The Magic of Mathematics:
It’s the Main Attraction!
by Penny Morris, Orlando LEC, et al.

The 44th Annual AMATYC Conference promises to capture the imagination at the “Happiest Place on Earth.” Disney’s Coronado Springs Resort, one of Walt Disney World®’s picturesque resorts is the host property for the 2018 “meeting of the mathematical minds.” This conference serves to feed your mind with ready-to-use and innovative teaching strategies to spark both the online and face-to-face classroom learning experience. The time is coming to rejuvenate for the upcoming term and place your bets on a sure winner by attending a gathering for those who are living and breathing the AMATYC mission: “To provide high quality professional development, to advocate and collaborate at all levels, and to build communities of learners for all involved in mathematics education in the first two years of college.” From opening day with wonderful keynote speakers; Chat & Chew opportunities; sessions on curriculum, distance learning, global mathematical awareness, mathematics history, classroom assessment, instructional technology, teacher preparation, and both general mathematics and intensive mathematics; to the closing session – with some wonderful networking and sharing venues in between – be part of the wonderful world of mathematics at a most magical place.

After feeding your mind, feel free to fuel your body with a wide variety of edible delights. Walt Disney World® offers many dining experiences. Disney’s Coronado Springs Resort has several restaurants and a food court; or hop the Disney bus to any of the other resorts, parks, or Disney Springs® for breakfast, lunch, dinner, or a light snack. Should you venture to neighboring Orlando, more dining options await. See a dinner show, or take a short trip to the beach for a snack and an eyeful of the beautiful landscape called Florida. Walt Disney World® is actually part of Lake Buena Vista, which stands for “Lake with the Good View”.

Once the Disney’s Coronado Springs Resort reservations are made, a packet will be sent explaining the free My Disney Experience® App which can be downloaded to allow for mak-

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AMATYC Project SLOPE Research Fellows Program
by Megan Breit-Goodwin, Project SLOPE PI

Fellows Program. The program will engage a pilot cohort of six mathematics faculty from associate degree granting institutions in the Scholarship of Teaching and Learning (SoTL). SoTL is scholarly inquiry by faculty into questions about their teaching and their students’ learning that is subjected to peer review and made public for others to build upon.

Project SLOPE Fellows will complete a SoTL project with the support of professional development and peer mentoring. Fellows will attend a summer workshop on SoTL in Portland, OR (June 13 – 15, 2019), and two consecutive AMATYC national conferences (November 14 – 17, 2019 in Milwaukee, WI and November 12 – 15, 2020 in Spokane, WA).

Project SLOPE will provide conference registration and travel funds for the 2019 summer workshop and 2019 AMATYC Conference. Participant institutions are expected to cover conference registration and travel funds for the 2020 AMATYC conference. Project SLOPE Fellows will receive a $1,500 stipend for their efforts.

Mathematics faculty at two-year colleges, community colleges, technical colleges, or other associate degree granting institutions are invited to apply for the AMATYC Project SLOPE Research Fellows Program. Fellows must maintain active AMATYC membership throughout the duration of the program and attend all Project SLOPE events. Project SLOPE funding is limited to US Residents. Non-US Residents are invited to apply, but cannot receive funding for travel nor stipend support through Project SLOPE if selected for the program.

The application period for the Project SLOPE Research Fellows Program is October 1 - November 30, 2018. Please visit the Project SLOPE website for more information: www.amatyc.org/ProjectSLOPE.

Questions and inquiries about the AMATYC Project SLOPE Research Fellows Program should be directed to Principal Investigator (PI) Megan Breit-Goodwin at Megan.Breit-Goodwin@anokaramsey.edu.
President’s Message

Data Science and Analytics:
Two-Year Colleges are Getting Involved

Jim Ham
Delta College • University Center, MI

Graduating in 2015, my son, a sociology major, took a job in the alumni relations office of a small college. Among his many responsibilities, he was asked to pore over large alumni databases to investigate trends in annual giving. Merging data from multiple sources and executing complex queries on large data sets required knowledge and skills he did not learn in his undergraduate education. As a result, he had to consult books and online resources to learn R, a programming language and software environment used to navigate large data sets and answer important empirical questions. [1]

The study of big data lies within the field of Data Science and Analytics (DSA). DSA is an academic discipline focused on the use of statistical, mathematical, and computational tools to construct meaning from big data. [2] This includes data acquisition and management, writing code and using software to analyze big data, and interpreting and communicating the results of such analysis.

The demand for employees who have some knowledge of data science to work with big data can’t be overstated. For example, an October 2013 edition of MIT’s journal, Technology Review, notes “big data offers unprecedented insight, improved decision-making, and untapped sources of profit” such that its use is “revolutionizing commerce in the 21st century.” [3] Thus, my son’s experience is not uncommon.

Individuals whose primary job responsibilities are outside the field of DSA, yet who need to use data science processes and tools to investigate big data are called citizen data scientists. [4] A smaller group of students who have interest and aptitude in statistics and computing are ideal candidates to major in DSA and become data scientists. Whether our students’ future careers will require them to be citizen data scientists like my son, or data scientists, they will need DSA-related coursework in the first two years of college.

