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DEPARTMENT OF MATHEMATICS AND STATISTICS



2013-2014 • Volume 5 • Issue 1



LOU GRAUE

(FOUNDER OF PH.D PROGRAM)

To read interview, see "Interview With Lou Graue" on page 2

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DEPARTMENT OFFICERS

David Meel	INTERIM CHAIR
Steve Seubert	ASSISTANT CHAIR
Rieuwert Blok	GRAD COORD
Jim Albert	UNDERGRAD COORD

We hope to include news of many more alumni in future issues, so please tell us about you: new and updated career news, family news, and anything you would like to share. A survey is provided for your convenience on the last page, or simply send an email to one of the editors.

Maria Rizzo, Editor
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Jim Albert and Steve Seubert,
 2013-2014 Editors



MESSAGE FROM THE CHAIR

What is new with BGSU Math and Stats Department? After an initial scare that the Department of Mathematics and Statistics might be moving to some other building other than the Mathematical Sciences Building, it seems as though we will be staying put for the near future. However, I am consistently reminded that one of the constants in academia is change! We in the Department of Mathematics and Statistics are constantly adjusting, adapting to new goals and seeing how we can best serve the students of BGSU. Even though our physical presence might not be changing, we have seen some changes in the personnel in the department and

the roles that they play.

Starting in January, Dr. Kit Chan stepped down from the position of Chair of the department after nearly six and a half years of guiding the department in order to concentrate on family and his research. As a consequence, I am writing this missive as the interim chair until a proper election can occur this coming fall and a new chair would begin his or her term starting July 1, 2015. Speaking of change, we are adapting to a collective bargaining agreement and this has caused us to rethink many different policies and procedures. In addition, we have had to adjust to reductions in staff and how to more effectively accomplish our goals. Although we may be leaner, it is my hope that we are reexamining our mission and the ways we approach things so that we may continue to reach BGSU students in 2025 and beyond. Mathematics is changing and we need to continue to keep ahead of the curve.

For instance, coming out of the Big Data Initiative agenda has been an NSF funded program, COMAST, by Drs. Jim Albert and Maria Rizzo that is focused on Computational Mathematics and Statistics. In particular, the program is designed to prepare students for the rapidly expanding need for data scientists. The scholarships that are available help support small cohorts of students to position themselves in the forefront of integrating math, statistics, and computer science. This coming fall will have the first cohort on campus, so we await their arrival.

Another initiative we have embarked upon this past fall was we started teaching our developmental algebra courses in a temporary 100-seat computer laboratory, called the Math Emporium, in a newly renovated piece of Olscamp Hall. Even going through some growing pains at first, we found the emporium to be a win-win for us as we provided individualized assistance to the students and provided training for some pre-service teachers who received experience working with students under the guidance of our excellent instructional staff. It is hoped that a larger Math Emporium, housed elsewhere on the campus will be constructed next year to increase our capacity to help students.

Throughout these changes, we continue our desire to increase our reputation, recognition and National Research Council's ranking compared to other Ph.D. granting departments. We are proud of what we have done, where we are going and how we have equipped students to succeed in reaching their goals. Our success is built squarely on the students we have helped, so thank you for being part of our past and future. Our department is honored by your success stories. Please write back to let us know how you are doing.

David Meel, Interim Chair
Department of Mathematics and Statistics

BGSU[®]
 Bowling Green State University



INTERVIEW WITH LOU GRAUE

Lou Graue was the Chair of the Department of Mathematics and Statistics from 1965 to 1973. This was a remarkable time in the history of the department, including substantial growth in faculty, the construction of the Mathematical Sciences Building, and the introduction of the doctoral programs in mathematics and statistics. Dr. Graue, who is currently retired in Florida, graciously offered to be interviewed by Jim Albert about his career at BGSU.

JA: Your home was Missouri and you had an initial teaching position in California. What brought you to Bowling Green in 1959?

Money. Income in California was \$100/month and \$60 mortgage reduced that to \$40/month. After having a couple of kids we could not afford to visit the grandparents in the Midwest with the kids and wife did not like that. So we moved.

JA: What were your primary interests in mathematics?

Since the University of Chicago had a collection of the worlds' leading algebra scholars, I took a lot of algebra courses and this was my favorite area. I found out that I was no good at research in that area and switched to research in differential geometry where I published papers on necessary and sufficient conditions for a curve to lie on a quadratic surface and on hyper quadratic surfaces.

