Rowan University

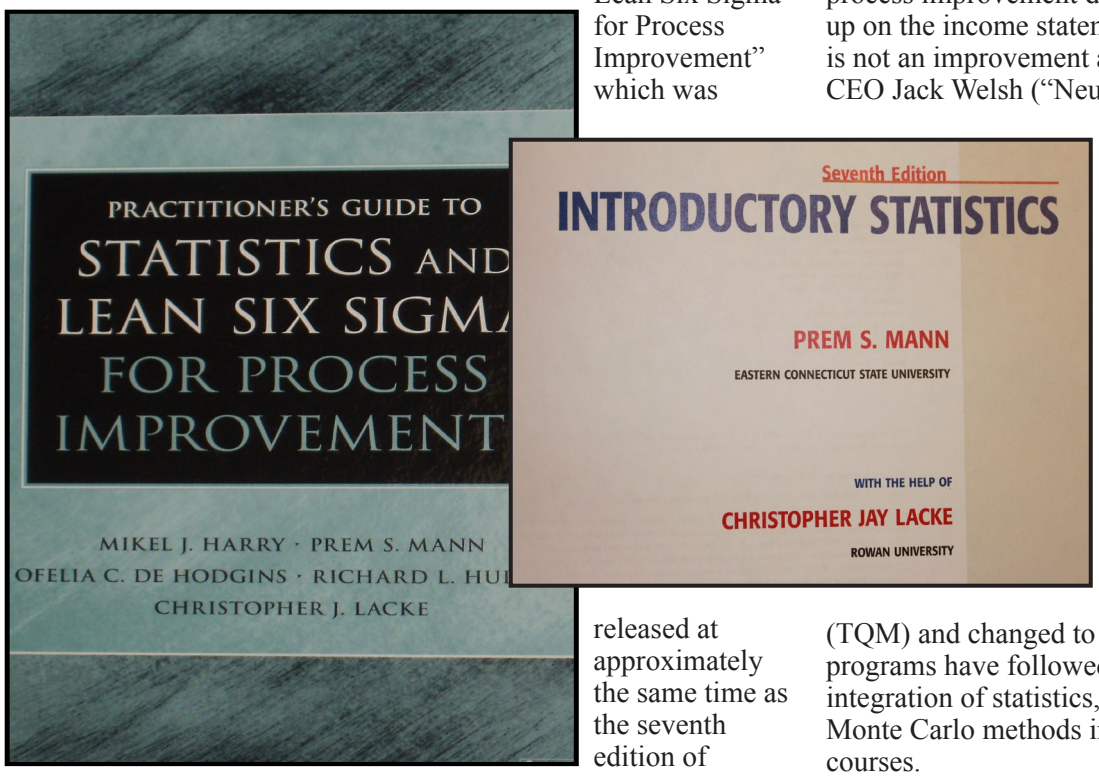
Vectors

The Newsletter of the Mathematics Department at Rowan University

Vol. IV, No. 1

Rowan Math Professor Writing Up a Storm

One of the best selling statistics texts is "Introductory Statistics" authored by Dr. Prem Mann and published by Wiley. Beginning with the fifth edition, Professor Chris Lacke has been a contributor to the material in the text and its ancillaries. His writing has included statistical decision making, technology sections, analysis of the uses and misuses of statistics, suggested projects, and collateral material. When the current seventh edition was released, Professor Lacke was formally recognized on the title page.



To get a sense of how significant this seventh edition will be for both the exposure of Professor Lacke and Rowan University to the academic community, a glance at Wiley's adoption list is revealing. To name just a few, students use this text at Cal Tech, Stanford, The University of Oklahoma, Georgia Tech, UCLA, The University of North Carolina, The University of California at Berkeley, and The University of Nebraska.

Dr. Mann and Professor Lacke were two of the co-authors of the 800-page Wiley publication "Practitioners Guide to Statistics and Lean Six Sigma for Process Improvement" which was released at approximately the same time as the seventh edition of "Introductory Statistics." This text is used both in corporate/training programs and graduate academic programs.

The concept of Six Sigma dates back to a revolutionary process improvement project undertaken by Motorola Corporation in the mid 1980's. The statistics-driven investigation was hugely successful and the subject of numerous case studies.

