



COLUMBUS STATE
UNIVERSITY

MATHEMATICS DEPARTMENT

Departmental News & Events

January 2016

Changes in the Department

The onset of the 2015 academic year marks the beginning of many changes taking place in the Mathematics Department.

We've had to shorten our name, for starters. Our Philosophy colleagues may still be working in our midst, but they have a new department to call home within the College of Letters and Sciences: the Department of Politics, Philosophy and Public Administration.

While Philosophy may have transitioned out of the Mathematics Department, we have simultaneously gained three new faculty members from the former Department of Basic Studies, which recently dissolved, as well as one new temporary Lecturer. We are happy to welcome these new additions, highlighted to the right, to the Mathematics Department!

One important change for our freshmen and sophomore students is that the Mathematics Department has joined with the Academic Center for Excellence (ACE) to advise math majors in their underclassmen years. We are excited to be working with Tammy Baxter and ACE to provide our students with the best possible advising options.

These changes represent moves to better serve Columbus State University's student population, to enhance the student experience.



Welcome!

New Faculty in the Mathematics Department:



Mr. Randall Casleton, who has been with CSU since 2005, joins us from the former Department of Basic Studies.



Mr. H. M. Hassani, who has been with CSU since 1994, comes to us from the former Department of Basic Studies.



Ms. Liz McInnis, a recent graduate of Auburn University, joins the Math Department as a Temporary Lecturer.



Dr. Nehal Shukla, who has been with CSU since 2012, also joins the Math Department from the former Department of Basic Studies.



New Department Chair Dr. Tim Howard

The Mathematics Department welcomes its new Chair, Dr. Tim Howard. Dr. Howard previously served as chair from 2003 to 2009, and brings his experience and commitment to our students to the position. He has been

with the Mathematics Department at CSU since 1995.

His wife Jamie works as an audiologist at St. Francis Hospital and his two daughters are in middle and high school. One of his daughters plays the flute, the other the piano; both are on swim teams.

Originally from Owensboro, Kentucky, Dr. Howard is a first generation college graduate. His father was a WWII navy veteran and then postal clerk until he retired. Dr. Howard attended Brescia University, then graduate school at Georgia Tech. His passions include his family, teaching, recruiting and preparing teachers, and community outreach.

Outstanding Alumnus

David McFarland

Subsequent to his graduation from the Mathematics program at Columbus State University in 2010, David was employed at the National Council on Compensation Insurance (NCCI) as an assistant actuarial analyst in Boca Raton, Florida. Over the next 2.5 years David rose to the level of actuarial analyst and senior actuarial analyst before leaving NCCI and moving to Athens, Georgia, to work as an actuarial consultant. While consulting, David received his Associateship in the Casualty Actuarial Society.

David is currently the Actuarial Manager at Jewelers Mutual Insurance Company in Neenah, Wisconsin. He is responsible for predictive modeling, reserving, ratemaking, and a variety of other actuarial/analytical functions and managerial tasks. He is one exam away from achieving his Fellowship in the Casualty Actuarial Society.

Congratulations, David!



Math Club President: Michael Rohly

Michael Rohly, a double major in Mathematics and Biology (pursuing a minor in Business) at CSU, wears a number of hats here on campus. He is the president of the Math Club. And the Philosophy Club. And CSU's chapter of Tri Beta, the National Biological Honor Society. He also serves as the District President of Tri Beta, a role in which he coordinates around 20 universities and organizes the annual meeting of the Association of Southeastern Biologists. In addition to all of these activities, Michael also serves as the Math Club's SGA representative. He stays busy.

His interest in Mathematical Biology and a recommendation from Dr. Guihong Fan took him to the University of Tennessee this past summer, where he spent two months researching with peers from across the country. He was among the most competitive students in the program, and he credits the opportunities he's had at CSU to get involved for part of this success. During



this summer program, funded by the National Science Foundation, Michael studied agent-based modeling of host-pathogen interactions.

Michael is currently working with Dr. Carlos Almada and Dr. Guihong Fan on research for an undergraduate thesis, regarding mathematical modeling of biological systems. His future plans involve pursuing a PhD in Mathematics with an emphasis on Mathematical Biology.

In his role as Math Club President, Michael coordinates speakers for their

twice monthly meetings. After two years of dormancy, the Math Club now meets on the first and third Tuesdays of each month from 12:30 to 1:30pm. You can find them in University Hall Room 201. Michael and the club are actively seeking speakers for the Spring!

If you are interested, email Michael at rohly_michael@columbusstate.edu.