JA: One of your main research interests was on pigeon navigation. How did you get started in this research area? Can you describe some of your key findings?

I raised pigeons when I was a child. In California a neighbor belong to a racing pigeon club and I joined the club and raced pigeons. I started to think about how they found their way home. I started writing to a Harvard specialist in bird navigation with some ideas. He encouraged me to run some experiments with my birds. I got research grants from the National Science Foundation and the Office of Naval Research

to expand this work. My most quoted finding was that the heading of birds whose internal time clock was shifted caused them to also shift their headings toward home even when the distance from the home was less than one mile. I also found that the extremely low frequency transmitter used by the Navy in northern Wisconsin to contact subs world wide caused birds released close by to shift their homeward headings. In an exchange of pigeons with a researcher in Germany we found some evidence that their detection of the homeward direction was a possibility.

JA: Currently, members of the department are working with Dr. Cordula Mora of the Department on Psychology to better understand pigeon navigation using GPS devices that are mounted on the pigeons. What new insights do you think we can learn about pigeon navigation using these devices?

Using a helicopter we were able to plot a very accurate path of pigeons released about 50 miles from home. On one day the path I plotted on a morning release was repeated almost exactly on the afternoon release using different birds and plotted by another person. What makes this interesting is the path was not a straight home path but was quite curved and deviated quite a bit from the straight line. The GPS devices may provide a less expensive way to collect data on lots of homeward paths to see if there are favored routes and what correlation there might be with the physical environment.

I appeared on The 20th Century show with Walter Cronkite where some of the helicopter flights were shown. CBS sent me the films of this show and they are in the Department of Mathematics and Statistics archives.

JA: I understand that you played an important role in the formation of our Ph.D. program in the 1970's. How did this get started?

Some departments at BGSU had just started Ph.D. programs and several others had plans. I thought that it would be important for us to grow our department in that direction.

I spent a summer writing up a proposal and formed a committee to help. After many meetings we got approval from the administration to start.

JA: During this time, some prestigious faculty were brought to our department including Charles Holland and Eugene Lukacs. How did this happen?

During the several years before the Ph.D. program we added a lot of young faculty just getting a Ph.D. It was a period when there was a great shortage of math Ph.D's and we employed nearly everyone we could get to apply. None had published research and probably were not interested in research else they could have easily obtained a position at a research school. We quickly found that anyone with a substantial record of research was not interested in BGSU. My friend and former teacher Paul Halmos told me that the only way was to offer a big

salary and try to bring a group that would like to move together. I went to president Jerome and asked approval for a salary of \$25,000.

No one at that time here even made \$10,000. He said he could not do that but offered me the opportunity to bring it to the trustees. At the meeting the biology department also was asking them for about \$100,000 for equipment for someone they wanted to hire for a normal salary. I was able to explain to them that we only needed \$25,000 with no expense of equipment. They gave approval for 3 positions at that salary.

We worked hard to find suitable people without success until Herb Hollister told me that he thought we could interest his thesis advisor Charles Holland who was a well-known leader in his field of algebra at the University of Wisconsin. After several contacts he agreed and we were very happy to get this very good scholar and a really great person.

Eugene Lukacs gave a NSF sponsored speech to the department and after he was gone Ray Steiner told me that he thought Lukacs would be interested in coming here. I met Lukacs at the next Mathematical Society meeting and he told me that not only would he come but could bring Radha Laha and Vijay Rohatgi. This group was known worldwide for their fine work and we received congratulations from several prominent scholars in the field for the good fortune of getting them. Lukacs and Holland set up the Ph.D. program and we became fully accredited.

JA: During your tenure, the Department of Computer Science started at BGSU. Was this an outgrowth of the math department or a separate initiative?

When I became chairman of the College of Liberal Arts Advisory Committee there were no computer science courses here. I had been using the University IBM 1620 for the statistics in my bird navigation work and could see how useful computers could be. I proposed to the college dean that we establish a department of computer science and told them that one day they would have to furnish a whole building for the department. Several departments objected because they felt that this would take away funds they could get. They suggested that instead we should just offer computer science courses in the math dept. I felt that this had no place in the math dept because they would need people and resources of a different nature. Eventually they agreed to start a department and we asked David Krabill to become its first chairman. He did a great job of getting a good department started. The Dean complained that Krabill would even call him at home on Sunday night to get what he needed.