To meet the demand for employees knowledgeable in data science, the number of degree programs in the discipline of DSA has grown exponentially over the past decade. In the U.S., there are over 50 undergraduate DSA programs, more than 200 DSA Master’s degree programs, and at least 30 doctoral programs. [5] The first undergraduate cohorts in DSA and related majors are now beginning to earn baccalaureate degrees. [6] Yet despite the growing number of DSA programs offered at four-year colleges and universities, there are only about 13 degree or certificate programs at two-year colleges nationwide. [7]

Only about 6% of advertised DSA jobs require a Master’s degree or higher in data science. [8] Indeed, much of the work done by data science companies and government agencies is done in teams, and not everyone on the team needs graduate level preparation. Since many companies do not need the skills and expertise of DSA advanced-degree holders and do not have the resources to pay the six-figure salaries they demand, an opportunity exists for two-year colleges and students.

There are at least five student cohorts that could benefit from DSA courses and programs at the two-year college:

1. College graduates who want to earn a DSA credential to become more marketable in the workforce;
2. College graduates who want to receive training on a specific data science software program such as R, RStudio, Excel, Python, Tableau, SQL or others;
3. Transfer students who want to begin a 4-year DSA degree at a two-year college and finish at a 4-year college;
4. Current two-year college students who are interested in a DSA-related field and want to take a course in data science as an elective or to satisfy a quantitative reasoning graduation requirement.
5. Two-year college students who wish to earn a DSA two-year degree and enter the workforce directly.

Recognizing the role two-year colleges and faculty must play in educating students on data science, national agencies are currently funding research grants to support DSA curriculum and program development. For example, in May 2018 the National Science Foundation and the American Statistical Association sponsored a summit of two-year college faculty, four-year college faculty who lead established DSA programs, data scientists from both the public and private sectors, and researchers. Its goals included assembling resources for two-year colleges interested in creating a DSA program as well as developing guidelines and learning outcomes for such academic programs. [9]

National initiatives such as this NSF workshop will continue. Such funding is important to support the need for two-year faculty professional development in DSA.

What is AMATYC’s role?

The 2018 AMATYC conference this November will highlight some of the work of AMATYC members in the DSA field. Here is a sample of the DSA-related titles on the 2018 conference program:

• Growing Data Science Courses and Programs – The Need to Collaborate
• Data Science 101: The Main Syllabus
• Developing a Data Analytics Certificate for Working Professionals
• Data Science Statistics Pathways: What is Needed to Enter the Major?
• Using R in Upper-Level Statistics Courses

In addition, under the leadership of Brian Kotz of Montgomery College, AMATYC has a new Data Science Subcommittee of the Statistics Committee. While the subcommittee is new, they have created a valuable resource page. [10] This subcommittee is welcoming new members and will meet this fall at the AMATYC annual conference in Orlando. As with all AMATYC committees, membership in the subcommittee is free and puts members in connection with colleagues across the country to address issues focused on a single theme. Please join the subcommittee and the discussion about how to bring data science and analytics and big data to more students in the first two years of college.

Continued on page 5
Do You Want to be on the AMATYC Board?
by Jane Tanner, AMATYC Past President

Even though the 2018-2019 AMATYC Board has just started its term, the process has already begun to select AMATYC officers for 2020-2021. The names of the next Nominating Committee were announced at the Delegate Assembly in San Diego. This important committee consists of twelve AMATYC members who represent a cross-section of AMATYC’s delegates, members, and leadership, with at least one member from each region. These members will recommend a slate of officers to the current Executive Board one year from now. The committee will meet in Orlando in November to discuss possible nominees.

This is the first of a series of articles prior to the 2019 elections when the president-elect, secretary, treasurer and eight regional vice presidents will be elected. The next newsletter will focus on the duties of regional vice presidents. If you have questions, or wish to recommend yourself or someone else for an office, please contact one of the members of the Nominating Committee listed below. Now is the right time for you to take an active role in AMATYC’s future!

Nominating Committee Chair
Jane Tanner (tanner@sunygcc.edu) AMATYC Past President

Nominating Committee Members
Members at-large:
Nicole Lang (nlang@nhcc.edu)
Barbara Letherer (bletherer@ccbc.edu)
Chris Oehrlein (coehrlein@oacc.edu)

Regional representatives:
Northeast - Crystal Wiggins (cwiggins@nwcc.commnet.edu)
Mid-Atlantic - Matthew Pragel (mепragel@hacc.edu)
Southeast - Eddie Britt (eddie.britt@collin.edu)
Midwest - Steve Kilowit (skilowit@prairiestate.edu)
Central - Curtis Mitchell (curtis.mitchell@kirkwood.edu)
Southwest - Jennifer Travis (jennifer.travis@lonestar.edu)
Northwest - Timothy Lackner (tlackner@csn.edu)
West - Froozan Afiat (froozan.afiat@csn.edu)

Conference Coordinator
Position Available
by Anne Dudley, Executive Director

Are you looking for ways to become more involved with AMATYC? Do you enjoy organizing meetings or conferences? Do you love a chance to work with others? AMATYC is looking for its next Conference Coordinator. This person must be energetic, organized and self-motivated. The new Conference Coordinator will ‘shadow’ Keven Dockter, AMATYC’s current Conference Coordinator and then take over the position for a 5-year term.

The Conference Coordinator (CC) oversees and manages all aspects of the annual AMATYC conference. The CC chairs the conference committee, composed of individuals responsible for the program, exhibits, advertising, publications and local arrangements. The CC is the budget manager for most conference expenses.

