University of Utah
Department of Mathematics

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A f t e r m a t h

Honors Program

by Fletcher Gross

The proposal for a Departmental Honors Program in Mathematics has been approved. The intent of the degree is to provide talented students who plan on specializing in Mathematics a superior undergraduate foundation for graduate work in the subject. The purpose of this document is to describe the requirements for this new degree and how it compares with the current departmental major. The basic difference between the degrees is two-fold: (1) The honors program requires more upper division mathematics courses and more of them must be part of a year-long sequence; (2) The honors program requires a senior project, typically a senior thesis.

The lower division course requirements for the Departmental Honors Degree in Mathematics are basic Calculus, Linear Algebra, Differential Equations, one year of physics, and the Freshman-Sophomore Seminar (a new two-unit course to be offered for the first time this spring).

The upper division course requirements are Foundations of Analysis, one semester of the Undergraduate Colloquium, Real and Complex Analysis, and at least eighteen semester hours from Introduction to Number Theory, Introdocution to Topology, Curves and Surfaces in Euclidean Space, and courses numbered above 5000. The electives must include at least two of the following sequences: Topology, Algebra, Ordinary Differential Equations, Numerical Analysis, Applied Mathematics, Probability, and Mathematical Biology. Students planning to pursue a Ph.D. in Mathematics are urged (but not required) to include Topology, Algebra, and a course numbered above 6000. Students receiving an honors degree are also required to complete a senior project/thesis, registering for two to six credit hours of Math 4999.

To receive an honors degree in mathematics, a student should complete both the lower and upper division parts of the program, receiving at least a B in each required course. Students must also maintain a grade point average of at least 3.5 in these courses, and an overall grade point average of 3.4.

At the discretion of the Honors Advisor, the requirements for the Freshman-Sophomore Seminar and the Undergraduate Colloquium may be waived. Credit for courses taken elsewhere will be awarded on a case-by-case basis.

Students in the Departmental Honors Program will be urged to fulfill their distribution requirements by taking courses from the University Honors Program.

The choice of courses making up the Honors Degree was directed by two basic principles: (1) to provide as thorough a preparation as reasonably possible for further study in Mathematics, and (2) to provide as much flexibility as possible. Note that most of the upper division courses are electives. Although we recommend certain courses as basic, we recognize that a student's needs may vary depending upon his or her interests. The exception to this is that we feel that a good foundation in analysis is important no matter what a student's ultimate specialization may be.

Questions concerning the Departmental Honors Program should be directed to Fletcher Gross, the Mathematics Honors Advisor (JWB 322, gross@math.utah.edu, 581-7121).

Halloween Fun!

You'd never have guessed that Paula Stephens had such a thirst for blood!

Why did the chicken cross the road? We're not sure, be we think Cindi Phillips could tell you.

The VIGRE Grant

by Klaus Schmitt

Most of the readers of this publication have probably learned by now that our department has successfully competed for a National Science Foundation five-year VIGRE grant. This NSF program started about four years ago and approximately 30 departments across the United States have been awarded such a grant. VIGRE is the acronym for Vertical InteGration of Research and Education and the program's aims are to strengthen research in mathematics by having departments produce more, better, and more broadly trained mathematicians. To follow these aims the department has started several new programs and amplified existing programs to foster research and research interaction from the high school to the postdoctoral level.

A group of faculty members started preparing a proposal for submission to the NSF during the autumn of 1998. The proposal, which reflects input from a broad base of the faculty, was finally submitted to the NSF during July 2000 and we were notified of our success in late December 2000. Yet the mills of NSF grind slowly, and even though we proceeded with full force since this past July, the funds to run our programs did not arrive until the end of last month (see www.math.utah.edu/vigre/award.html). We now have funds to support eight graduate students full time; four postdoctoral instructors nearly half-time (next year five and in subsequent years six); run year-long research programs for undergraduates (REU), supporting sixteen students; run a summer program for fifteen talented high school students and partially support our Math Circle (see last month's Aftermath article by Peter Trapa). During the third year of the program there will be a review by an NSF site visit team which will make a recommendation on the funding of the proposal for the fourth and fifth years. It is not known at this time whether it is possible to obtain continued support beyond the five years of the award.

