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Andrews Mathematics Students Earn Awards at MAA's MathFest



The Mathematical Association of America (MAA) held its national MathFest conference from August 4–7 this year, with presentations given virtually due to COVID-19 protocols. Over 1,000 professional mathematicians and students from all over the country were able to present their mathematical research and to attend workshops. Among the attendees were four Andrews University students who had worked together in an REU during the summer (see p. 2): **Jeannelle Green** (junior BS Mathematics/Premed), **Gabriel Palacios** (senior BS Math/BMUS Music Performance), **Moises Reyes** (sophomore BS Mathematics/BA Religion), and **Noe Reyes** (junior BS Mathematics). Noe presented the group's results in a talk titled "On the Delta-Unlinking Number" and earned an outstanding student

presentation award for excellence in scholarship and clarity of presentation.

In addition, **Jonathan Homan** (senior BS Mathematics/BS Physics) presented a talk, "Strong Fusion Pretzel Links," at the Pi Mu Epsilon Conference which was held at MathFest. His talk represented part of the research that he is doing for his J. N. Andrews Honors Scholar's capstone project under the mentorship of Dr. Bosman. On the last day of MathFest, Jonathan received word that he was one of the Pi Mu Epsilon winners chosen for the quality of his research presentation.



From over 100 student presentations, only a couple dozen were selected for awards, so the Department of Mathematics at Andrews is proud that both of the Andrews' presenters received national recognition, affirming the exceptional work of the students and faculty on our campus. Dr. Bosman states, "National conferences are a wonderful way to introduce students to the wider world of academic research. For them to present their own work and be recognized encourages our students to persist in the mathematical sciences and helps them stand out when they apply to top graduate programs."

Former Seabird Ecology Team Member Chosen for ARCS Foundation Scholarship



Ashley (Reichert) Polski (2016 BS Biology/Biomedical; Seabird Ecology Team) graduated from the Keck School of Medicine at the University of Southern California, Los Angeles (USC), in May 2021. She was matched with her first choice for ophthalmology residency, the Moran Eye Center at the University of Utah in Salt Lake City, through which she recently was selected for an ARCS scholarship, which will support her research over the next four years.

As a third-year medical student, Ashley received the USC Dean's Research Scholarship and Wright Foundation Research Award to spend a dedicated research year at Children's Hospital Los Angeles, studying retinoblastoma (a childhood eye cancer). The Retina Research Foundation and Knights Templar Eye Foundation awarded her grants to present her work at national conferences, and she has contributed to over 13 peer-reviewed journal articles and numerous book chapters related to retinoblastoma genetics and biopsy techniques, healthcare disparities, and prognostication in ocular oncology. She credits her research skills to her time spent with the Seabird Ecology Team here at Andrews.

In her free time, Ashley creates miniature oil paintings and has developed an art business, thereby raising money to support CoachArt, a non-profit organization that provides free arts and athletics programs to children with chronic illnesses. Her husband, **Robbie Polski** (2016 BSE Mechanical Engineering/BS Physics/Mathematical Studies; PME, Sigma Pi Sigma: Sigma Si) splits his time between being with Ashley in Salt Lake City and finishing his PhD in Applied Physics at Cal-Tech, which he expects to complete in early 2022.

Note from the Chair

Dear Friends of the Math Department,

One of the sweetest sounds that I have heard this school year was the sound of students laughing together in our first in-person eigen* event since COVID protocols changed our lives. Even though I am grateful for the technology that allowed us to meet virtually for seminars and socials for more than a year, everyone has felt the distancing effect, so every opportunity for meaningful in-person interactions has become more precious. As a department we are thrilled to be in-person for most events now and enriched by having learned ways to expand our accessibility with virtual options for interacting.

Please join me in praying for each of our students and faculty here at Andrews as we continue to deal with high-stress factors in our lives. And may we all continue to learn and practice habits of being kind to ourselves and others.

Blessings,

Lynelle Weldon, Chair

Kingman Speaker Series Features Dr. Eugenia Cheng



On Wednesday, October 20, 2021, as part of Research Week at Andrews University, the Kingman Speaker Series featured a lecture by Dr. Eugenia Cheng, Scientist in Residence at the School of the Art Institute of Chicago. The lecture, “The Art of Logic in an Illogical World,” [also the subject of her 2018 book *The Art of Logic: How to Make Sense in a World that Doesn’t*] began at 7:00 p.m. in the Howard Performing Arts Center, with a reception starting at 6:00 and a book signing following the lecture.