Michael during his Summer Research Trip at the University of Tennessee

2015-2016 Robert Noyce Teacher Scholarship Recipients:

Kimberly Apple
Mia King
John Nichols
Tysherrica Walker

Jamattia Jackson
Andrea Nelson
Avery O'Bryan



Award Number 1136356

Recipients of 2015 CRAFT-STEM Summer Internships:

Suriyana Mahadeo

Haley Pavlis

Math Tournament

Columbus State University's Annual Invitational Mathematics Tournament will be held Saturday, March 5, 2016 in Stanley Hall from 8:30am until 3:00pm. Further details as well as the complete schedule can be found online at

https://math.columbusstate.edu/docs/docs_tournament/schedule2016.pdf

2014-2015 Math Department Graduates

James Burch – Actuarial Mathematics
Joia Colbert – BA Mathematics
Cherie Corning – BS Mathematics
Christopher Edwards – Actuarial Mathematics
Caden Ferguson – Actuarial Mathematics
Jacob Hand – BS Mathematics
Elizabeth Hays-Morrison – BS Mathematics
Garrett Hix – BS Mathematics
Katelyn McConnell – BS Mathematics & Secondary Education
Stevan Rodney Parks – BS Mathematics
Caroline Rotich-Koech – Actuarial Mathematics
Anna Wilson – BS Mathematics & Secondary Education

Math Masters Contest

The Mathematics Department supports the Columbus Regional Mathematics Collaborative, who is hosting a Math Masters Contest for middle school students in January of 2016. In this contest, teams of middle school students work together to solve task-based math problems, then present their work orally for a chance to take a trophy back to their schools!

Recent Publications

Madhusudan Bhandary

1. Bhandary, M., & Fujiwara, K. (2014). *An Alternative Test for the Equality of Intraclass Correlation Coefficients under Unequal Family Sizes for Several Populations*. *Journal of Modern Applied Statistical Methods*, 13(1), 4.
2. Bhandary, Madhusudan and Gupta, Arjun K. (2015). *Test for the Equality of Partial Correlation Coefficients for Two Populations*. *Journal of Modern Applied Statistical Methods*, 14 (1), Article 10.

Baiqiao Deng

1. Deliu, A., & Deng, B. (2015). *On progressive functions*. *Journal of Mathematical Analysis and Applications*, 423(1), 336-357.

Guihong Fan

1. Fan, G., Thieme, H. R., & Zhu, H. (2015). *Delay differential systems for tick population dynamics*. *Journal of Mathematical Biology*, 71(5), 1017-1048.
2. Fan, G., Lou, Y., Thieme, H. R., & Wu, J. (2014). *Stability and persistence in ODE models for populations with many stages*. *Mathematical Biosciences and Engineering* (to appear).

Eugen Ionascu

1. Ionascu, E. J. (2015). *Equilateral Triangles in \mathbb{Z}_4* . *Vietnam Journal of Mathematics*, 43(3), 525-539.
2. Andrica, D., & Ionascu, E. J. (2014). *On the number of polynomials with coefficients in $[n]$* . *Analele Universitatii "Ovidius" Constanta-Seria Matematica*, 22(1), 13-23.
3. Andrica, D., & Ionascu, E. J. (2014). *Some Unexpected Connections Between Analysis and Combinatorics*. In *Mathematics Without Boundaries*. New York, NY: Springer, 1-19.

Inessa Levi

Catarino, P., Higgins, P., & Levi, I. (2015). *On inverse sub semigroups of the semigroup of orientation-preserving or orientation-reversing transformations*. *Algebra and Discrete Mathematics*, 19 (2), 162-171.

Ron Linton

Linton, K. A., & Linton, R. C. (2015). *Unions of Dominant Chains of Pairwise Disjoint, Completely Isolated Sub semigroups*. *Palestine Journal of Mathematics*. (40, Spec. 1), 490-495.

Minh Van Nguyen

1. Dieu, B. X., Siegmund, S., & Van Minh, N. (2015). *A Katznelson–Tzafriri Type Theorem for Almost Periodic Linear Evolution Equations*. *Vietnam Journal of Mathematics*, 43(2), 403-415..
2. Zot, H. G., Hasbun, J. E., & Van Minh, N. (2015). *Bacterial Flagellar Switching: Hidden Markov Steps Revealed*. *Biophysical Journal*, 108(2), 601a.
3. Matsunaga, H., Murakami, S., Nagabuchi, Y., & Van Minh, N. (2015). *Center Manifold Theorem and Stability for Integral Equations with Infinite Delay*. *Funkcialaj Ekvacioj*, 58(1), 87-134.