As already mentioned, some parts of the program already started earlier this year. This past spring we were able to hire four VIGRE assistant professors and six graduate students. Two more advanced graduate students, already in residence, were also appointed to the program. Jim Carlson and Hugo Rossi ran an intensive three-week summer program for high school students, and Jim Carlson and Domingo Toledo conducted our summer REU, with Jim supervising several projects. Other projects were supervised by Fred Adler, Stew Ethier, and Hugo Rossi. Nine additional academic year REU projects are in progress. It is planned that Davar Khoshnevisan will run a summer REU in 2002 on random processes and simulation analysis.

Now that our new Honors Program is in place, honors projects may be supported in the future by the REU program. Other VIGRE events that will take place during the 2001-2002 academic year will be two mini courses (each two weeks long) for our graduate students plus ten invited (and supported by the grant) graduate students. These courses will take place during May/June 2002 and will be organized by Jim Carlson and Domingo Toledo (Geometry), and David Hartenstine and myself (Partial Differential Equations). Our efforts of continuous progress assessment are supported by External and Internal Advisory and Assessment Committees. Several members of these committees will visit our department at the end of November to provide input on the program's structure and progress.

Recruiting excellent students to study our subject is a difficult task. With the help of the grant our department now can play a much more aggressive role in the recruitment process and attract more and better students to our programs. This will help us increase the size, scope, vitality, and attractiveness of the undergraduate major and increase the efficiency and intensity of our graduate program. All readers are cordially asked for help in our recruitment efforts by letting the outside world know about VIGRE at Utah.

The steering committee of the grant feels that the VIGRE grant already has had a very positive impact on many of our activities and will continue to have such in the months and years to come.

Grant Proposal Seminar

The GSAC Colloquium on September 4, 2001 was the setting for a joint presentation by experienced writers of successful grants (Aaron Bertram, Graeme Milton, Anurag Singh) and the math department grant accountant (Cindi Phillips). The seminar was targeted at graduate students interested in getting some perspective on the grant process, associate professors applying for a grant for the first time, and for other interested faculty. The focus was on applying for a regular NSF individual investigator mathematics research grant, rather than on a large multi-investigator grant. Topics covered included:

- Why should I apply for a grant?
- What are my chances for success?
- How do I get started?
- What are the important things I should know about?
- What strategy should I use?
- Can I see some examples of successful grants?
- What should I put in the budget?
- How do I justify the budget?
- How will my grant be reviewed?
- What are some of the things the reviewers will be looking for in my proposal?
- What happens after I hear from the program officer?

The talk was followed by a discussion, with input from other faculty. A summary of this talk (compiled by graduate students Kenneth Chu, Renzo Cavalieri, and Matthew Rudd) can be found at: www.math.utah.edu/a/gsac/grant-index.html.

Scary Sights

Is this the Great Pumpkin? No - it's Brenlyn Thiriot.

Straight from America's Most Wanted: Mary Levine, Cereal Killer.

Beauty is in the eye of the beholder! Behold these two beauties, Nancy DeMello and Angie Gardiner.

Surely you jest! No, I'm quite serious, and stop calling me Shirley, I'm Sarah Strong.

Marilyn Monroe is the most famous person to ever visit the Math Department. Oh, wait, it's Cyndi Bestvina.

Upcoming Events

Thursday, November 15 12:00 noon – Special Graduate Recruiting Colloquium for undergraduates interested in going to graduate school, JTB 320.

Tuesday, November 20 – Who Wants to be a Mathionaire, ASB 210.

Thursday, November 29 – Mathematics Career Day.

Saturday, December 1 – Putnam Competition.

Tuesday, December 11 – Department Holiday Party

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www.math.utah.edu/newsletter

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