University of Utah
Department of Mathematics

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A f t e r m a t h

Career Day

The Department held its third annual Career Day the afternoon of October 10, 2000 in the Aline Wilmot Skaggs Biology Building. Students heard about the many job opportunities available to mathematicians.

Lori McDonald, a Counselor from Career Services, gave the opening presentation, making the point that the Mathematics Major was one of the most versatile undergraduate degrees. It prepares students for careers in many different industries and professions, as well as for further schooling — not only graduate school in mathematics, but also degree programs in fields such as law and finance. Lori also emphasized the importance of a well-prepared resumé, which seniors are advised to prepare by early October. Many companies conduct interviews at the University's Career Fair held later that month. (Two companies, Veritas and Charles River Associates, were specifically looking for mathematics graduates, with Veritas also offering summer internships.) Career services makes job listings available on its web site (*careers.utah.edu*), offers counseling, and provides help in preparing a resumé.

Following Lori's presentation was a panel discussion with Jim Carlson and David Eyre from the Math Department, Larry Larsen from Intel Corporation, Dan Stevens from Beneficial Life, and Jim Pugmire from Fairchild Semiconductor. Jim spoke about the strong demand for mathematicians in both academia and industry, a situation that is expected to persist for some time. David spoke about his own experience in greatly improving the sensitivity of a biotechnology product for a local high-tech firm. His work was an excellent example of how mathematics, insightfully and artfully applied, can have a major impact in the marketplace. Dan Stevens, who received his B.S. in mathematics from the U of U in 1995, works as an actuary for Beneficial Life. Actuarial work is a challenging (and well paid) field whose objective is to evaluate risk using mathematical analysis and statistical evaluation of data. Dan advised students to take courses in probability and statistics, learn how to program, and to study as much math as possible. He spoke fondly of the real analysis class he had taken from Professor Henryk Hecht. Larry Larsen, Engineering Manager, Network Products Division, Intel Corporation, stressed the usefulness of an education in mathematics as a foundation for analytical thinking and problem solving. He said that mathematicians hired by Intel have made important contributions to improving production processes. For employers, the most important quality of mathematicians is their versatility, ability to understand new problems quickly, and then to contribute to a solution. Jim Pugmire, Statistical Process Control Coordinator for Fairchild Semiconductor, talked about the wide range of industries that are looking for statisticians. He noted that it is important to make one's resumé stand out, and encouraged students to learn a variety of statistical software packages.

Note: Dan Stevens will give the Undergraduate Colloquium on December 5. See *www.math.utah.edu/ugrad/colloquia.*

Knots

Nelson Beebe has installed two new programs on our system, *knotscape* and *knotplot*. They are used to display and generate pictures of knots, and were part of the presentation Mladen Bestvina made in his November 7 Undergraduate Colloquium. For pictures of knots generated by these programs and directions on using them, see *www.math.utah.edu/~bestvina/topology/knots.html.* An excellent reference is *The Knot Book* by Colin Adams. It is available in the Undergraduate Collection (see next page) and is an outstanding source for student research projects. The book is accessible to a bright and curious high school student. (*Question. Is the above figure the trivial knot? Why or why not?*)

Instructors

Two new instructors joined us this year, Ben McKay and Liya Zhornitskaya. Both received their Ph.D.'s from Duke University in 1999. They spent the previous year in Bonn, Germany at the Max Planck Institute and the Universität Bonn, respectively. Ben works in geometry, and Liya in applied math. We welcome them, as well as their child, one-year old Anna

Burgess and Wylie Instructors

Prakash Belkale, Ph.D. University of Chicago 1999, who began his term as instructor (algebraic geometry) that year, was named Burgess Instructor. Anurag Singh, Ph.D. U. Michigan 1998, who began his term as instructor (commutative algebra) in 1999, was named Wylie Instructor. Anurag was awarded a single investigator grant from the National Science Foundation this year. We congratulate both Prakash and Anurag.

The Department is very fortunate to have four named instructorships, one established in 1997 by former Department Chair Ed Burgess, and three established by former Department Chair Ray Wylie. The first recipient of the Burgess Instructorship was Goran Muic, now an assistant professor at the University of Zagreb.

The Department currently has seven Instructors, and expects to have at least ten in 2000-2001. Its long-term goal is to raise the number of Instructors in residence to the traditional level of twelve to fifteen.

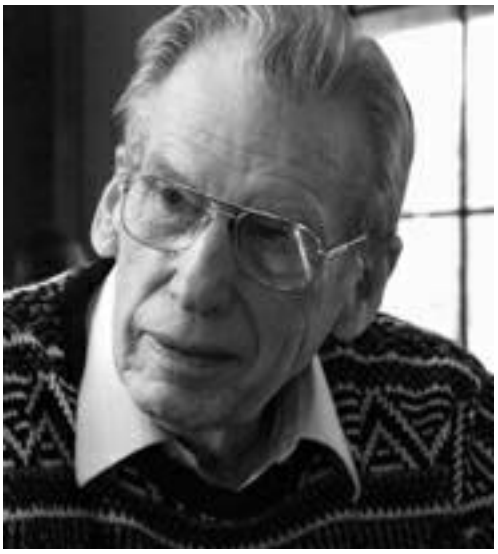
Problem of the Month

Is there a right triangle whose sides are rational numbers and which has area one?

Undergrad Collection

The Undergraduate Collection is a set of books chosen to whet the interest in mathematics of undergraduate students. You can find it on the first set of shelves as you enter the library. If you have books to donate to this collection, or books to suggest for it, please contact our Director of Undergraduate Services, Angie Gardiner (*gardiner@math.utah.edu*).

Please encourage your students to browse the Undergraduate Collection. A list of its contents is available at *www.math.utah.edu/ugrad/collection*. You are also invited to write a capsule review of a book to post on the web. It should be just a few sentences long. Please submit your reviews to Angie.



Ed Burgess
Department Chair 1967-77

Scholarships

Over the past three years the Department has provided $24,450 in scholarships to thirty undergraduate students. These awards have often made it possible for students to continue their studies, or to pursue them with the concentration they deserve. Funds come from the generosity of our alumni, faculty, and friends. Those who wish to contribute to the Department's scholarship programs may designate their gifts for the Undergraduate Scholarship Fund or for the (new) Graduate Scholarship Fund. For more information, please contact Annetta Cochran at 581-8307. You may also mail contributions directly to Annetta at the Department of Mathematics (see address below). Gifts are tax-deductible. They are an important source of support for our students and are very much appreciated, whatever the amount.

The Departmental Newsletter will henceforth appear monthly, with an extensive annual edition appearing each Spring. Issues of the newsletter will be archived on the web at *www.math.utah.edu/newsletter*.

Editorial staff: Jim Carlson, Angie Gardiner, Fletcher Gross. Please contact one of us if you have an article to suggest or to submit. E-mail to newsletter@math.utah.edu.