

GMATYC News

A Publication of the Georgia Mathematical Association of Two-Year Colleges

Volume 28 Issue 1

President's Corner

Margaret Ehrlich, GMATYC President
Perimeter College at Georgia State University,
Online Campus



Welcome to 2016! I hope you have all enjoyed the Winter Break, and are ready for Spring classes with renewed enthusiasm. I enjoyed family time and beautiful scenery in Canada and Seattle, but I am glad to be home again.

Mergers! By the time you read this article, the new name for Georgia Perimeter College will be Perimeter College at Georgia State University, and Darton State University and Albany State University will be preparing to consolidate.

Student Math League Update: Regarding participation in the Student Math League, students who have not received a degree at the associate's level or higher, have not reached junior status, and have not taken math above what is currently considered in the first two years will be able to compete in the Student Math League (SML).

Get involved with AMATYC and GMATYC! January is often a time for New Year's Resolutions, so add becoming more involved with GMATYC to your list and consider stepping up into a leadership position. Nominations are being taken now for Secretary, Treasurer, and two members of the Nominating Committee. At AMATYC, we learned that there were no nominations for the Teaching Excellence Award from our district. That is true for our Bill Bompert Teaching Excellence Award as well. Consider volunteering for the nomination committee so that we will be well-represented next year.

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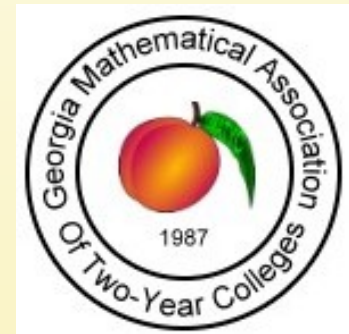
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Ask your colleagues to join GMATYC, if they are not already a member. The membership price is very reasonable for those needing membership in a professional development organization for their annual faculty evaluation. We need your support!

AMATYC: GMATYC was well represented at the Annual Conference in New Orleans in November. Many of you attended our regional luncheon on Friday in a show of force for Georgia.

Here are few highlights from the Delegates meeting:

1. The induction of the new President, Jane Tanner.

2. A review of the strategic plan (2012-2017) with the following priorities:

- Priority I – Provide professional development opportunities to all two-year college faculty.
- Priority II – Promote research on student learning in two-year colleges.
- Priority III – Promote the review and improvement of two-year college mathematics curricula.
- Priority IV – Build and promote communities of educators in lower division collegiate mathematics across departments and institutions.
- Priority V – Communicate the vision, core values, mission, and goals of AMATYC and promote awareness of the organization

3. PCGPC Behnaz Rouhani's proposal "Term Limits for Course Pre-requisites" passed with a unanimous vote.

If you were unable to join us at the last AMATYC Conference, the conference proceedings from

New Orleans are now available online. For a complete review of the 2015 New Orleans Conference Proceedings go to:
<http://www.amatyc.org/?page=2015ConfProceedings>
 Get ready for "Math at a Mile High" in Denver at the 42st Annual AMATYC Conference on November 17-20, 2016! For more information, go to:

<https://amatyc.site-ym.com/?2016ConfHome>.

To present or preside at a 2016 session, apply here: <http://confreg.matyc.org/index-2016.php>.

GMATYC and the GPC (Perimeter College at Georgia State University)

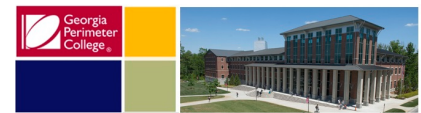
Math Conference: Mark your calendars now and make plans to attend the GPC Math Conference and GMATYC Annual Meeting on February 19, 2016. This will be held on the Clarkston Campus. We will be installing new GMATYC officers at the Annual Meeting. Details for the conference and registration information is listed in another article in this publication.

As always, you have a chance to renew your membership at the GPC Conference or by completing the form online – keep your membership active and stay connected. I look forward to seeing an increase in our membership and member involvement in 2016. I hope to see all of you on February 19, 2016 at the Clarkston Campus.

Maggie

GPC Awarded \$3 Million Grant to Continue the Work of Improving Student Success

Submitted by Dr. Katrina C. Hunter, Perimeter College



As the landscape of the labor market transforms to meet society's ever changing demands, many now believe that earning a college degree is crucial to the success of those seeking to enter into the workforce. For a college student, the pressures of earning the appropriate degree to qualify for meaningful employment after graduation might pale in comparison to the anxiety of maintaining the employment once acquired. This is because in order to achieve the latter, it is vital in most - if not all - labor sectors, that employees possess and demonstrate certain non-cognitive or career readiness skills. While it is sometimes assumed that these highly essential skills were realized prior to their entering college, this is often not the case. Research indicates that many students, particularly those from disadvantaged backgrounds, actually often lack the non-cognitive skills, behaviors and attitudes that are important to the achievement of sustainable success. Many originate from environments that present very little to no opportunity to have these skills modeled by those around them, thus reducing their chances to learn them.