Six Sigma is both tactical and procedural. It integrates both the commercial and industrial aspects of a corporation. It relies heavily on metrics and is a top down approach. If a major process improvement does not show up on the income statement, then it is not an improvement at all. Former CEO Jack Welsh ("Neutron Jack") of General Electric credits adopting Six Sigma as the single most important strategic decision made at GE.

Virtually all corporations have abandoned the previous management model "Total Quality Management" (TQM) and changed to Six Sigma. MBA programs have followed suit with the integration of statistics, Six Sigma, and Monte Carlo methods in key MBA courses.

TRIVIA CORNER

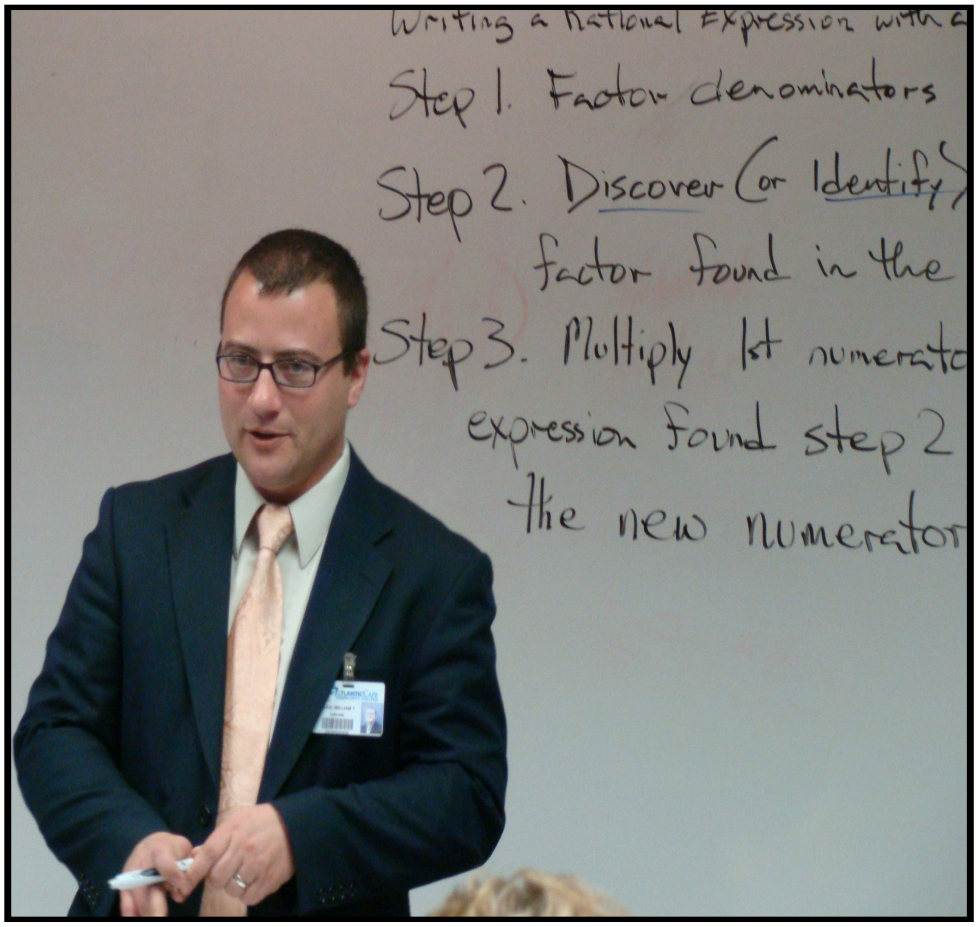
Which current undergraduate Rowan math major is also a professional beach volleyball player?

(answer next issue)

Alumnus Wins Major Teaching Award

Professor William Osler (BA‘03, MA ‘07) was awarded “Teacher of the Year” honors for 2009-2010 at Atlantic Cape Community College. He was only in his second year of higher education full-time teaching, both at Atlantic Cape.

Professor Osler has taught



at the Atlantic City branch of the college but will be spreading out to other branches this coming year. He has especially enjoyed working with international students from all around the globe. He found that some had already advanced quite far in mathematics but various U.S. agencies would not recognize their course work from overseas.