Dr. Cheng spent the day in the Department of Mathematics, giving a short talk titled “The Power of Abstraction,” to the calculus students at 12:30 and enjoying a private luncheon with a group of teachers and students in the cafeteria afterwards. Students were also able to visit with her at the book signing in the evening when they were able to purchase such books as *How to Bake Pi* (2015), *Beyond Infinity* (2017), *x + y: A Mathematician’s Manifesto for Rethinking Gender* (2020), and Dr. Cheng’s first children’s book, *Molly and the Mathematical Mysteries: Ten Interactive Adventures in Mathematical Wonderland* (2020).

In addition to being a public speaker and a mathematician specializing in Category Theory, Dr. Cheng is an author, columnist, concert pianist, and artist. She holds a PhD in pure mathematics from the University of Cambridge and won tenure in Pure Mathematics at the University of Sheffield, UK, and is now Honorary Visiting Fellow at City, University of London. She has taught at Cambridge, University of Chicago, and University of Nice Sophia Antipolis. To rid the world of “math phobia” is her aim, something that she achieves in her approach to classroom teaching and in her books as well as her public lectures such as the one she gave at Andrews. (You can watch the video on *YouTube* at this link: https://www.youtube.com/watch?v=JLI_oWPGio.)

Summer NSF-Sponsored REU

From June 1–July 15, Andrews University offered a unique mathematical experience funded through the National Science Foundation and administered through the Mathematical Association of America. Anthony Bosman, Assistant Professor of Mathematics, guided the research of four Andrews mathematics students—**Jeannelle Green**, **Gabriel Palacios**, and brothers **Moises** and **Noe Reyes**—who were chosen because of their excellent performance in their courses and an expressed interest in research experience. The students proved several new results in knot theory and have submitted their work for publication in a peer-reviewed journal. In addition, they have presented their research at two conferences (*see p. 1*) and plan to share at a few other conferences later this year.



“The program gave me great hands-on experience of what research feels like in academia,” says **Moises Reyes**, a sophomore double majoring in mathematics and religion. “It has given me a clear picture as to what I can expect as I continue pursuing higher-level mathematical education. I would absolutely recommend the program to other students, especially those pursuing a career in or have academic interest in STEM. It is extremely beneficial to get research experience as an undergrad, whether it is to prepare oneself for graduate school, to become a stronger applicant, or even to gain a better appreciation for how knowledge in these academic fields continues to grow.”

2020-21 Graduates



Hyojin (Hannah) Jung (BS Mathematics) (*left*) finished her degree in the spring and is working at one of Hyundai Mobis' subcontractors, J-One FA, Inc., in Huntsville, Alabama, utilizing her OPT (Optional Practical Training for students on F-1 visas). Hyojin works in the purchasing department and also does some translation between English and Korean.

Solomon Kim (BS Computer Science/Mathematical Studies; J. N. Andrews Honors Scholar; Pi Mu Epsilon) (*right*) worked for Chevron as a Machine Learning Engineer from the time school let out in the spring until he landed a job with Google as a Technical Program Manager on the Core Machine Learning team. He is planning to begin applying to universities to begin his Master's in Computer Science and continue to work while he takes courses.



Michael Lee (BS Computer Science/Mathematical Studies; J. N. Andrews Honors Scholar; Pi Mu Epsilon; Phi Kappa Phi; Sigma Pi Sigma) (*left*) is planning to work in an area of computer science in the short-term and probably to go to graduate school in the long-term, possibly to work toward a career in artificial intelligence or biomedical research.



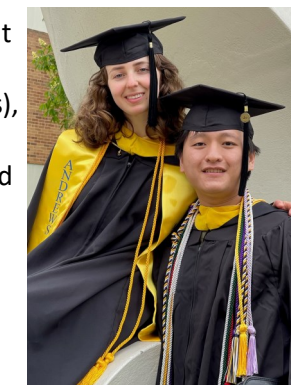
Yaser Monterrey (BS Math; Pi Mu Epsilon) (*right*) finished his degree in December 2020 and is currently working toward his PhD in Mathematics at the University of Connecticut. He works as a TA leading Calculus I discussion sessions.