This is a supported position that requires year-round work, often many hours per week. Extended travel time is required to participate in Executive Board meetings and, with the assistance of a professional conference planning organization, conduct visits to potential, current, and future conference sites. Contract negotiation and monitoring is also required related to hotels, convention centers, audio visual and exhibitor companies.

Candidates must have excellent organizational skills including attention to details, written and verbal communication skills, budget management skills, and the ability to work collegially with leaders in the organization and in the hotel and conference industries. Significant conference planning experience and knowledge of AMATYC is required.

Minimum Qualifications:
♦ Be a self-starter with good organizational and communication skills, and the ability to facilitate the efforts of others;
♦ Show evidence of budget management;
♦ Have conference planning experience;
♦ Have some supervisory skills;
♦ Be able to travel regularly and maintain a flexible schedule;
♦ Be able to work without direction and possess good interpersonal skills;
♦ Be able to communicate effectively orally and in writing;
♦ Be conversant about AMATYC’s mission, goals, strategic plan, and activities; and
♦ Be knowledgeable about mathematics education at two-year colleges and have a passion for mathematics education improvement;

The new Conference Coordinator will begin duties at this fall’s conference by shadowing the current CC. A phase-in period of 1-2 years is planned during which the new CC will gradually assume responsibilities.

Honoring Teachers
by Kathryn Kozak, AMATYC President-Elect

As recent events have outlined, the profession of teaching is an honorable one that needs to be recognized. One way to show the respect of teaching is to award excellent teachers.

The Teaching Excellence Award is AMATYC’s way of honoring the exceptional teachers who teach mathematics in the first two years of college. Since 1997, AMATYC has awarded the Teaching Excellence Award to 68 outstanding teachers. These teachers have all received the praise they deserve because someone took the time to nominate them for the award. Being nominated for the award is in itself an honor and demonstrates the admiration for the teaching profession.

Please take the time to nominate someone who you know is an excellent teacher. You must surely know a teacher who is effective in the classroom, supports their students to the highest level, and interacts well with their colleagues. They must also be involved in the mathematics profession to improve themselves and teaching in general as well as provide deserving service to their college. To begin nominating, simply talk to whoever you wish to nominate. You may even nominate yourself.

There is a committee whose members have been elected from each region of AMATYC and an at-large member who has been appointed to represent adjuncts. They look forward to the reward of reading all the incredible nominations. This is actually an incredible process since the committee is able to read about all the excellent teachers that are out there. However, they cannot read the nominations without nominations being submitted.

Continued on page 7
AMATYC Traveling Workshops - Bringing Ideas to You!
by Mari Menard, Traveling Workshop Coordinator

Great news; AMATYC will be updating the Traveling Workshop webpage soon. The updates will include revised Traveling Workshop strands, easier navigation, and a new Traveling Workshop flyer. Summer is the perfect time to plan and even host professional development at your institution. An AMATYC Traveling Workshop is the way to go as it is both cost effective and based on your needs. Additionally, please consider completing the form to become a Traveling Workshop Facilitator. Facilitators can share their knowledge of both subject matter and teaching while facilitating a Traveling Workshop.

More information can be found on the Traveling Workshop webpage and the Traveling Workshop Facilitator Form is currently found under the FAQ tab.

Please visit the Traveling Workshop webpage at www.amatyc.org/TravelingWorkshops or email any questions to AMATYC Traveling Workshop Coordinator Mari Menard at tw@amatyc.org.

Collaboration Corner
by Jon Oaks, Midwest Vice President

The Joint Committee on Women in the Mathematical Sciences (JCW), was founded in 1971 as a committee of the American Mathematical Society (AMS), and is now a joint committee of eight mathematical and statistical societies, including AMATYC, which was asked to join in 2012. Currently Nancy Sattler and Marilyn Mays are AMATYC’s representatives on the JCW. The JCW addresses issues affecting women mathematicians by fostering discussion across the different societies and forwarding recommended policies to the societies.

Some ways AMATYC collaborates with the JCW are:
- Sharing its Policy on a Welcoming Environment with the JCW
- Promoting its webinars to the JCW
- Receiving endorsement of the JCW for an AMATYC Conference panel discussion
- Compiling resources available on the JCW website
- Partnering with the JCW at the Joint Math Meetings

The collaboration between AMATYC and the JCW offers so much more than what is listed here. AMATYC members are encouraged to visit the JCW website at https://jcwmath.wordpress.com/ to read more about the mission and history of JCW, as well as take advantage of all the available resources to use with your students and your department. You are also encouraged to like the JCW on Facebook at www.facebook.com/JCWMath/ to stay up-to-date on the latest news.

Changes to Statistics Courses
by Helen Burn, Kate Kozak, and Ambika Silva

The StatPREP grant (National Science Foundation grant DUE-1626337) goals are to provide faculty professional development around using data-centered methods and pedagogies in introductory statistics courses. Although the world is awash in data, some college faculty members continue to teach statistics using traditional methods and have yet to find ways to incorporate or infuse data into their classes. The challenge can be acute for faculty who are new to teaching statistics and who haven’t taken a statistics course and feel uncomfortable teaching the course. The materials developed by the StatPREP grant can help all statistics teachers.