Professor Osler was first exposed to teaching higher education mathematics during an experiment initiated by former Chair, Professor Ron Czochor. He was assigned to assist Professor Howe with his unusually large class sections of calculus. Professor Howe and Osler worked together for two years. According to Professor Howe; “I’m not surprised at all that Bill won this award. He has a passion for helping people and a love of mathematics.”

Professor Osler is one of four Rowan graduates in the mathematics department working at Atlantic Cape. The others include Professors Marcia Kleinz, Michele Leacott (nee McGowan), and Amy Shelton.

Have a Blast!

Thanks to Valerie Au of the Division of University Advancement, this newsletter will be sent to 1,308 Rowan math major alumni via a blast e-mail program. The software handles both opt outs and bounced backs.

Starting with this issue, the university has provided a dedicated e-mail address for correspondence concerning the content of our newsletter: mathnewsbox@rowan.edu. We encourage our alumni to participate in shaping future content of this newsletter.

We also ask alumni to send to the mathematics department one of their current business cards. The intent is to dedicate one of the bulletin boards to a collage of these cards. The current students might well be inspired by occupational possibilities and the math faculty will certainly enjoy some nostalgic moments.

Vectors

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Please send any suggestions for stories or any comments about this newsletter to:
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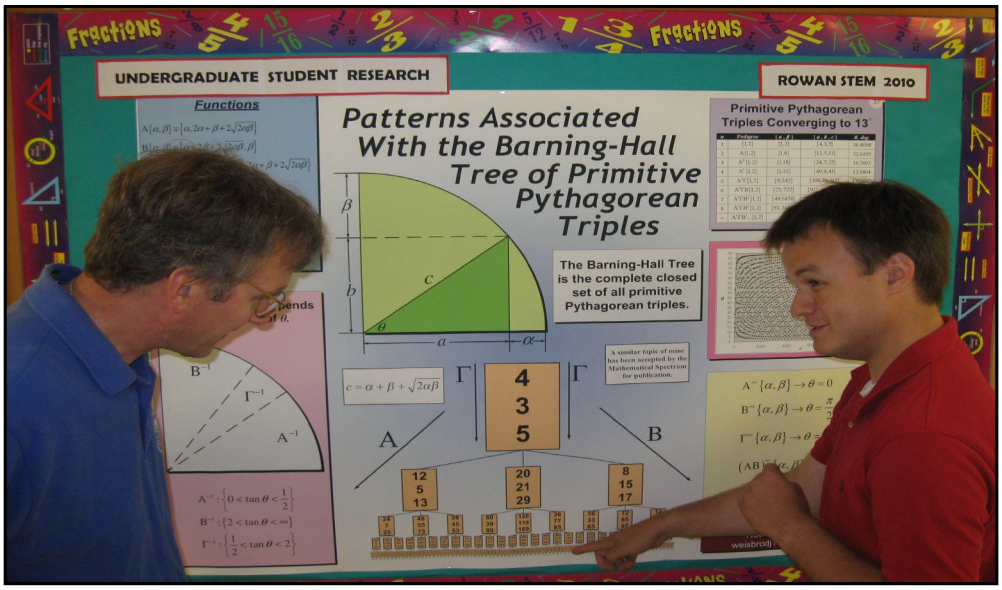
New Graduate Student



New graduate student Jonathan Weisbrod (class of '10) is no stranger to research. As an undergraduate, Jonathan worked with Professors Nguyen, Wright, and Osler. Beginning with an interest in Pythagorean triples, he derived many unusual formulas and put Mathematica software to work on them. He was redirected to the Barning-Hall Tree where he could successfully link his formulas and his matrix work. His paper concerning geometric interpretations was accepted by The Mathematical Spectrum in the United Kingdom.

Jonathan has made numerous conference presentations including ones in Portland, Oregon and San Francisco, California. He scored in the top 35% on the Putnam Exam against elite competition from around the country. He now is pursuing extensions of his work to quadric surfaces.