Alma Navarrete Vargas (BS Mathematics Education/Secondary Certification) (*left*) finished her student teaching in December 2020 and taught mathematics at Forest Lake Academy in Florida until the end of the 2020-21 school year. She has moved to Corryton, TN, where she now teaches Algebra I at Gibbs High School.



Yosia Nurhan (BS Mathematics/Physics Studies; J. N. Andrews Honors Scholar; Pi Mu Epsilon; Sigma Pi Sigma) (*right*) has been adjusting to life at Georgia Tech, even though he misses Andrews and Michigan. He and his fiancée, **Camille Kordas** (2021 BS Nutrition Science & Dietetics/Dietetics), is also in Atlanta, pursuing a PhD in Public Health at Georgia State. The two have enjoyed using their season passes to the Georgia Aquarium and particularly like to watch the whale sharks. At Georgia Tech, where he is pursuing a PhD in Mathematics, Yosia shares an office with eleven other people, a downgrade from Andrews where he appropriated the Reader Room as his private office. Of his academic experience, he says, "The classes are harder, but since I'm taking only three classes, it's been chill. My teaching load is light, only one 'lecture' per week where I problem solve with ~30 students."



Nathaniel Patterson (BS Data Science; J. N. Andrews Scholar) (*left*) was the first person to finish the new Data Science major at Andrews University, completing his degree in December 2020. He lives in Florida with his wife, Karen, and eight-month-old daughter, Frances, who, thanks to Dr. Bosman, is learning her calculus through the *Calculus for Infants* book he gave her. Since finishing his degree, Nathaniel has worked for AdventHealth as a Data Scientist for Strategic Planning and Research. In January he will start his MS in Computer Science online from Georgia Tech.

Jonathan Swerdlow (BS Computer Science/Mathematical Studies; Pi Mu Epsilon; Phi Kappa Phi) (*right*) is attending the University of Utah in Salt Lake City, working on his PhD in Computing and specializing in computer graphics. He finds being in a big city after attending Andrews to be

strange, but he enjoys having so many walkable places of interest. Currently he is working with Dr. Cem Yuksel on a cycle-accurate hardware simulator. The purpose of the project is to develop a graphics card architecture to optimize ray tracing performance while still being general-purpose.



Research

Publications--

- Bosman, A. M.** 2020. Shake slice and shake concordant links. *Journal of Knot Theory and Its Ramifications* 29 (12):2050087.
- Duan, J., **Malakhov, M. M.**, Pellett, J. J. Phadke, I. S., Barber, J., & Blackwood, J. C. 2021. Management efficacy in a metapopulation model of white-nose syndrome. *Natural Resource Modeling*, 34: e12304. <https://doi.org/10.1111/nrm.12304>
- Nurhan, Y. I.**, & **Henson, S. M.** 2021. Cannibalism and synchrony in seabird egg-laying behavior. *Natural Resource Modeling*, 34: e12325. <https://doi.org/10.1111/nrm.12325>
- Atkins, G. J., Hayward, J. L., & **Henson, S. M.** 2021. How do gulls synchronize every-other-day egg laying? *Wilson Journal of Ornithology*, To Appear.
- Oh, Y. M.** 2020. The development of rectifying submanifolds. *Contemporary Mathematics*, 756:187-193.
- Van der Veken, J, Carriazo, A., Dimitric, I, **Oh, Y. M.**, Suceva, G. D., & Vrancken, L. 2020. Reflection on some research work of Bang-Yen Chen. *Contemporary Mathematics*, 756:1-12.
- Weir, S. K.**, **Henson, S. M.**, Hayward, J. L., Atkins, G. J., **Polski, A. A.**, **Watson, W.W.**, & **Sandler, A. G.** 2020. Every-other-day clutch-initiation synchrony as an adaptive response to egg cannibalism in Glaucous-winged Gulls (*Larus glaucescens*). *Wilson Journal of Ornithology*, 132:575–586.