Why is there an increase in students taking statistics? The main reasons are that more programs of study require an introductory statistics course and students are realizing that statistics can help them in the future studies. Moreover, introductory statistics course enrollments will likely grow in states with legislative mandates that limit or eliminate mathematics remediation. In California, community college students in the past have had access to transfer-level courses only if they were able to demonstrate through standardized test scores and/or high school GPA that they were highly likely to be successful in that course. This policy changed under new legislation passed in 2017 that must be implemented by all community colleges by fall 2019. Under AB705, the burden of proof shifts to community colleges to demonstrate that students should not be in a transfer-level course. If a college is unable to show that a student is highly unlikely to succeed in a transfer level math or English, the college is obliged to place the student into a transferable mathematics course. Also, AB705 requires that placement policies give students the best possible chance of completing transfer-level English and math within a year. This means that it is very likely that many community college students will be taking transferable statistics that would not have had the opportunity to take statistics in the past. To enhance student achievement in statistics, College of the Canyons in Santa Clarita, CA, formed a regional hub for the StatPREP grant to provide faculty professional development in teaching an introductory statistics course.

While legislative pressures focus on course completion, it is important to keep student learning at the forefront of discussions around introductory statistics. In Washington, introductory statistics enrollments in two-year colleges in the state grew by 40% since 2013, making the course the most heavily enrolled of any introductory college mathematics course offered in the two-year college system (about 12,900 in 2016-17). However, an analysis completed as part of Washington Math Pathways to Completion (MPC) project revealed wide variation in student learning outcomes for introductory statistics in the state’s two-year colleges particularly around the treatment of experimental design, probability, and inferential statistics. This variation resulted in uneven transfer and applicability of introductory statistics to the state’s baccalaureate granting institutions. To fix this problem, the MPC leadership team hosted several live and online convenings of faculty who teach statistics in two- and four-year colleges and developed content standards for introductory statistics courses. The standards clarify statewide expectations for the course and ease course transfer and applicability while maintaining the autonomy of two-year colleges in the state to develop local student learning outcomes for the course. To further enhance student learning in introductory statistics in the state, Highline College, located in the Seattle area, was selected to be a regional hub for the StatPREP workshops to provide faculty professional development to further enhance student learning in introductory statistics.

No matter where you teach and what changes are taking place in your state concerning statistics courses, more students are enrolling in statistics courses all over the nation. StatPREP has materials that can help you teach them. In addition, there are plans for more workshops next summer in Connecticut, DC, Texas, and Washington state. StatPREP also offers webinars during the fall and spring semesters. Material to help you teach, links to past and future webinars, and information concerning future workshops are available at http://statprep.org/.

AMATYC News 4
Innovative Teaching and Learning Committe (ITLC)  
by Dan Petrak, Chair

One of the highlights of the 2018 AMATYC Annual Conference in Orlando is the Friday night Ignite event. The ITLC is once again looking forward to hosting this fun and fast-paced experience where slides are automatically advanced every 15 seconds and speakers have exactly five minutes to share their passion! Please join us at the conference or join us via Facebook Live through the AMATYC Facebook page. The session will be Friday, November 16, 6:00 pm - 8:00 pm (EST), so put it on your calendar today. If you are interested in presenting, please reach out to Fred Feldon at ffeldon@coastline.edu.

Whether you are attending the conference or not this fall, you are invited to engage in relevant conversations about teaching and learning right now by joining the ITLC Google Group. Once you request to join the group by going directly to https://groups.google.com/d/forum/amatyc-itlc, you can interact with other ITLC members about a variety of topics including online teaching, open educational resources, student engagement or any other topic you want to pose to the group. The ITLC has been charged with making revisions to the Position Statement on the Use of Technology in Teaching and Learning College Mathematics in the First Two Years of College. The sub-committee started meeting this summer and the drafts are posted on the ITLC Google Page. The drafts can be viewed and commented on there.

Feel free to contact Dan Petrak at dgpetrak@dmacc.edu with any questions or ideas for the committee.

Grants Update  
by Dennis Ebersole, Grants Coordinator

AMATYC is providing support for two current grants, Project SLOPE and StatPREP. Project SLOPE is helping college faculty to use classroom research teachers of statistics, while StatPREP focuses on professional development opportunities for teachers of statistics. Ann Sitomer has joined the team writing a large grant to provide professional development to assist instructors to implement IMPACT in the first two years. The group hopes to have a first draft completed by the end of their five-day working session in July.

Grant Writing Tip #7: Before writing your grant, research what others have done that is similar to what you are proposing to do. You want to show that there is research indicating what you propose will work and how what you propose is adding to the knowledge base in this area. Previous grant writing tips can be found in earlier issues of the AMATYC News.

The Ripple Effect Begins: Are You Ready to Make an IMPACT?  
by Julie Phelps, Chair

The Mathematics Standards Committee is extremely proud to announce that the Executive Summary and the final copy of AMATYC’s newest document, IMPACT: Improving Mathematical Prowess And College Teaching has been uploaded to the AMATYC website, www.amatyc.org/IMPACT. IMPACT’s official release date for the guide will be at the 2018 AMATYC Annual Conference in Orlando this November! IMPACT is a guide to the AMATYC standards and discusses how to have an IMPACT on students, faculty, departments, institutions, states and the nation. Opportunities to become actively involved with this work are as follows:

To continue making an impact, read the document, apply it to your own role in mathematics education, and join AMATYC’s Standards Committee. To join this committee, go to the AMATYC website and sign-in, click on Manage Profile, click on Groups, in the Community section, click on the Mathematics Standards (IMPACT) group, then click Join Group on the IMPACT group page. By joining the committee you can choose to be part of creating digital products for IMPACT Live!, the online component of IMPACT, and promoting AMATYC’s standards. As a committee member you may choose to be involved by helping:

1) to establish and implement a marketing campaign including but not limited to a series of regularized activities to promote widespread implementation of the standards in the first two years of college mathematics,
2) to establish and implement the web presence for the standards,
3) to submit articles centered on the standards for the AMATYC News and the MathAMATYC Educator at least once a year,
4) to establish and implement a process of regular review of the standards in the same manner as the position statements which are reviewed regularly,
5) to ensure consistency among the standards and other AMATYC documents, and
6) promote the standards beyond AMATYC members.

