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MATH NEWS

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WELCOME TO THE MATH OPEN HOUSE!!

What Type of Projects can I do as a Math Major?

Every mathematics major participates in a project course during their first-class year, either in a capstone course or with an honors project. Here are the capstone courses that are being completed by math majors in the class of 2012:

Projects in Graph Theory: In mathematics, graph theory is the study of mathematical structures consisting of points and lines that connect them, similar to a network with nodes and arcs. Students will study and complete projects in graph theory, such as scheduling problems, maximal flow algorithms, spanning trees, and the traveling salesman problem.

Introduction to Math Finance: Mathematical Finance is the theoretical and computational study of complex financial instruments, including stock options, bond or currency exchanges, and futures. Students will investigate and complete projects with practical applications, such as the classical American option, strategies for decreasing investment risk, bond pricing, and the development of models with time-dependent interest rates.

Projects in Cryptography, Codes, and Information Security: Cryptography is the study and practice of techniques for secure communication in the presence of third parties. Students will study and complete projects in cryptography, such as classical ciphers, stream ciphers, error correcting codes, and steganography. As you can see, there are a wide variety of projects that you could complete as a Math major!

Mathematics Faculty Profile

Dr. Mrinal Raghupathi was born in Jakarta, Indonesia. At the ripe old age of 3 months, he moved back to his home country of India, and lived in Bangalore. He went to school in New Delhi, India and was an undergraduate at St. Stephen's college. He then attended graduate school at the University of Houston, where he completed his thesis under the guidance of Professor Vern Paulsen. Dr. Raghupathi spent the next three years as a postdoctoral fellow at Vanderbilt University in Nashville, TN.



Dr. Raghupathi's research is broadly in the area of functional analysis. Simply put, this area blends together ideas from analysis and linear algebra in an infinite-dimensional setting. His thesis was on interpolation theory: the problem of deciding when fixed inputs can be mapped to fixed outputs by functions of a certain kind. More recently, he has been interested in problems at the intersection of functional analysis and high-dimensional data.

Dr. Raghupathi is married to Anu Yadav, who is a risk analyst in the energy industry. They both like to cook and watch a good (or even bad) movie. He lives in Eastport and enjoys being able to walk to work, and to stroll through the streets of Annapolis.

CHALLENGE: The first 3 MIDN who get the answer for this question will win a prize. See Prof. Garcia.

$2^2 - 1 = 3$, $2^3 - 1 = 7$, $2^n - 1 = \text{prime}$. Find 3 other values for n .

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