Presentations--

- Bosman, A. M.** Presentation [virtual]. "Told Is Not Taught: Flipping Calculus." Andrews University Teaching and Learning Conference. Berrien Springs, MI, March 25, 2021.
- Bosman, A. M.** Presentation [virtual]. "Shake Slice Links Are Band-pass Equivalent to Trivial Link." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.
- Bosman, A. M.** Presentation. "The Miracle of Mathematics." Hal Wright Science and Religion Lecture Series. Southwestern Adventist University, Keene, TX, March 7, 2020.
- Bosman, A. M.** Presentation. "Character Growth in Math Class." Math Teachers' Professional Learning Community. Lake Union Office, Berrien Springs, MI, October 30, 2019.
- Coria-Navia, A. B., Covrig, D. M., Patterson, S. E., Palmer, R. A., **Bosman, A. M.**, Bradfield, G. M., Ledesma, J., & Bourget, J. R. Panel Discussion [virtual]. "Faith Engagement Panel Discussion: Next Steps, Collaboration, Support, and Future Considerations." Andrews University Teaching and Learning Conference. Berrien Springs, MI, March 25, 2021.
- Covrig, D. M., von Maur, A. C., Palmer, R. A., & **Bosman, A. M.** Presentation [virtual]. "Training Virtues in College Students." Andrews University Teaching and Learning Conference. Berrien Springs, MI, March 25, 2021.
- Dronen, B. O.**, **Palacios, G. E.**, **Homan, J. R.**, & **Bosman, A. M.** Presentation [virtual]. "Effect of Strong Fusion on Link Invariants." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.
- Ferrer, K., Li, J., **Kordas, C.**, Seo, J., Han, S. B., Cha, J., Manrique, N., **Kang, M. S.**, Jin, Y., Choi, S., Kim, D., Hiramoto, B., Smith, D., & Wong, B. Y. Y. Presentation [virtual]. "Aqueous Extract of Chinese Medicinal Herb (*Scutellaria barbata*) Modulates Apoptosis in Glioblastoma U87-MG Cancer Cells." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.
- Garcia, D. G.**, with **Oh, Y. M.** Presentation [virtual]. "On the Primary and Secondary Involutes of Curves in Minkowski Space." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.
- Garcia, D. G.** Poster [virtual]. "Involutes and Secondary Involutes of Space Curves in Minkowski Three-space." MAA Undergraduate Student Poster Session, Joint Mathematics Meetings, January 7-8, 2021.
- Green, J. M.**, **Palacios, G. E.**, **Reyes, M. R.**, & **Reyes, N. R.** (with **Bosman, A. M.**). Poster. "The Delta-unlinking Number of Algebraically Split Links." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.
- Green, J. M.**, **Reyes, M. R.**, **Reyes, N. R.**, & **Palacios-Worley, G. E.**, with **Bosman, A. M.** Presentation [virtual]. "On the Delta-unlinking Number of Algebraically Split Links." Mathematical Association of America NREUP 2021 Virtual Poster Session. September 17, 2021.
- Henson, S. M.** Plenary presentation [virtual]. "How We Know: A Tour Through the Power and Limits of Human Reasoning." EXSEED Summer Conference, Loma Linda University, Loma Linda, CA, June 22, 2021.
- Henson, S. M.** Presentation [virtual]. "Climate Change and Tipping Points for Seabird Colonies in the North American Pacific Northwest." Society of Mathematical Biology Annual Meeting, minisymposium on Ecological Models at the Interface of Empirical and Theoretical Research, UC Riverside, CA, June 16, 2021.
- Homan, J. R.**, Johnson, J., Rivera, E., & Wing, S. Poster. "Mutual Information of Short-Term Memory of Stellar Flares." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.
- Homan, J. R.**, with **Bosman, A. M.** Presentation [virtual]. "Strong Fusion Pretzel Links." Pi Mu Epsilon Annual Conference, Mathematical Association of America MathFest, August 4-7, 2021.
- Homan, J. R.** Presentation. "Information Horizon of Stellar Flares." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.
- Johnston, L. L.** Thesis defense. "Identifying Common and Persistent Misconceptions Held by Remedial Math Students." 2021 Honors Thesis Symposium, Andrews University, Berrien Springs, MI, April 16, 2021.
- Johnston, L. L.** Presentation. "Identifying Persistent Misconceptions Held by Remedial Math Students." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.
- Johnston, L. L.** Poster. "Identifying Common and Persistent Misconceptions Held by Remedial Math Students." J. N. Andrews Honors Poster Symposium, Andrews University, Berrien Springs, MI, March 5, 2021.