The membership of the committee is open to the AMATYC community.

For more information contact committee chair Julie Phelps at jphelps@valenciacollege.edu or the digital coordinator for Mathematics Standards Evan Evans at eevans@frederick.edu

“You think you’re just a drop in the ocean...but look at the ripple effect one drop can make!” ~Anonymous

President’s Message, Cont’d from page 2
[1] www.r-project.org/
Mini Sessions
by Judy Williams, AMATYC Program Coordinator

The AMATYC 2018 conference will serve as the venue for the premier of 25-minute mini sessions on Thursday, November 15, 11:30 am - 11:55 am and 12:00 pm - 12:25 pm, and then again on Friday, November 16, 2:00 pm - 2:25 pm and 2:30 pm - 2:55 pm. The topics range from persistence or data science to which books on the best-seller lists include math or how to create living histograms with your students.

Look for session numbers such as S024A and S025B. These will be in the same room with a short break between speakers. You may stay for both talks or change rooms between speakers. This also provides an opportunity for a quick “lunch break” on Thursday rather than missing or arriving late to a longer session.

Chat & Chew: Episode 2
by Honey Kirk, AMATYC Assistant Conference Coordinator

After a successful first run in San Diego, the Chat & Chew series brings its second episode to Disney’s Coronado Springs on Friday, November 16, at 8:00 am. This is your opportunity to join three different table discussions while you enjoy a complimentary pastry from AMATYC Corporate Partners, Hawkes Learning and McGraw-Hill Education. Every 15 minutes, discussions around each table, led by a facilitator, will begin. Included in this hour are exciting topics such as “Extra Credit - What Is It Good For?,” “Pi Day: Past, Present, and Future,” “If You Organized the AMATYC Conference,” “Engaging Minorities in Math,” and “You Really Want to Come to Milwaukee.” Bring the beverage of your choice and join this part of the main attraction.

Poster Session: Always a Main Attraction
by Honey Kirk, AMATYC Assistant Conference Coordinator

Be sure to add the Poster Session to your personal schedule on the conference app for Friday, November 16th at Disney’s Coronado Springs Resort, Lake Buena Vista, FL, from 2:00 - 4:00 pm. Of this year’s 51 posters, 23 will be presented by our own AMATYC Project ACCESS fellows showing their work on projects related to their teaching careers. Additionally there will be such topics as collaborative statistics, open educational resources, corequisite courses, math art using Desmos, the Office Hour Initiative, Disney bracketology, game-based learning, growth mindset, reflective journaling, mathematics across the campus, goal setting, and a global comparison of Mediterranean diets versus American diet. Browsing hours will begin at 11:00 am Friday but the presenters will only be in attendance during the scheduled session.

Webinar: Conference 101 — Previewing the Main Attraction in Orlando
by the AMATYC Conference Committee

Get a head start on planning for this fall’s AMATYC Conference in Orlando. If this is your first AMATYC conference, are you wondering what it will be like? Whether this is your first conference or your twenty-first, this webinar is for you! Learn the ins and outs of the AMATYC conference from experienced participants and conference committee members. What is new this year? How can you plan ahead to wisely make the best use of your time? What can you do in the evenings when the educational sessions have concluded? Look for more information in a future email about the date and time.

Conference Tidbits!
by Keven Dockter, Conference Coordinator

In this and the next AMATYC News, the goal is to provide a little information on how you can extend your experience beyond the outstanding education sessions that the AMATYC conference offers.

After a day of learning new ideas, meeting new people, and becoming excited about what you can bring back to your classroom, where should you go to continue discussing everything with your friends? How about Disney Springs®? Head over to one of the conveniently located bus stops and take Disney transportation to Disney Springs®. After a short bus ride, you will be at a one-of-a-kind retail, dining, and entertainment district located in the heart of the Walt Disney World® Resort. It is home to a collection of more than 180 shops, entertainment venues, and restaurants, including top-name retail brands, specialty boutiques, and dining experiences created by award-winning chefs. A few of the dining establishments are the Wolfgang Puck Bar & Grill, House of Blues, The BOATHOUSE, Splitsville Dining Room, T-REX, Maria & Enzo’s Ristorante, The Edison, and a personal favorite, Ghirardelli Ice Cream and Chocolate Shop. It is a perfect place to connect with your friends and relax.

No park entrance ticket is necessary to visit Disney Springs®.

The AMATYC News is the official newsletter of the American Mathematical Association of Two-Year Colleges and is published four times per year in January, April, August, and October. Your articles, announcements, comments, and letters to the Editor are welcome. Submit all materials by November 25, February 25, June 1, and August 15 for the respective issues.