Nehal Shukla

Shah, N. H., Yeolekar, B. M., & Shukla, N. J. (2015). *Liquor Habit Transmission Model*. *Applied Mathematics*, 6(08), 1208.

Alin Stancu

1. Stancu, A. (2015). *On some constructions of nil-clean, clean and exchange rings*. *Journal of Algebra and Its Applications*, 14(07), 1550101.
2. Staic, M. D., & Stancu, A. (2015). *Operations on the Secondary Hochschild Cohomology*. *Homology, Homotopy & Applications*, 17(1).

Recent Grants Awarded

1. **Fan, G.** (2015). \$4,154 NSF-AWM Mentoring Travel Grant for Women Researchers.
2. **Fang, H.** & Peppers, D. (2015). *Enhancing Mathematics Teaching Practices in Number & Operations*. \$48,132 Improving Teacher Quality state award.
3. **Fang, H.** & Peppers, D. (2016). *Developing Algebra Readiness*. \$46,336 Improving Teacher Quality state award.
4. **Howard, T.**, Jones, K., Mims, N., & Peppers, D. (2015) *Functions and Modeling for the GPS*. \$49,688 Improving Teacher Quality state award.
5. **Howard, T.**, Hendricks, M., Jones, K., Mims, N., & Peppers, D. (2016) *Developing Conceptual Understanding of High School Mathematics*. \$51,920 Improving Teacher Quality state award.
6. **Muse, W.**, Wan, A., Peppers, D., Phillips, H., Miller, S., & Bently, E. (2015). *Developing Mathematical Literacy*. \$49,359 Improving Teacher Quality state award.
7. Shaw, K., **Howard, T.**, & Thornton, A. (2015). *Building a Faculty Learning Community to Support Flipped Classroom Pedagogies and Improve Student Learning Outcomes in STEM Classrooms*. \$25,000 Innovation and Incubator Grant from the University System of Georgia.
8. **Stephens, R. & Stancu, A.** (2015). *Affordable Learning Georgia Textbook Transformation Grant: Introductory Statistics*. \$10,800 award by the University System of Georgia.

Conference presentations, colloquia, and seminars

Dr. Nehal Shukla attended a SIAM (Applied Mathematics) conference at the University of Alabama at Birmingham, AL, January, 2015.

Dr. Guihong Fan gave the invited talk *Oscillation and driving mechanism in a model of West Nile virus with time delay* at the spring meeting of the Southeastern Section of American Mathematical Society in Huntsville, Alabama, March 2015.

Dr. Tim Howard presented the poster "Examining the Influence of Internships on Teacher Recruitment" at the March 2015 Georgia Scholarship of STEM Teaching and Learning Conference. His co-investigators are Dr. Kimberly Shaw (Earth and Space Science, UTeach), Dr. Deborah Gober (Teacher Education, UTeach), and Dr. Cindy Ticknor (Honors College).

Ms. Leigh Mathis (CSU graduate student) presented the poster "Investigating the Influence of the CSU Robert Noyce Teacher Scholarship Program on College Students' Teaching Plans" at the March 2015 Georgia Scholarship of STEM Teaching and Learning Conference. Co-investigators are Dr. Cindy Ticknor (Honors College), Dr. Deborah Gober (Teacher Education, UTeach), Dr. Tim Howard (Math) and Dr. Kimberly Shaw (Earth and Space Science, UTeach).

Professor Kyle Bradford from the University of Nevada, an expert in probability and statistics gave a talk on "The Straus-Erdos conjecture" at the CSU Math Colloquium, April 2015.

Dr. Brian Muse presented a paper at the Association of Institutional Research Forum in Denver, CO, May 2015.

Dr. Houbin Fang attended the Science, Tech., Engineering & Mathematics Conference in New Orleans, LA, June, 2015.

Dr. Guihong Fan attended an investigative research workshop on "Optimal Control of Vector Populations in Vector-borne diseases driven by daily weather" at the University of Tennessee, Knoxville, TN, June 2015.

Dr. Eugen Ionascu was a guest speaker at the University of West Georgia, July 2015.

Dr. Nehal Shukla and Mr. Randall Casleton attended Supplemental Instruction Supervisor training at the University of Missouri Kansas City in August 2015.

Dr. Richard Stephens traveled to London, England to participate in the CSU Oxford Faculty workshop with 5 other CSU faculty members to learn about study abroad pedagogy and developing a class to teach in the CSU in Oxford Summer Program, Aug. 2015

Dr. Alin Stancu attended the American Mathematical meeting in Loyola University of Chicago to co-organize a special sections of abstract algebra, October 2015.