Kim, S. J. Thesis defense. "Variational AutoEncoders for Biosensor Data Augmentation." 2021 Honors Thesis Symposium, Andrews University, Berrien Springs, MI, April 16, 2021.

Kim, S. J. Presentation. "Variational AutoEncoders for Biosensor Data Augmentation." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.

Kim, S. J. Poster. "Variational AutoEncoders for Biosensor Data Augmentation." J. N. Andrews Honors Poster Symposium, Andrews University, Berrien Springs, MI, March 5, 2021.

Koliadko, N. L., Rogers, J. A. L., & Weldon, L. M. Poster. "Did a Class Activity Improve Exam Success with Linear Relationships?" Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.

Krzywon, Ł. J., & Oh, Y. M. Presentation [virtual]. "Recent Work on Riemannian Submanifolds with Torqued-vector Fields." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Lee, M. J., with Summerscales, R. L. Poster. "Application of Approximate Q-Learning to Simplified Macromanagement in StarCraft II." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.

Manrique, N., Jin, Y., Ferrer, K., Li, J., **Kordas, C.,** Seo, J., Han, S. B., Cha, J., **Kang, M. S.,** Uppala, P. T., & Wong, B. Y. Y. Presentation [virtual]. "Modulation of Apoptosis in Breast Cancer Cells MDA-MB-157, 93A, and 93B by Aqueous Extract of Chinese Medicinal Herb (*Scutellaria barbata*)." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Martin, W. J. Presentation. "An Information-theoretical Approach to Analyzing Magnetosphere-ionosphere Coupling Processes in Hybrid Simulations." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.

Martin, W. J., & Johnson, J. R. Presentation [virtual]. "An Information-theoretical Approach to Analyzing Magnetosphere-ionosphere Coupling Processes in Hybrid Simulations." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Monterrey, Y. D., with **Oh, Y. M.** Poster. [virtual]. "On the Evolutes of Rectifying Curves with Constant Curvature." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Monterrey, Y. D. Poster [virtual]. "On the Evolutes of Rectifying Curves with Constant Curvature." MAA Undergraduate Student Poster Session, Joint Mathematics Meetings, January 7-8, 2021.

Negrea, A., & **Bosman, A. M.** Presentation [virtual]. "Bounds on Solvable Snake Cube Puzzle." Mathematical Association of America MathFest, August 4-7, 2021.

Negrea, A. Thesis defense. "Computational Difficulty and Invariants of the Snake Cube Puzzle." 2021 Honors Thesis Symposium, Andrews University, Berrien Springs, MI, April 16, 2021.

Negrea, A. Presentation. "Computational Difficulty and Invariants of the Snake Cube Puzzle." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.

Negrea, A., with **Bosman, A. M.** Presentation [virtual]. "Computational Difficulty and Invariants of the Snake Cube Puzzle." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Negrea, A. Poster. "Computational Difficulty and Invariants of the Snake Cube Puzzle." J. N. Andrews Honors Poster Symposium, Andrews University, Berrien Springs, MI, March 5, 2021.

Nurhan, Y. I. Thesis defense. "The Effect of Synchronous Egg-laying on Gull Population Dynamics While Tracking the Egg-laying Order." 2021 Honors Thesis Symposium, Andrews University, Berrien Springs, MI, April 16, 2021.

Nurhan, Y. I. Presentation. "The Effect of Synchronous Egg-laying on Gull Population Dynamics While Tracking the Egg-laying Order." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.

Nurhan, Y. I., Johnson, J., **Homan, J. R.,** & Wing, S. Presentation [virtual]. "Role of Solar Minimum on Waiting Time Distributions Throughout the Heliosphere." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Nurhan, Y. I. Poster. "The Effect of Synchronous Egg-laying on Gull Population Dynamics While Tracking the Egg-laying Order." J. N. Andrews Honors Poster Symposium, Andrews University, Berrien Springs, MI, March 5, 2021.

Oh, Y. M. Poster. "Ricci Solitons on Riemannian Submanifolds with Special Vector Field." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.

Palacios, G. E., & **Homan, J. R.** Presentation [virtual]. "Tabulating Links Obtained by Strong Fusion." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Rivera, E. C., Johnson, J. R., **Homan, J. R.,** & Wing, S. Poster [virtual]. "A Thresholding Method Based on an Information Theoretical Approach to Distinguishing Stellar Flares." Michigan Academy of Science, Arts & Letters Annual Conference, Alma College and Andrews University, March 12, 2021.