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AMATYC News 6
Why, Not What: Critical Thinking for Exploration

Why study mathematics, advanced or otherwise? Join the conversation at this year's conference on Thursday, November 15, 9:10 am – 10:00 am to find answers to this question. Tim Adams, an engineer with a specialty in quantitative Reliability and Risk, and Joshua Santora, an educator from NASA's Kennedy Space Center, provide their perspective on the need for today's students to be problem solvers and critical thinkers: skills founded and grounded in the study of mathematics.

Joshua has two degrees in Math Education from the University of Central Florida. He specializes in turning complex and technical information into digestible and captivating fuel for audiences of all ages. In the decade he's been working for NASA, his vast communication experience includes social media, distance learning, content development, internal communication, launch commentary, and classroom instruction. He remains committed to engaging students and equipping teachers with the world class, unique work of NASA.

Tim's formal education is in Mathematics, Competency-Based Education, and Management from Trine University, University of Oklahoma, and University of Houston. He is a Certified Reliability Engineer that forecasts the probability of mission success – and he is the founder and technical editor of the "KSC Reliability" website. Prior to NASA, he taught Mathematics at the secondary education and two-year and four-year college levels – and was inducted into Phi Delta Kappa and Pi Mu Epsilon.

Future AMATYC Conferences

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<th>Year</th>
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<th>Dates</th>
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<td>2018</td>
<td>Orlando, FL</td>
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For additional information, contact the AMATYC Office at amatyc@amatyc.org or 901.333.5643.
We Know You Like Numbers!
by Rikki Blair and Ted Coe

The CBMS 2015 National Survey of Mathematics Departments is now available online!

Every five years, the Conference Board of Mathematical Sciences (CBMS) sponsors a national survey that collects data about curriculum, pedagogy, enrollment levels, graduates, and faculty in undergraduate mathematical sciences departments in US two-year colleges and four-year colleges and universities.

The final documents, all tables and chapters, are available at www.ams.org/profession/data/cbms-survey/cbms2015.

What are some Highlights of the data from CBMS2015?

Precalculus mathematics enrollments at public two-year institutions plummeted between fall 2010 and fall 2015.

• While overall mathematics and statistics enrollments in two-year institutions decreased 5% from 2,105,000 to 2,012,000 students, between fall 2010 and fall 2015 there was a 32% decrease in precollege mathematics enrollments (1,150,000 in 2010, compared with 782,000 in 2015). Precalculus level courses include Arithmetic & Basic Mathematics, Pre-Algebra, Elementary Algebra, Intermediate Algebra, and Geometry. See Tables TYE.2, 3 and 4 in Chapter 6.

• Within precollege level mathematics courses, enrollments in Arithmetic and Basic Mathematics decreased 52%, Pre-algebra decreased 44%, Elementary Algebra decreased 35% and Intermediate Algebra decreased 13%. See Table TYE.3 in Chapter 6.

• For fall 2015, mathematics departments at four-year colleges and universities reported an estimated 253,000 enrollments in precollege level mathematics courses, a 21% increase from 2010 to 2015. During this same period, total enrollments in mathematics courses at these institutions grew by only 12%. See Table E.2 in Chapter 3.

Statistics/Probability and Precalculus level enrollments in two-year colleges increased dramatically between fall 2010 and fall 2015.

• Between fall 2010 and fall 2016 enrollments in introductory statistics and probability increased by 104% to a total of 280,000 students. During the same period, enrollments in introductory level precalculus courses, such as College Algebra, Trigonometry and Precalculus, grew by roughly 21%. See Table TYE.4 in Chapter 6.

Mathematics Pathways at two-year colleges: If your institution doesn’t offer a Pathways course or sequence, your college is now in the minority.

• In fall 2015, 58% of two-year colleges reported having implemented a Pathways course sequence, enrolling a total of 192,000 students. See Table TYE.11 in Chapter 6.

• Estimated enrollments in Pathways courses were Foundations (76,338 students), Quantitative Reasoning/Literacy (45,203 students), Statistics (56,342 students), and Other (14,631 students). See Table TYE.11 in Chapter 6.

Detailed data on these issues and others, including dual enrollment and distance learning, are available in the survey. Be sure to look at the tables in Chapters 6: Two-Year Enrollment, Course Offerings, and Instructional Practices and Chapter 7: Two-Year College Mathematics Program Faculty and Program Administration. There you will find a great deal of information and data presenting trends that could be valuable to your department and college in course and program planning and design.

Go to www.ams.org/profession/data/cbms-survey/cbms2015 today and download the complete document, a specific chapter, or a specific table of CBMS2015.

If you have any questions about the 2015 CBMS Survey, please contact Richelle (Rikki) Blair at Richelle.blair@sbcglobal.net.

Magic of Mathematics, Cont’d from page 1

…and dinner plans, getting smart maps for the Theme Parks, finding show times, and getting a FastPass for park attractions. It is not really “a small world after all.” Walt Disney World® covers 50 square miles; it rivals the size of San Francisco. Just a little tidbit while visiting the Animal Kingdom: any beverage can not have a plastic straw or a lid. This is a precaution for the animals.

Need some other ideas for your free time? Visit the Baja Hospitality Room. The Local Events Committee will have some intriguing ideas to share. There will be games, puzzles, and refreshments; of course it is a fantastic place to visit with old friends and make new ones. Some of the “locals” have secrets to share about area restaurants, attractions, and entertainment venues. Perhaps hiking, biking, or kayaking is appealing; there are places nearby to accommodate. DisneyTV is also available while you are taking a break so you can keep up with activities on the entire property.