JA: Tom Hern mentioned your "test retake" scheme. Can you talk about this?

I was surprised to learn that Tom knew about this since I never

mentioned it to anyone. After a test a student could come to my office and show me he could work a problem correctly if I had marked it incorrect and get back half the points taken off for that problem. This gave the student the inspiration to make an effort to find out what he did not yet understand. This gave me the chance to get to know the students individually and at times to find out a failure on my part to make things clear. The students liked the process and took pride in the chance to demonstrate their accomplishment. The only drawback is that it took a lot my time to have so many students visit my office. I could afford to do this for only one class each term.

JA: Looking back at your tenure at Bowling Green State University, what specific accomplishments are you particularly proud of?

Getting the Mathematical Sciences Building. In the past the department offices and classrooms were spread out all over the campus in what seemed to be temporary places. There were no phones in the offices and we had some classrooms without blackboards and in buildings away from the offices. We were frequently moved to make room for another department which had a special need for the space. The State of Ohio gave the University funds for three new buildings and we were able to talk the president into letting us have one of them

and to participate in its design. Other important accomplishments were getting the Ph.D. program and recruiting a lot of talented faculty members, starting the weekly colloquium series, and starting the Department of Computer Science.

JA: How do you think Higher Education has changed in recent years?

The emergence of online courses and the use of computer technology in nearly every area of education. Just for fun I have taken several online courses. Most such courses are just films of a lecturer presenting the standard course. This can be done much better and probably will be in the future. Can you imagine creating a calculus or statistics course where you employ one of the countries best performing teachers along with a team of animation or video game people to do the job. I think this could be very exciting and make the content very clear. It could be shown on a very large screen to a class even in 3D. The students could replay this over and over on their ipad or laptop at home as often as necessary.

JA: Any other interesting reflections of your time in Bowling Green?

I was a grader for the Putnam Contest. Each year in December the mail truck would deliver hundreds of blue books to my home from the contestants for me to grade. I would then spend

several hours each night for the next couple of months grading the books. I would send the ten best books to a committee that would select the winner. Most of the books contained only an attempt to answer a couple of questions since they were so difficult. But I had to take the time to go through all the pages just to find what was there and that was the reason it took so long to finish the job. I then had to write the solutions to all the problems to be published in the Mathematical Monthly. They no longer use blue books and have a committee grading so the results can be obtained quicker.

"This gave me the chance to get to know the students individually and at times to find out a failure on my part"

“After a very rough beginning, Ray lived a long, fruitful, joyful life. Much of this due to Carol, his wife of 41 years. How many can say that? And then in an instant, that ‘beautiful mind’ was gone.”

In Memory: Ray Steiner



RAY STEINER

In memory: Ray Steiner by Tom Hern

Ray Steiner served on the faculty of the Department of Mathematics and Statistics, 1968-1998. We and three others retired together. He earned a Ph. D. from Arizona State University in 1968. His dissertation in number theory, entitled “On the Units of a Quartic Field with Applications to Mordell’s Equation”, was under the direction of John Kelly. Before that he received a bachelor’s degree in electrical engineering and a masters degree from the University of Arizona. For the non-initiated, number theory is about whole numbers—integers. It goes back to the Greeks, like geometry does. Problems are easy to state and can be devilishly difficult, if not impossible, to solve. For example are there an infinite numbers of prime numbers? or finitely many, thus a largest one? That one is easy to prove, by the way.

The greatest mathematicians—Euclid, Gauss, ...—delve into number theory eventually. It is called the Queen of Mathematics. Ray was very prominent in the field. Much more than we here know. He introduced me to L. J. Mordell, one of the tops in the world, on his visit here in the 70s.