Reyes, M. R., with **Green, J. M., Reyes, N. R., Palacios-Worley, G. E.,** & **Bosman, A. M.** Presentation [virtual]. "The Delta-unlinking Number of Algebraically Split Links." Young Mathematicians Conference, August 20-22, 2021.

Reyes, N. R., with **Green, J. M., Reyes, M. R., Palacios-Worley, G. E.,** & **Bosman, A. M.** Presentation [virtual]. "On the Delta-unlinking Number." Mathematical Association of America MathFest, August 4-7, 2021.

Rim, J. S., An, J. H., & Navia, B. A. Poster. "Variability of Phonotaxis and Selective Processing of its Underlying Neural Elements in the Female Cricket *Acheta Domesticus*." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.

Shepard, K. G. Presentation. "Determining the Origins of Helix Glitches in LIGO's H1 Detector." Undergraduate Research & Honors Scholars Symposium 2021, Andrews University, Berrien Springs, MI, March 26, 2021.

Wong, B. Y. Y., Manrique, N. P., Jin, Y., Ferrer, K. D., Li, J. D., **Kordas, C. B.,** Seo, J., Han, S. B., Cha, J., & **Kang, M. S.** Poster. "Chinese Medicinal Herb *Scutellaria Barbata* Modulates Apoptosis via Induction of Pro-apoptotic and Anti-apoptotic Proteins in MDA-MB-157, 93A, and 93B Breast Cancer Cells." Celebration of Research, Andrews University, Berrien Springs, MI, October 22, 2021.

Alumni News



Belinda Cheeseboro (2015 BS Physics/Mathematical Studies) (*left*) finished her PhD in Physics and Astronomy at West Virginia University in Morgantown. Congratulations, Dr. Cheeseboro! We're proud of you.

In 2022 **Laura (Nelson) Carroll** (2008 BS Mathematics Education; PME) (*right*) will begin her doctoral studies in Evaluation, Measurement, and Research at Western Michigan University. She completed her Master's degree in Educational Psychology in 2018 at Andrews University and currently works for Andrews as the data analyst for the Office of Institutional Effectiveness.

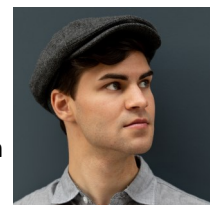


Keddy Emmanuel (2015 BSE Mechanical Engineering; Mathematical Studies) (*left*) is currently working as an engineering consultant with a firm called Microdesk, a technology consulting firm. In his spare time, he has founded a platform for Caribbean instrumentalists called Caribbean Cadence, which has a subsidiary podcast called *The Green Room* in which he talks with instrumentalists from across the Caribbean region and the world about their stories and their talent. Keddy also keeps up with his own music and is currently learning to play guitar as well as continuing to play bass as he did for DMC when he was here at Andrews.

Another of his creative ventures is his work with Iyanola Pictures—a film company started by his mother. Iyanola Pictures has a subsidiary podcast/Internet show called "Family Reflections" that speaks to social issues and experiences of people from all walks of life. He has also been helping with Iyanola's latest film, *Shantaye's World*, which is nearing the final iterations in post-production.

In addition, since its inception three years ago, he has served with Bridge, a ministry for SDA youth in the greater Boston area that is growing in impact. As if that isn't enough to keep him busy, Keddy has also published his first book, *George Street*, which is a series of interconnected fictional stories of people in a close-knit Caribbean community. It is available for purchase on Google Books and Amazon as well as in Barnes and Noble in print and as an audio book, read by Keddy himself.

Mykhaylo Malakhov (2020 BS Mathematics; J.N. Andrews Scholar; PME; Sigma Xi) (*right*) is currently enrolled in the Biostatistics PhD program at the University of Minnesota School of Public Health in Minneapolis. This year two of his papers were published, both describing research which began in a summer REU. The first article, "Management Efficacy in a Metapopulation Model of White-nose Syndrome," was published in *Natural Resource Modeling* and is available at <https://doi.org/10.1111/nrm.12304>. In this research Mykhaylo and his coauthors demonstrated how incorporating metapopulation dynamics into bat population management strategies can improve outcomes for bats affected with white-nose syndrome, a fungal disease threatening many hibernating bat species in North America with extinction. The other article, titled "Governance Structure Affects Transboundary Disease Management Under Alternative Objectives," has been published in the journal *BMC Public Health* at <https://doi.org/10.1186/s12889-021-11797-3>. Here Mykhaylo and his collaborators address a timely question: When an infectious disease crosses political boundaries, can it be better managed at a centralized or a decentralized level of government? Mykhaylo's interests have by now shifted from mathematical epidemiology to statistical genetics and genomics, but his PhD work remains motivated by the same desire to develop analytical and computational methods that will advance the understanding of disease and its treatment.



