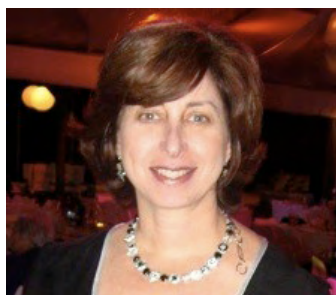


California Mathematics Council Community Colleges

# CMC<sup>3</sup> NEWSLETTER

## President’s Message

Barbara Illowsky, De Anza College



Happy New Year, Happy Valentine’s Day, and Happy Presidents’ Day! That is a lot of “Happy” for the start of 2011. I am happy, too. Our

Monterey Conference was, once again, a huge success – great fun and networking as well as fantastic presentations. We are moving towards going green by no longer printing and mailing the newsletter. Several colleges are hiring full-time faculty, despite the lousy state budget. This fall we have elections for new CMC<sup>3</sup> Board of Directors members. And, the Tahoe Conference is fast approaching. Am I making you happy, too? I hope so!

Please read through the articles in the newsletter. Consider getting more involved in CMC<sup>3</sup>. Attend the Tahoe Conference. Submit a proposal to present at Monterey in December. (<http://www.cmc3.org/conference/future.html>) How about writing an article for our next newsletter, maybe a “What’s happening at” your college or on an activity you do in your class? You can join our Board of Directors, either in an elected position or as an appointed committee chair. You can always start with a smaller commitment of just volunteering to preside at a conference session, helping out with a task or as a committee member. Get involved! You, too, will soon find yourself extra happy!

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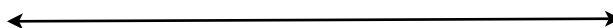
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## Adjunct Update

*Tracey Jackson, Santa Rosa Junior College*

The 2011 CMC<sup>3</sup> Spring Conference in Tahoe, with a focus on recreational mathematics, will be held on April 29<sup>th</sup>-30<sup>th</sup> at MontBleu Hotel and Casino this year. For more information about the conference, please visit the website <http://www.cmc3.org/>.

The website also has a page of links to various job searches, many with both tenure-track and adjunct listings. This year appears to be more promising for full-time job openings, so keep checking the searches frequently. Although the deadlines for some full time positions have passed, there are still a number of them with later deadlines available.

If you have a talk that would be of interest to the CMC<sup>3</sup> community, consider presenting at either the Monterey conference or the Tahoe conference. Potential speakers are encouraged to fill out a speaker proposal form available on the CMC<sup>3</sup> website. In order to submit the form, choose the conference at which you're interested in speaking, and there will be a link to the speaker proposal form on that page.

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## THE FIFTEENTH ANNUAL RECREATIONAL MATHEMATICS CONFERENCE

*By Michael Eurgubian, Santa Rosa Junior College,  
Petaluma Campus*

On April 29th-April 30, 2011, CMC<sup>3</sup> will host its lucky Fifteenth annual recreational mathematics conference at the MontBleu Hotel and Casino in Stateline, Nevada. The format of the conference is the same as that of the annual Fall conference in Monterey, but the session talks are recreational in nature. This means a focus on mathematical topics rather than pedagogy.

The conference begins Friday April 29 with a casino gaming demonstration for those who are interested, and at 7:00 p.m. kicks off with its opening event. Attendees will hear the Friday night keynote speaker Jean Bee Chan, from Sonoma State University whose talk is entitled *"A View of an Art Gallery"*.

The next morning, the conference resumes with two sessions, followed by a lunch break and special keynote presentation from Stuart Moskowitz of Humboldt State University : *"Make Puzzles Less Puzzling with Math: Why Two Serial Numbers Appear on Each Piece of U.S. Currency"*.

After the Saturday keynote two more sessions of recreational talks will be presented, along with a special presentation in which we will honor one California Community College full time student who has investigated a topic or application in mathematics. The selected student will give a 20-minute presentation on the student's work.

When the talks have ended, attendees will meet at the ending reception, with door prizes. Conference registration is \$75 for members, \$25 for adjunct instructor members. Registration will

**(see "Recreational Conference" continued on page 22)**

## AMATYC Job Opening

Have you been waiting to get involved with your national organization? Now's the time! The AMATYC Conference needs some people to help with the speaker selection process.

The Program Review Committee for the AMATYC conferences needs one (or even two) people from the "West" region to serve. It is a three year commitment from 2012 to 2014. The job is reviewing proposals from speakers for three conferences: 2012 in Jacksonville FL, 2013 in Anaheim CA, and 2014 in Nashville TN.

In a typical year, there are about 300 proposals to read and review. This reading all gets done in February. Committee members each read every speaker's proposal and give it a rating. The conference speakers are then selected by the committee. There is a rubric for how this rating gets done. All communication is by email. If you have time in February to do this kind of reading, please consider doing this work for AMATYC.

Wanda Garner, the Conference Program Coordinator, says that in the past the bulk of committee members have been from the east coast and she would like to see some new people from the west join the committee.

The job doesn't start until February of 2012, but we are being asked to find someone now since the committee appointment would have to be approved in April during the AMATYC spring board meeting. If you are interested, please contact the AMATYC West Regional Vice President, Bruce Yoshiwara, [yoshiwbw@piercecollege.edu](mailto:yoshiwbw@piercecollege.edu).