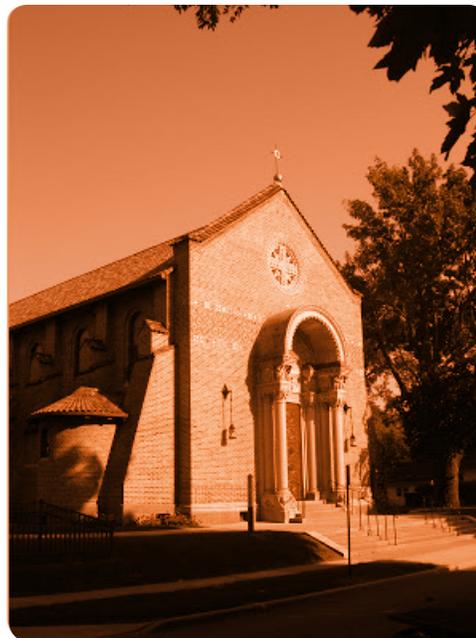
He has 36 research publications, 18 talks or papers read to professional societies, and one book. He was advisor or co-advisor or committee member for 5 masters and doctoral students. Including one of our Associate Deans. He has taught 16 different courses from the freshman to graduate level. He refereed for 6 journals, reviewed 95 papers for Mathematical Reviews, many Russian, and reviewed for Zentralblatt für Mathematik.

He also coached the Putnam Contest team... I was not close to Ray, but I was in his wedding party along with Dave Meronk and Vic Norton. He was closer to Dave, and Carol is surely his best friend. He asked me, and I thought I would help the guy out. I respected and admired Ray, as we all did, and tried to treat him like anyone else. It was easy to see him as weird. I seem to respond to underdogs, but in reality he wasn’t one. He was probably the smartest person I have known, and I have known some. He was fluid in 9 languages, including Russian, Japanese, Hebrew, Hawaiian (Hawaiian!) and the usual. He translated papers in those languages for authors overseas so that they could publish in English language journals. Inside there was a regular guy trying to get out. For example: for his wedding he left instructions for us to open the trunk of his car and take out the plastic bottles he had collected and tied together, and tie them to his bumper: for use in the drive-away after the ceremony. I would have never thought to do that, but he wanted it and didn’t want to leave it to chance.

Unlike many really smart people, as a teacher he had incredible patience. He taught the mathematics course for elementary teachers many times. A challenge. He called the students his “school marms”, showing his Western upbringing I guess. Ray was a pioneer in the use of computers in his research—going back to the IBM 360 and DEC 20. He was the expert I went to. (It was nice to have so many willing experts in the Department

“She loved to travel, bake, and routinely met with her antique club. Her true joy was spending time and supporting her children and grandchildren.”

In Memory: Barbara Meronk



to consult.) He also taught numerical analysis, and one of the students we heard nice things from was in such a class. It is much different from number theory, but he learned it to do his research.

Some may remember that the department once had a barbershop quartet—called the Logarhythms—consisting of Cliff Long, Dean Neumann, Herb Hollister, and Charles Holland as the bass (that’s a joke!). You can see a video clip on the Department’s history web page. One of the “numbers” that they would sing was “π”. Someone was always planted in the audience to request it. Dean was the lead, so he started out: “3.14...159 ...” After a while he started to make up digits (there are no patterns), figuring no one would notice. Well, one time Ray was there in the front row, and after quite a few digits indignantly he called out, “No, that’s not right.”

I lived in the same apartment complex in Perrysburg as Ray and Carol for a while. One story I tell is that during the first ‘oil crisis’, we tried to share rides to school. (Carol had gotten him to learn to drive. Think of getting along without a car in BG!) The first time he drove, he pulled up to the road (Rt. 199) from the drive, stopped, looked both ways, paused, and then said, “Well, here we go!” It was like going on an adventure. That did not inspire confidence, but he was actually a safe driver.

Once when I went to the laundry room, Ray and Carol were there waiting on the dryers. Well, they were “billing and cooing” like

teenagers. It was sweet. After a very rough beginning, Ray lived a long, fruitful, joyful life. Much of this due to Carol, his wife of 41 years. How many can say that? And then in an instant, that “beautiful mind” was gone. He went the way he wanted to. Quickly.

BARBARA MERONK

In memory: Barbara H. Meronk

Barbara H. Meronk (Spana), wife of the late Professor David Meronk, died Wednesday evening, February 26, 2014 in Bowling Green, Ohio. She was born June 3, 1936 in Milwaukee, Wisconsin and on June 7, 1958 she married David B. Meronk.

Barbara, a retired receptionist and secretary, enjoyed donating her time to Saint Aloysius in various capacities throughout the years. She loved to travel, bake, and routinely met with her antique club. Her true joy was spending time and supporting her children and grandchildren.