Brian Shockey (2016 BSE Mechanical Engineering; Mathematical Studies; PME) (*left*) graduated from Worcester Polytechnic Institute with an MS in Mechanical Engineering in 2020.

Jesse Snelling (2018 BS Physics; BS Mathematics; J. N. Andrews Honors Scholar; PME; Sigma Pi Sigma) (*right*) started working towards a PhD in physics at the University of Colorado Boulder in the fall of 2019. He married the love of his life, Emma, in the summer of 2020. As of fall 2021, he has finished his classwork and is poised to complete his intermediate Master's degree in early 2022. His area of interest is computational plasma physics, and his current research project is exploring space charge effects within nanoscale vacuum channel transistors with advisor John Cary. He has presented his work at several conferences, most recently at the American Physical Society DPP annual meeting.



Jonathan Wheeler (2016 BSE Electrical Engineering; BS Physics; Mathematical Studies; J. N. Andrews Scholar; PME; Sigma Pi Sigma; Sigma Xi) (*left*) had an article, "Optimizing Coherence Suppression in a Laser Broadened by Phase Modulation with Noise," accepted for publication in the *Journal of Lightwave Technology* in February 2021. You can read the article [online](#). He and his wife, **Mateja (Plantek)** (2014 BS Mathematics; BS Physics), still live in the Bay area as Jonathan completes his graduate work at Stanford University and Mateja is a new mother.

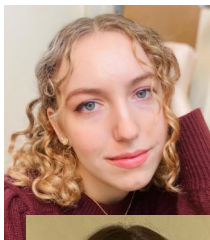
Mathematics Awards Ceremony—



The 2021 Mathematics Awards Ceremony was scheduled for April 30, but because of COVID protocols, instead of an in-person ceremony we taped the scholarship presentations (available for view at https://www.youtube.com/watch?v=ZTa_xkI9kHo). For the 46 class awards given, the professors taped a virtual presentation of the awards for their classes (<https://www.youtube.com/watch?v=sFcKEHrQpv8>).

Scholarship winners:

The recipient of **Harold Buhalts Boyd and Jean Stewart Boyd Endowed Scholarship** was **Autumn Bange** (senior Mathematics Education/Secondary Education; PME) (top left), honored for her academic excellence while working her way through school.



Noe Rivas (junior BS Mathematics) (right top) and **MinSeo Kang** (junior BS Mathematics/Premedical; PME) (right) shared the **Harold T. Jones Endowed Scholarship** for excellence in mathematics.



Lisa Johnston (senior BS Mathematics/BS Physics; J. N. Andrews Honors Scholar, PME; Sigma Pi Sigma) (left) and **Kara Shepard** (BS Physics/Mathematical Studies; PME; Sigma Pi Sigma) (left) received the **Edward J. Specht Endowed Scholarship** for excellence in mathematics and physics.



The **Louis Ulloth Endowed Scholarship** went to **Reise Campbell-Yoo** (senior BS Computer Science/BS Mathematics/BA Religion; J. N. Andrews Honors Scholar; PME) (right) for excellence in mathematics and the sciences and positive contribution to the department.



Daniel Arn (senior BS Computer Science/BS Mathematics, PME) (left) received the **Ernest L. and Keith G. Calkins Endowed Scholarship** as an alumni of the RESA Mathematics and Science program who has a high GPA in his mathematics major.

The final scholarship winner was **Eric Inae** (senior BS Computer Science/ BS Mathematics; J. N. Andrews Honors Scholar; PME), (right) who received the **Whitney Wang Watson Endowed Scholarship** for excellence in mathematics and commitment to serving God by helping others, easing suffering, and improving lives.