Departmental Highlights

Dr. Eugen Ionascu and Dr. Dorian Andrica: A Problematic Pair



Dr. Ionascu with Dr. Andrica during his time at CSU during the 2013-2014 academic year.

Our own Dr. Eugen Ionascu has teamed up with Dr. Dorin Andrica of Babeş-Bolya University, Cluj, Romania to co-author a book with big problems. Challenging math problems, that is.

In the preface to their book *200 Problems With...Problems*, they note that “the mathematics problematic has been flourishing like mushrooms after the rain and the difficulty levels of various journals has changed from ‘well done’ to ‘raw’. However, the interested reader wants to keep up and this book is a way to bring our take on some of these problems.”

Meant to be a resource for students interested in mathematics challenges and competitions (such as the Putnam Exam), this book both proposes interesting Mathematica problems and shares Dr. Ionascu and Dr. Andrica’s previously unpublished solutions to each one. Topics vary from Geometry problems to challenges in Number Theory and Analysis.

Dr. Ionascu and Dr. Andrica have known one another for more than 25 years through competition literature, and they worked closely together while Dr. Andrica visited CSU as 13th Mildred Miller Fort Foundation Visiting Scholar in European Studies in 2013 and 2014. The pair have published four papers together since that time.

Springer is set to publish *200 Problems With...Problems* sometime early this year.

Peer Leader Program at Columbus State University

The Peer Leader program at CSU was created through the STEM II Initiative coordinated by Dr. Tim Howard, with Dr. Cindy Ticknor (Honors College) and Dr. Kimberly Shaw (Earth & Space Science, UTeach) to help students in courses with historically high D, F, W rates. The primary goal of the program is to improve learning and student performance by strengthening the students’ content knowledge and study skills. With Dr. Howard’s transition from the Math & Science Learning Center to the chair of Mathematics, this effort is now led by Mr. Randall Casleton, also a member of the Mathematics faculty.


Peer Leader instruction is not tutoring or re-lecturing. Instead, peer leaders facilitate peer-to-peer learning and share strategies with students that help them process knowledge and apply various critical thinking skills. Students who have successfully completed a course they will lead – and who have done so by displaying exceptional knowledge and study skills – are chosen by their professor for the program.

Peer Leaders attend two to three lectures per week and host two to three hours of peer learning sessions outside of class. These sessions are free, voluntary, anonymous, and fun. Our peer leaders are trained by Randall Casleton.

For more information, contact Randall Casleton (casleton_randall@columbusstate.edu) or Eliot Rendleman (rendleman_eliot@columbusstate.edu).



Community Outreach Activities


COLUMBUS
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STEM Camp

for Middle School Students

Accepting rising 7th,
8th, and 9th graders.

Weekdays June 6-17
8am – 4pm

Application Deadline
March 18, 2016

Save the date: Applications open Feb. 1, 2016.
More info to follow in late January.

What is STEM Camp?


STEM is an acronym for Science, Technology, Engineering, and Mathematics. STEM Camp features exciting, hands-on activities related to biology, computer programming, environmental science, math, physics, robotics, space science, 3D printing, and more. Students will learn about the nature of science, get pointers on designing Science Fair projects, and learn about STEM related careers.


What does it cost?

The cost is \$75 per participant to cover a camp tee shirt and meal costs. All other costs are covered through our camp sponsors. Scholarships are available for selected students who demonstrate financial hardship.

What else should I know before applying?

Participation is limited to 30 students, selected on the basis of academic achievement, demonstrated interest in STEM, evidence of successful group/team work, potential benefit, and teacher recommendations. Applicants must agree to participate fully in all ten days.





This camp has been made possible with interns supported by a grant from the National Science Foundation (award 1136356).

4th Annual Calculus Contest 2016

**Friday, April 29,
2016**
8:30 am - 2:00 pm

Register and join us in the Student Recreation Center (SRCTR), Multi-Purpose Room for the 4th Annual Calculus Contest!

This content-based contest is open to students in any of the three categories, namely Pre-Calculus, AP Calculus and Calculus. Prizes will be awarded. Pizza, sandwiches and soda will be served.

For more
information
contact:

Dr. Ben Kamau

Kamau_Ben@columbusstate.edu

or

**Mathematics
Department
706-507-8240**



COLUMBUS STATE
UNIVERSITY

Department of Mathematics
University Hall – Rm. 238
706-507-8240

<http://math.columbusstate.edu>