Barbara is survived by two daughters, Salena (Richard) Meronk-Ornelas and Stephanie (Scott) Cavanaugh, both of Bowling Green; son, David J. (Natalie) Meronk, Findlay, Ohio; sisters, Shirley Osterberg and Gloria Graczyk, Milwaukee, Wisconsin; 15 grandchildren and one great-grandson.



ALUMNI NEWS

WHERE THEY ARE NOW...

Anita Rundell

Anita Rundell is self employed, working in three areas. For eleven years, she has been the ministry coordinator for Tammy Trent, an international Christian recording artist. She also has her own web design company called Complete Faith Web Design, Inc. (www.completefaithwebdesign.com). Also in the last year, she has been working as an associate publicist for Pure Publicity in Nashville, TN.

Donald Esber

Donald Esber (BS Education 1973) is a retired mathematics teacher at Olentangy Local Schools. He writes that they are expecting their third grandchild in November, 2013. He and his wife regularly babysit for their grandchildren. They travel the world when possible; they planned on cruising the South Caribbean in February, 2014.

Lisa Bergman

Lisa Bergman (BS, Math and Computer Science) worked for a year at Marathon Petroleum Corporation as an IT systems integrator. Currently she is working in Peace Corps service as a Math and English teacher the small African country of Lesotho. This service includes three months of training and two years of teaching.

Danielle Champney

Danielle Champney (BS, Applied Math 2007) received her Phd. In Mathematics Education from the University of California, Berkeley in 2013 and is currently Assistant Professor of Mathematics at California Polytechnic State University, San Luis Obispo.

Kathryn M. Woodford

Kathryn M. Woodford (BS Integrated Mathematics, 2008) is currently a high school teacher at Brookfield Local School District, Brookfield, Ohio.

Jie Chen

Jie Chen (Ph.D Statistics, 1995) recently was honored as a Fellow of the American Statistical Association. Her citation reads that Jie received this award "for significant contributions to change point problems and their applications to genomics data; for high-impact collaborative research in biological research; for excellence in teaching and mentoring students; and for dedicated service to the profession." Jie is currently Chair and Professor of the Department of Mathematics and Statistics at the University of Missouri at Kansas City.

Bradey Hinsman

Bradey Hinsman (BS Actuarial Science 1999) is currently a Lecturer in the Department of Mathematics at the University of Michigan, Ann Arbor, MI.

Paul Olsen

Paul Olsen (1970 BS, 1972 MA, Mathematics) is currently an Associate Professor in Mathematics at Wesley College in Dover, DE. He would like to learn about his former professors David Sabbagh, Waldemar Weber, John Gresser and John Hayden. These professors made mathematics come alive and they gave him a chance to teach at BGSU – Firelands in Fall, 1972. Now, 41 years later, he is still teaching mathematics, the past 32 years at Wesley College. He has no current plans to retire. It is the best job anybody could have and he is appreciative of the BGSU Mathematics Department. He notes that the current President of Wesley College, William Johnston, is also a BGSU graduate.

RECENT PH.Ds

Adam Combs

"Bayesian Model Checking Methods for Dichotomous Item Response Theory and Testlet Models" supervised by James Albert

Adamou Fode

"A Discontinuous Galerkin-Front Tracking Scheme and its Optimal² Error Estimation" supervised by Tong Sun

Swarup Ghosh

"Isolated Point Theorems for Uniform Algebras on Manifolds" supervised by Alex Izzo

Leonardo Pinheiro

"Chaotic extensions for general operators on a Hilbert subspace" supervised by Kit Chan

Vladimir Son

"Multivariate Population Attributable Hazard Function for Right-Censored Data" supervised by John Chen

Cheng Wenren

"Mixed Model Selection Based on the Conceptual Predictive Statistic" supervised by Junfeng Shang





“, his favorite thing about teaching is connecting with students and helping them see that mathematics can be interesting without having to be useful.”

Dr. Ron Taylor (PhD in mathematics, 2000)

Dr. Ron Taylor, (PhD in mathematics, 2000) is an associate professor of mathematics at Berry College in Rome GA and a 2002 Project Next Fellow of the MAA. He earned bachelors degrees in math/computer science and political science from Concord College in Athens, WV and a masters degree in mathematics from Winthrop University in Rock Hill, SC before starting at BGSU in 1995. His doctoral dissertation was “Hypercyclicity of the Operator Algebra of a Banach Space” supervised by Kit Chan.

