification of the questionnaires used in CBMS2005 compared to previous years. Survey questionnaires will be mailed to selected departments and programs in September 2005. There will be an intense follow-up effort in the fall of 2005 in the hope of matching the roughly 65 percent response rate for the CBMS2000 project. Responses will be analyzed in the spring and summer of 2006, and the final CBMS2005 report will be published by the AMS in the spring of 2007.

—David Lutzer, *College of William and Mary*

## Mathematics Awareness Month 2005

The AMS, the American Statistical Association (ASA), the Mathematical Association of America (MAA), and the Society for Industrial and Applied Mathematics (SIAM) announce that the theme for Mathematics Awareness Month 2005 is **Mathematics and the Cosmos**.

Mathematics is at the core of our attempts to understand the universe at every level, from the most theoretical to the most mundane. Modern cosmology is based on the ideas of Riemann regarding the nature of space, along with the notion of curved spaces of three and more dimensions, adapted by Einstein to four-dimensional space time, and encapsulated in Einstein's fundamental insight that gravity is geometry. From this and his justly famous field equations, Einstein deduced on theoretical grounds the bending of light as it passes a massive object, the precise amount of precession of Mercury's perihelion, the expansion of the universe, the existence of black holes, the behavior of binary stars, and the existence of gravitational waves, all of which led to experiments to confirm their validity.

In cases not subject to direct experimentation, other mathematical methods are vital for carrying out simulations of the motions within galaxies and star clusters, the

collision of galaxies and black holes, and other large-scale gravitational interactions. At the level of the solar system, the mathematical methods initiated by Newton and continually elaborated over the ensuing centuries have explained or predicted the action of the tides; the bulge of the Earth around the equator; the existence of previously unknown planets; the orbits and return times of comets; and, just in the past decade, the existence of planets orbiting other stars.

In the realm of practical space exploration, mathematical techniques allow the planning of efficient trajectories to reach the Moon, Mars, and the outer planets and the means to communicate with those satellites, both for navigation and to encode, compress, and transmit images across many hundreds of millions of miles of space, as in the recent spectacular photographs from the Cassini mission to Saturn.

Mathematics departments may find on the Mathematics Awareness Month website, <http://www.mathaware.org>, a sample press release that can be adapted for public awareness activities.

Each year in April the Joint Policy Board for Mathematics sponsors Mathematics Awareness Month to recognize the importance of mathematics through written materials and an accompanying poster that highlight mathematical developments and applications in one particular area.

The Mathematics Awareness Month 2005 advisory committee members are: Robert Osserman (chair), Mathematical Sciences Research Institute; Douglas N. Arnold, Institute for Mathematics and Its Applications; Jonathan Borwein, Dalhousie University; Tony Chan, University of California, Los Angeles; Charles Elachi, Jet Propulsion Laboratory, California Institute of Technology; and Sarah J. Greenwald, Appalachian State University.

—AMS announcement

## TV Program Featuring Mathematician

A new television series called *NUMB3RS* will feature a mathematician as a main character. According to the webpage for the series (<http://kiddk.cbsnow.com/primetime/numb3rs/>), the story revolves around an FBI agent who recruits his “mathematical genius brother” to help solve a wide range of crimes in Los Angeles. “From two very different perspectives, the brothers take on the most confounding criminal cases,” the webpage states. “Inspired by actual events, the series will depict how the confluence of police work and mathematics provides unexpected revelations and answers to the most perplexing criminal questions.”

The premiere episode of *NUMB3RS* will be broadcast on CBS on Friday, January 21, 2005, at 10:00 p.m. EST.

—Allyn Jackson