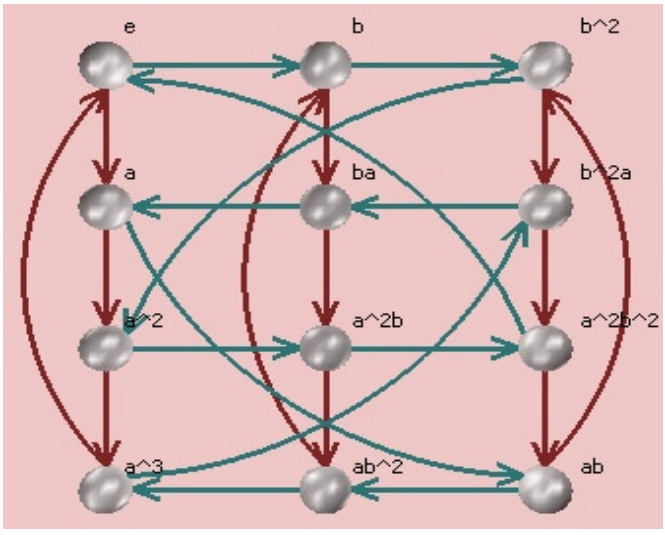
TECH TIP

This issue's tech tip comes courtesy of Professor Chris Simons. The software named "Group Explorer 2.2" is a free download at:

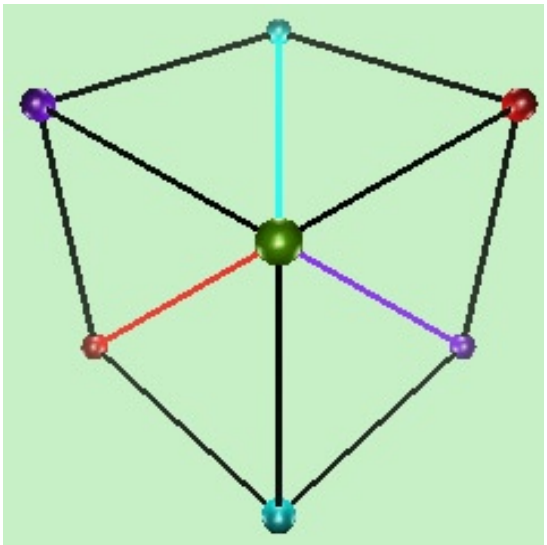
http://groupexplorer.sourceforge.net/

and it is extremely powerful.

The user is given a large library of small finite groups along with an immense amount of information about each group. Included in the information is a group table, a set of defining equations, the class equation for the group, a subgroup of S_n for some n that the group is isomorphic to (Cayley's Theorem), whether or not the group is solvable, and on and on.



But that is just the beginning. Using color coding, the user can factor a group by any of its normal subgroups and observe the resulting cosets. One can link homomorphically a domain group and a range group. If a group is the set of symmetries of a three dimensional object, the user can animate the object



demonstrating the creation of the group.

This software has many more features and is addictive. There exits a companion text and a library of class projects. One minor drawback is that some items are hard to read and not every page can be zoomed in.

Breaking Open a New Academic Year

Assistant Dean Kristin DiNovi of the College of Liberal Arts and Sciences is set to execute the honorary break.

The math department is the strongest it has ever been academically. A glance at the backgrounds of the members reveals that we have scholars trained at such rigorous intellectual institutions as Princeton, Rice, Harvard, Bowdoin, Stanford, Middlebury, and the University of Virginia. Ten full-time members of the department were granted released time for research this fall.

However, we are also in an era when more demands are being placed on the department than ever before. So far, we have responded well to dramatic increases in math offerings for engineering majors. We have weathered the effects of the math upgrades instituted by the departments of Physics, Chemistry, and Biology by initiating biometry and increasing the number of sections of both linear and modern algebra.

This demand for math offerings is not temporary. For example, we have already witnessed physics majors who have taken quantum mechanics asking for the opportunity to learn more about inner product spaces.

However, when we begin the new medical school at Rowan, it is inevitable that this university will become the 500 lb. gorilla academically in southern New Jersey. This summer, I was contacted by Temple University biomedical researchers soliciting statisticians in this department to participate in their work. Our own medical school will pose similar requests.

Demographics are quickly changing. Casino gambling has been devastated by competition. State unfunded pension liability will cause the growth of school systems to be constrained. The business community is relocating to other states. Our medical school represents one of the few dramatic growth opportunities for this region. Infrastructure will be upgraded and resources will migrate here. It's exciting. We are well poised to meet these challenges and excel.

LH