He has been at Berry since his graduation from BGSU, except for a sabbatical visit to Iowa State University in 2013, and in that time Ron has expanded his research interests and has supervised a dozen undergraduate students in research projects in areas including analysis, geometry, topology, knot theory and graph theory. So far two of these projects resulted in peer reviewed articles with his student coauthors.

Dr. Taylor is currently writing a textbook with Patrick Rault of SUNY Geneseo. The text, with a working title of A TEXas Style Introduction to Proof, is designed to be used in a post-calculus bridge course that uses an inquiry based approach. The text incorporates an introduction to LATEX along with foundational mathematical concepts. His other scholarly efforts include research articles in analysis, knot theory and geometry and a pedagogical article about tearing plastic bags to teach students about fractals and hyperbolic geometry. He is a regular presenter, having

given almost four dozen presentations at mathematics and pedagogy conferences and invited talks at various colleges and universities, and has continued his study of mathematics through participation in an assortment of professional development workshops.

Ron has served the mathematical community in a variety of capacities including as Co-Director of Project NEXT-SE and Beginning Faculty Activities Coordinator for the Southeastern Section of the MAA and as co-chair of the planning committee of the Legacy of R.L. Moore Conference. He has also served as an AP Calculus reader and co-founded the edgling Dead Poets Society, a mathematics problem solving group, which currently has half a dozen chapters at colleges and universities across the U.S.

Dr. Taylor has received several awards for his outstanding teaching including the 2008 Teaching Excellence Award and the 2012 Dave and Lu Garrett Award for Meritorious Teaching, both at Berry College. He also received the 2013 MAA Southeastern Section Distinguished Teaching Award. His service has been recognized with the 2005 Martin Luther King Jr. Leadership Award, the 2011 First Year Advocate Award and in 2012 he was presented with the Martindale Award of Distinction which is Berry's highest service award. He says that his favorite thing about teaching is connecting with students and helping them see that mathematics can be interesting without having to be useful.



CAMPUS NEWS:

THE PUTNAM EXAM AND BGSU MATHEMATICS COMPETITION

The Putnam Competition, founded in 1927 by Elizabeth Lowell Putnam in memory of her husband William Lowell Putnam, is an annual mathematics competition for undergraduate college students enrolled at institutions of higher learning across the United States and Canada. It awards scholarships with cash prizes for the top students and for top teams; in addition, the top ten individual scores get tuition waived at Harvard. Many consider it to be the most prestigious university-level mathematics examination in the world. Putnam Fellows include three Fields Medalists (Milnor, Mumford, and Quillen) and two Nobel laureates in physics (Feynman and Wilson).

On December 7-th 2013, four BGSU students participated to the Putnam Exam. The best score among BGSU

students was obtained by Bethany Lemont who places in the top 20 percent among all participants. The second best result was obtained by Ben Zauski. Bethany also had the highest score of a BGSU student in the last four years. BGSU students have placed in the top 30 % since 2010.

This Spring, Mary Koshar, Darya Fillipova, Alex Izzo and Mihai Staic organized the second "BGSU Mathematics Competition", its own local version of the Putnam Exam. The winners of the competition were Taylor Ernsthausen and Davis Gerber (for the beginners section), Jia Duan and Christian Burns (for the advanced section). Each winner received a \$50 prizes from the Department of Mathematics and Statistics.

On Saturday March 22, 2014, we had the second Edition of the "BGSU

Mathematics Competition." The organizers were: Mary Koshar, Darya Fillipova, Alex Izzo and Mihai Staic. The winners of the competition were Taylor Ernsthausen and Davis Gerber (for the beginners section), Jia Duan and Christian Burns (for the advanced section). Each winner received a \$50 prizes from the Department of Mathematics and Statistics.

PUTNAM EXAM:

2010
 3 students ranked in top 30%

2011
 1 student ranked in top 20%

also the BGSU team ranked 111 out of more than 400 teams.

2012
 1 student ranked in top 25%

2013
 1 student ranked in top 20%

2012
Virginia Tech
Math Competition:
 1 student ranked in top 15%.