By the way, the Orlando service project is A Gift For Teaching (AGFT). AGFT is Central Florida’s primary provider of free school supplies to teachers for their students in need, enabling them to succeed in school and life.

A nonprofit organization that serving schools in Orange and Osceola counties, AGFT has distributed nearly $120 million worth of school supplies - including essential classroom tools such as pencils, notebooks, glue, backpacks, art supplies and books - to local students in need since 1998.

A collection box for the donation of notebooks, paper, pencils, pens, folders, spirals, binders, markers, crayons, or gift cards will be located in the hospitality room.

Join the fun. May the Main Attraction bring magic to your life.
Co-Requisite Workshop at Lone Star College
by Nathalie M. Vega-Rhodes

The State of Texas recently passed a House Bill requiring a certain percentage of underprepared students enrolled in developmental classes must enroll in co-requisite courses. To assist in preparation and implementation, Lone Star College - Kingwood was awarded funding for an AMATYC Traveling Workshop. Andrea Hendricks from Perimeter College at Georgia State University spoke about her college’s experience with implementing co-requisites and subsequent developments.

In attendance were Lone Star College faculty, administration, advisors, and learning support staff, who were grateful for the opportunity and left with much to reflect on: initial challenges and strategies for overcoming those challenges, thoughts on administrative course items such as grading, and a list of questions to ponder while building campus-specific co-requisite courses.

In addition to Andrea’s stellar presentation, a shared folder containing myriad co-requisite resources was provided to attendees. Lone Star College - Kingwood remains appreciative for both AMATYC’s generosity in making this experience possible as well as Andrea’s willingness to share her experiences. Her knowledge and resources will continue to be valuable assets throughout the implementation of the corequisite model.

ArizMATYC Traveling Workshop

The spring 2018 ArizMATYC conference was preceded by an Inquiry-Based Learning (IBL) workshop on Thursday, April 5th in Tucson, AZ. The Pre-Conference IBL Workshop was funded through grants from IBL NSF Product, Hispanic Serving Institution (HSI) STEM, and AMATYC Traveling Workshops. These funds enabled Danielle Champney, of Cal Poly San Luis Obispo, and Patrick Rault, of the University of Arizona, to spend the day sharing their combined 23 years of experience with inquiry-based instruction.

The half-day workshop covered topics from basic definitions to discussion and analysis of videos and course materials, incorporating activities that modeled the collaboration, and deep engagement that are cornerstones of inquiry-based learning. Attendees raved, “Stellar job! I’m excited to try something new!”

This exceptional professional development, which conveniently came to our institution, was a fantastic way to ignite faculty members’ ambitions to try something new in the classroom. It also saved the expense of sending each of the participants to a distant conference.
Student Mathematics League  
by Steve Hundert, Coordinator

Both rounds of the 2017-2018 Student Mathematics League competition have been completed and the final results are in.

**Final Team Results:**
1. West Valley College, CA  328.5 points  
2. Los Angeles City College, CA  277.5 points  
3. Schoolcraft College, MI  276.5 points  
4. East Los Angeles College, CA  265.5 points  
5. College of San Mateo, CA  256.5 points  
6. Brookdale CC, NJ  256.0 points  
7. Berkeley City College, CA  238.5 points  
(tie) Bellevue College, WA  214.0 points  
9. El Camino College, CA  212.5 points  
10. Laney College, CA  185.5 points

**Final Individual Results:**
1. Ajay Arora, Schoolcraft College, MI  77.5 points  
2. Edward Jin, Los Angeles City College, CA  72.5 points  
3. Shual Xue, College of San Mateo, CA  70.0 points  
4. Isaac Hellerman, Howard CC, MD  69.0 points  
5. David Cheng, Bellevue College, WA  68.0 points  
6. Austin Lei, West Valley College, CA  67.5 points  
7. Vihan Wu, Brookdale CC, NJ  64.0 points  
8. Eva Quitman, Montgomery College, MD  63.5 points  
9. Tiffany Huang, West Valley College, CA  62.5 points  
(tie) Freya Edholm, College of San Mateo, CA  62.5 points

**Top Schools and Students by Region:**

- **Northeast:** Monroe CC, NY  
  Steven Oslan, Middlesex CC, MA
- **Mid-Atlantic:** Brookdale CC, NJ  
  Isaac Hillerman, Howard CC, MD
- **Southeast:** Indian River State College FL  
  Callie Zheng, Indian River State College, FL
- **Midwest:** Schoolcraft College, MI  
  Ajay Arora, Schoolcraft College, MI

A very grateful thank you to all of the moderators who give the exams, grade them, and post the grades on the scoreboard. Also thanks to George Hurlburt who runs the website and scoreboard, TJ Duda and the test development team, Randy Schwartz for supplying the short answers posted on the website and the AMATYC Office.

If your school does not currently participate in the SML, why not? You can read about the SML at www.amatyc.org/StudentMathLeague or email stevenh@csmd.edu with any questions. Don't forget to register your school for the 2018-2019 competition through the AMATYC SML website.

See you in the Magic Kingdom! And look for the time and place for the ultra competitive Faculty Mathematics League Competition.