Over the past four years, Georgia Perimeter College (GPC) has aimed to increase opportunities for disadvantaged, underprepared students to acquire these skills as one feature of its Project R.A.I.S.E initiative. Project R.A.I.S.E (**R**aising **A**chievement and **I**ncreasing **S**uccess in **E**ducation) is funded through a federal grant provided by the U.S. Department of Education's (DoED) Predominantly Black Institutions (PBI) Program and focuses on increasing the academic success, retention and college completion of students enrolled in developmental mathematics.

Since its implementation in the fall semester of 2011, the array of academic support strategies employed by the grant has proven to be successful in igniting the improvement of completion rates for all targeted students, particularly the African American male (AAM) population. The AAM population has historically been disproportionately over-represented in developmental mathematics courses at GPC at 68.1% compared to 42.2% in non-developmental coursework. The collaborative

efforts of the Project R.A.I.S.E. team and the mathematics faculty has resulted in higher expectations, improved student engagement and, ultimately, increased completion rates amongst AAMs from 13% in 2012 to 39% in 2014. As the project approached its final year of federal funding, it was noted in summer 2015 that there remained greater opportunities to continue the work of positively impacting student achievement. At that time, GPC data revealed that there still remained a significant disparity between the success of African-American students in developmental mathematics (42%), particularly males (39%), and their non-African-American counterparts (55%).

In a second competitive PBI grant proposal submitted in summer 2015, Project R.A.I.S.E. director, Dr. Katrina Hunter and the GPC Office of Grants and Sponsored Programs posited that leaving the above disparity unaddressed would result in large numbers of minority students failing to succeed in higher education... and the DoED agreed! As a result, GPC was awarded a \$3 million grant — one of only 23 PBI grants awarded across the nation and the largest single award in GPC history.

The five-year, multi-million dollar grant will impact all students enrolled in developmental mathematics courses at GPC with the primary goal of closing the achievement gap between non-African-American and African-American students. By increasing the percentage of black students exiting the course in two semesters to 55%, the grant expects to match the current rate of success for non-black students. Through the use of professional and peer academic success coaching along with other evidence-based strategies, the program will address factors impeding success in higher education. By strengthening factors such as academic mindsets and behaviors, time management and work-life balance students will be better prepared to persist toward college completion and integration into the workforce.

Purposefully Designed Discussion Questions for an Online College Algebra Course



Submitted by Dr. Kimberly Bennekin, Perimeter College

It was my goal as an online mathematics professor to gain a better understanding of how to purposefully design online course materials that could enhance peer-peer interaction, in particular, online mathematical discourse. My research began with a literature review which revealed interaction was an important factor in both mathematical learning and online learning. I connected the research based on interactions and focused on the similarities in mathematical and online learning. This directed me to focus on the important factors for increasing meaningful online mathematical discourse while designing a new activity for an online college algebra course. Using the information from the literature review and information collected from the student population (Bennekin, 2013), allowed me to create a purposefully designed asynchronous discussion board activity, using motivational design (Keller, 2010), which combined the needed aspects from mathematics education and online learning that foster discourse.

The purposefully designed activity was designed for students to work together to come to one agreed answer as a class. They used the discussion board to communicate asynchronously. The activity was administered to one section of an online college algebra course. The content of the activity included material that the participants learned within chapter 1 of their textbook (Blitzer, 2010). The activity was given during week 4, which coincided with the time the course completed chapter 1 materials. Standard template discussion questions were used for the other weeks of the course, asking students to reply to a stagnant topic. After the study ended, the Interaction Analysis Model (Gunawardena, Lowe, & Anderson, 1997) was used to code the discussion board postings for weeks one through seven. The literature review uncovered comparable categories for ideal discourse for learning mathematics and for online learning. All of these categories were represented within various levels of the IAM. This model was chosen because of its close alignment with my literature review on the types of communication ideal for the deep learning of mathematics, as well as its bases of social construction theory. I also interviewed five participants to get their perception of the discussion board activities. After the data were collected, the qualitative data were

analyzed using nVivo9, a qualitative software program. Descriptive statistics were analyzed from the quantitative data. These data were used to characterize the participants' group and individual discourse patterns, as well as the perceptions of their interactions (Bennekin, 2013).