Facts Concerning the Fall 2021 Department of Mathematics Student Body

Major	Total	F	M	FR	SO	JR	SR	Dual Majors	Triple Majors	Other Majors
BS Data Science	8	4	4	1	2	0	5	2	0	1 Finance; 1 Spanish/Language, Literature, and Culture
BS Mathematics	21	6	15	1	3	7	10	11	1	4 Computer Science, 3 Music, 3 Physics, 3 Premedical, 2 Religion
BS Mathematics Education	2	2	0	0	1	0	1	2	0	2 Secondary Certification
Mathematical Studies	17	6	11	1	1	2	13	11	6	1 Biochemistry [ACS], 1 Chemistry [ACS], 10 Computer Science, 4 Engineering, 3 Physics, 1 Psychology, 1 Spanish Language, Literature & Culture
Mathematics Minor	16	7	9	1	2	6	7	2	0	1 Biochemistry, 2 Biology, 1 Chemistry, 3 Computer Science, 3 Elementary Ed, 4 Engineering, 1 Informatics, 1 Religion, 1 Spanish for Teaching, 1 Theology

Andrews University

Department of Mathematics

Programs

BS in Data Science
BS in Mathematics
BS in Mathematics Education
Mathematical Studies Major
Mathematics Minor
Mathematics Education Minor
Minor in Mathematics of
Economics and Finance

PME Michigan Gamma Chapter

*Daniel Arn, President
*Jeannelle Green, Vice President
*Noelle Koliadko, Secretary-Treasurer
*Dr. Joon Hyuk Kang, Advisor

eigen* Mathematics & Physics Club

*Jonathan Watson, Mathematics President
*Alexander Navarro, Physics President

Mission Statement

Through teaching, research, and service, the Department of Mathematics seeks to provide leadership by:

*Preparing a diverse student body with the mathematical understanding, problem-solving skills, and dispositions that enable career excellence;

*Increasing mathematical and scientific knowledge through publication and presentation and engaging undergraduates in research;

*Supporting the broader mathematics education community and mentoring others for generous service through a committed Christian life.

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Front row: Noelle Koliadko (BS Mathematics), Jeannelle Green (BS Mathematics/Premedical), Matthew Dulcich (BS Computer Science), Jessica Rim (BS Psychology/Mathematical Studies), Alexander Navarro (BS Physics/BS Mathematics).

Back Row: Caleb Jacobs (BSE Chemical Engineering/BS Math Studies), Ryutaro Jacobson (BSE Chemical Engineering), Autumn Bange (BS Mathematics Education), Joshua Dulcich (BS Computer Science/Mathematical Studies); Reise Campbell-Yoo (BS Computer Science/BS Mathematics/BA Religion), Samuel Clough (BSE Computer Engineering/Mathematical Studies/BS Computer Science); Grant Sajdak (BS Biochemistry/BS Mathematics).

Not pictured: Jonathan Burn (BSE Mechanical Engineering/BS Mathematics); Hannah Castillo (BS Chemistry [ACS]); Jazmyne Lavalas (BS Data Science; BA Spanish Language, Literature, & Culture); Patricia Kira Marsh (BS Data Science); Gabriel Palacios (BS Mathematics/BMUS Music Performance); Christian Sanchez (BS Computer Science).

Pi Mu Epsilon Induction

In a departure from its usual Thursday night inductions, the Michigan Gamma Chapter of Pi Mu Epsilon held its annual induction on Friday, March 19, during the time set aside for eigen*. Seventeen new members joined the society, and the attending members elected Daniel Arn as president and Jeannelle Green as vice president. The two picked Noelle Koliadko as their secretary-treasurer for the 2021-22 school year.

Semi-retirement of Dr. Shandelle Henson

Effective July 30, 2021, Dr. Shandelle Henson, Professor of Mathematics, entered semi-retirement. Twenty-one friends and colleagues joined her for a small outdoor celebration on Sunday, September 12, at St. Patrick's County Park, and over 54 former students, fellow teachers, and collaborators sent pictures and good wishes, which we made into a bound book for Dr. Henson to enjoy for years to come. (See the sampling of pictures.)

Dr. Henson will still be advising students' research, but she is stepping down from classroom teaching where she has been a well-loved teacher. Here are links to two YouTube videos in which students thanked Dr. Henson for her influence in their lives:

<https://www.youtube.com/watch?v=FR0wFny15zQ&feature=youtu.be>

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