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**Your Shopping at amazon.com Can Help the AMATYC Foundation Help You!**  
by Jane D. Tanner, AMATYC Past President and Foundation Chair

Did you know that you can make a charitable contribution, with no direct cost to yourself, by simply changing how you order everyday online items on Amazon? Instead of going to the default Amazon website go to https://Smile.Amazon.com and choose American Mathematical Association of Two Year Colleges Inc as your designated charity. Or you can go to https://smile.amazon.com/ch/11-2531258 and you can start shopping immediately. The best thing is that at Smile.Amazon.com you'll find the exact same low prices, vast selection and convenient shopping experiences at Amazon.com but you will be supporting AMATYC's Foundation.

Once you begin shopping, the Amazon-Smile Foundation will donate 0.5% of the purchase price from your eligible Amazon-Smile purchases. These donations will help support the mission of our Foundation to provide financial support for the goals and activities of AMATYC and its members, and for AMATYC projects.

Thanks for considering changing how you purchase things on Amazon.

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Over the past year, three two-year colleges have chartered new Mu Alpha Theta chapters. Welcome to Mu Alpha Theta - Baltimore City CC in Baltimore, MD; Columbus State CC in Columbus, OH; and Montgomery CC in Blue Bell, PA. In May, five two-year college Mu Alpha Theta members were each awarded $4,000 transfer scholarships. Benefits of Mu Alpha Theta include recognition for your talented math students, scholarships, grants, awards, free competitions, and an annual national convention.

If your AMATYC region or state affiliate is hosting a conference, please allow Mu Alpha Theta to provide informational flyers and small giveaways for attendees. Simply email your conference date and address to info@mualphatheta.org with the subject line “AMATYC Conference” at least two weeks prior to your conference.
The AMATYC Executive Board met at Southwest Tennessee CC in Memphis on April 13-16, 2018. Highlights of the meeting included:

- The full conference discount registration rate was set at $360, effective with the 2019 annual conference.
- The institutional member dues were set at $510, effective July 1, 2019 through June 30, 2020.
- The Southwest region was approved to host an AMATYC regional conference in summer 2019.
- The concept of surveys pertaining to Institutional Membership be sent to current, lapsed, and potential AMATYC members was approved.
- The concept of a position statement on Mathematics in a Globalized World was approved.
- The concept of a position statement on Mathematics for Liberal Arts was approved.
- The revisions made to the position statement on Academic Assessment of Mathematical Programs by the Placement and Assessment committee, were reviewed, edited, and forwarded to the AMATYC Editing Director.
- Pending membership verification, the following appointments were approved:
  - **Bill Shamhart**, Glendale CC, as West Regional Representative to the Statistics Committee, through December 31, 2019
  - **Jeff Thies**, Pima CC, as Southwest Regional Representative to the Placement and Assessment Committee, through December 31, 2020
  - **Elizabeth Hylton**, Central Oregon CC, as
    - North West Regional Representative to the Placement and Assessment Committee, through December 31, 2020, and
    - member of the Going Green Ad-Hoc Committee, through December 31, 2019
  - **Steve Kilner**, Monroe CC, as Northeast Regional Representative to the SML Test Development Team, through December 31, 2021
  - **Mary Pearce**, Wake Technical CC, as Southeast Regional Representative to the SML Test Development Team, through December 31, 2021
  - **Kim Granger**, St. Louis CC, as at-large Member to the AMATYC Program Review Committee, beginning at the conclusion of the 2018 conference and ending at the conclusion of the 2021 conference
  - **Helen Burn**, Highline College, as Chair of the Pathways Joint Subcommittee, through December 31, 2019
  - **Robert Cappetta**, University of Illinois at Chicago, as Chair of Math Intensive Committee, through December 31, 2019
  - **Dorota Zak**, Oakton CC, as chair of the Equity Committee, through December 31, 2019
  - **Keven Dockter**, Anoka-Ramsey CC, was re-appointed to the position of Conference Coordinator for 2019
- Full minutes of the meeting may be found on the AMATYC website: www.amatyc.org/BoardMinutesMotions.
Focus on Affiliates: IMACC
by Keven Hansen, IMACC Curriculum Chair

The Illinois Mathematics Association of Community Colleges (IMACC) is a Midwest Region affiliate that officially dates to 1975 (though pre-cursor organizations go back as early as 1969). IMACC strives to:

• encourage and develop innovative mathematics programs,
• afford a medium of interchange of views regarding mathematics and mathematics education, and
• encourage and promote the cooperative study of problems relating to mathematics and the teaching of mathematics, especially at the two-year college level, and to seek solutions thereof.

IMACC’s annual meeting is held in late March or early April at Allerton Park and Retreat Center, where it has met every year since its founding. The Allerton Conference is a highlight of the academic year for many community college math faculty; activities include keynote speakers, breakout sessions, and many opportunities for social activities (board games, card play, and walks through the grounds are particularly popular).

IMACC’s board meets at least three times a year, and the organization’s newsletter, The Math ConneXion, is published in Fall, Summer, and Winter to keep the membership informed of all important state and AMATYC activities. A strong feature of the organization is its strong involvement with state agencies and advocacy for improved mathematics education through these partnerships. For example, recently passed legislation on high school math pathways specifically mentions IMACC as a consulting body for policy development, and the IMACC Board has been actively involved in guiding state policy on mathematics placement practices. IMACC has also partnered (for 50 years!) with the Illinois Section of the Mathematical Association of America in establishing and maintaining an Articulation Guide that serves as the standard for mathematics course descriptions throughout the state—the guide is currently in its 7th edition.

Information on how to become involved with IMACC can be found on the organization’s website, www.imacc.org, or on Facebook. It would be great to see you at IMACC’s annual conference in the spring!