The nature of the group discourse patterns showed to have more meaningful mathematical discourse during week 4, when the purposefully designed discussion activity was administered. The nature of the individual patterns of discourse showed that students who participated the most on the discussion boards, received the better grades. In addition, all students who posted at least three mathematical discourse posts per week for the seven week period passed the course. Of the eight students who did not have at least three mathematical posts per week (the minimum required), five of them did not pass the course. This suggests that those who make an effort to participate more in online mathematical discourse are more likely to pass the course. Those students who provided interviews provided positive feedback about their online discussions. They agreed that the discussion board was an integral part of the course, allowing them the ability to communicate with each other about the subject matter. The purposefully designed activity fostered more meaningful mathematical discourse (Bennekin, 2013). This suggests that there needs to be more purposefully designed discussion activities throughout the semester of the course. The construction of several purposefully designed activities is needed. In addition, an extension of the research design to a multi-case study would also be appropriate. In addition, administering more purposefully designed discussion activities could help maintain more meaningful online interaction for additional weeks. Sfard (2008) agrees that students have to be taught to communicate this manner, so having more opportunities for students to interact in this format will help students become comfortable with communicating with each other about mathematics. In summary, conducting this study showed me the many opportunities going forward for continuing my work to improve online mathematics course components that foster online mathematical discourse.

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University of North Georgia's Invitational Sophomore Math Tournament

Submitted by **Gina Reed, UNG Gainesville Campus**

The University of North Georgia at the Gainesville Campus will host the 22nd annual Math Tournament on Saturday April 2nd, 2016. Any and all schools that grant 2 year degrees in math, physics, or engineering are invited to send a team to compete in the Tournament. Students are eligible to compete if they have not completed, nor are presently enrolled in any 3000 level Math Courses. Exceptions: Students who have taken or currently are taking Differential Equations and/or Linear Algebra, may participate in the tournament even if these courses are numbered as 3000 level courses at their respective schools.

The Tournament has two main events. The morning test is an individual Calculus test consisting of 40 multiple choice questions geared to be accessible to current Calc II students who are at the standard level of the Calc II curriculum up to, but not including the study of infinite series. Calculators are not allowed in the morning event, so it is an old timey paper and pencil and head-bone test.

The afternoon portion of the Tournament is a team competition, (non-calculus problems) with timed questions considered by teams of up to 4 students. Correct answers within the first minute are credited with ten points, within the second minute, nine points, etc. on down to one point for an answer during the last minute. Graphing calculators may be used on the afternoon portion of the competition.

Between the morning and afternoon portions, we break for lunch, which will include a short presentation by an invited speaker.

After all the scores are tallied, the winning individuals (1st thru 5th place) in the morning test and the winning teams (1st thru 4th) are announced at an awards ceremony. Winning individuals receive cash prizes, and winning teams get gift cards. Winning schools in the overall competition get trophies, and bragging rights!

Last year's (2015) Tournament was attended by 140 students and 25 proctors from 14 different campuses from 5 states across the Southeast.

If you have participated in the UNG math Tournament before, please consider coming again this year. If you haven't made it before, please consider this open invitation. If you have any further questions, please email Minsu.Kim@ung.edu or Irfan.Bagci@ung.edu, the coordinators of this year's event.

29th Annual Georgia Perimeter College Mathematics Conference

Submitted by **Ginny
Powell, Perimeter College**

We invite you to attend the 29th annual Georgia Perimeter College Mathematics Conference.

The conference will be held on Friday February 19, 2016 on the Clarkston campus of Georgia Perimeter College.

The conference theme is "Active Learning – Engagement and Struggle".

Our keynote speaker will be Bruce Yoshiwara, whose talking points include the following:

- *Deep student learning occurs not only when students engage, but when they struggle with math.
- *Grit is a better predictor of success than any other single measure.
- *Students greatly benefit from developing "growth mindsets" (believing that their ability to learn can improve).

We encourage proposals for presentations related to active learning. This includes motivating students to struggle with math and creating an engaging classroom environment. If you wish to submit a proposal, please do so by January 15, 2015 using the proposal submission form on the GPC Math Conference website.

More information can be found on the GPC Math Conference website: <http://depts.gpc.edu/~gpc/mathc>.

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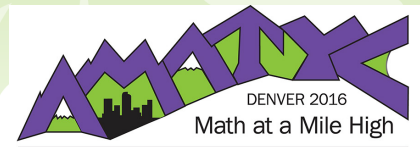
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**AMATYC is now
accepting
speaker
proposals for the
2016 Denver
Conference. App
lications will be
accepted here.**



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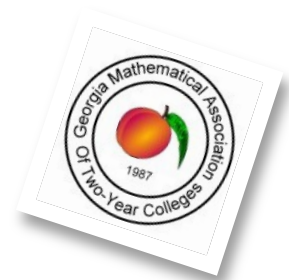
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