## Fall 2010 Monterey Conference

*Susanna Crawford, Solano College*



The fall 2010 Monterey Conference was another resounding success for CMC3! There were three hundred and eighteen attendees, which was about the same number as the year before, and attendance at the talks was mostly quite good.

McGraw Hill added a Math Trivia activity, and Pearson offered our Second Annual Game Night. Both of these publishers have indicated that they will be giving these events again at our next Monterey conference as well. If you missed either of these, you should consider coming a bit earlier on Friday afternoon for the Trivia Event, listening to the Friday keynote speaker, and then participating in the Game Night Event after the Friday night talk. This is especially true since Wade Ellis has agreed to be next year's keynote speaker on Friday night, and many of us are already aware that he is a marvelous speaker.

This year's fall keynote speakers were both amazing. On Friday night, John Martin entertained us with his presentation/competition made up of facts about Pi posed as questions for the audience. Even the most knowledgeable of the audience seemed to learn something, and it was fun for all of us to participate. Saturday's keynote speaker was Bill Dunham, who spoke about Euler and some of his discoveries. Again, it was great to see the audience engaged, entertained, and interested.

The CMC3 board received very positive feedback about the session speakers as well. Several of the talks were so popular that there was only standing room for the audience, such as the presentation by Dmitry Fuchs from U.C.

Davis, and the talk by David Ellenbogen from Vermont. Another well attended talk was one related to the applications of calculus in finance given by an investment banker. There was a good balance of sessions offered on familiar topics such as basic skills education, statistics, and math history, as well as talks offered on some more unusual topics for CMC3 such as geodesic polyhedra, and finance. Most of the attendees seemed to have little problem finding interesting sessions.

Now is the time of year when it is necessary for us to begin to get ready for the next fall conference. If you think that you may want to talk in Monterey next year, then please consider what topic you would like to present on and once you have planned your talk, or at least committed to a topic and to coming, then please log on to [CMC3.org](http://CMC3.org) and fill out our short speaker proposal form which is already posted. Several potential speakers have already submitted proposals for next year, and it is exciting to see so much interest already. The proposals will be reviewed by committee for the first time in late spring or early summer. Session speakers are what ultimately makes CMC3 such an interesting conference, so if you have an interesting topic then please consider presenting. All proposals will be carefully read, greatly appreciated, and carefully considered.

We are also in the process of selecting the Saturday keynote speaker for next fall. Several candidates are being considered currently, but the final presenter is not yet determined. If there is a speaker who you believe we should definitely consider, then please don't hesitate to contact our conference chair, Susanna Crawford, at [susanna.crawford@solano.edu](mailto:susanna.crawford@solano.edu) with your ideas.

The Tahoe conference is just around the corner, and please come if you can as it is always extremely enjoyable. Apparently the new hotel is a big hit in Tahoe as well as the talks. I hope to see you there!

## Call for Proposals for the Mathematics Student Speaker at the Tahoe Conference

*Debbie Van Sickle, Sacramento City College*

At the 15<sup>th</sup> Annual Recreational Math Conference this year, one California Community College student who has investigated a topic or an application of mathematics will be honored. This student will attend the conference and present his or her findings. This twenty minute presentation will be given on Saturday afternoon and serve as the conference's finale. A previous presentation was given by Melissa Thaw who spoke on using cross-sections to measure the volume of a shallow water aquatic region. Thanks to a generous donation from Debra Landre, instructor at San Joaquin Delta College, this year's student will receive a \$500 scholarship. Student applicants must have a California Community College math faculty member serve as a mentor. Interested students can contact Larry Green at [DrLarryGreen@gmail.com](mailto:DrLarryGreen@gmail.com) for more information. Students can fill out the online application at:

<http://www.cmc3.org/conference/callForStudentProposal.html>

They will be asked to provide their contact information, their mentor's name, a short abstract for the program, a longer abstract for the review committee, and a short biography of the student for the presider. This is a wonderful opportunity for a student, so please encourage your students to explore an area or application of math and submit a proposal.

## A Few Good People Needed to Lead CMC<sup>3</sup>

*by Larry Green, Lake Tahoe Community College*

Every other year, CMC<sup>3</sup> holds elections for officers and members at large who will lead the organization for two years. This fall is the scheduled time for our elections. The positions up for election are:

- **President Elect:** Responsible for chairing the Fall Conference in Monterey and assisting the president as needed. The president elect automatically becomes president after two years and past president after four years.
- **Secretary:** Responsible for taking minutes at all meetings and maintaining CMC<sup>3</sup> documents and records.
- **Treasurer:** Responsible for all financial records, filing tax forms, preparing and presenting the annual budget, and serving on the Foundation Board
- **Members at Large:** There are four members at large who serve on the CMC<sup>3</sup> board. They are assigned tasks by the president such as: Awards Chair, Audio-Visual Chair, Articulation Breakfast Chair, and Campus Representatives Chair.

Any member of CMC<sup>3</sup> who is a present or past faculty member at a California Community College may run for office. If any position interests you or if you want to help with other CMC<sup>3</sup> activities, please contact Larry Green, Past President, at [DrLarryGreen@gmail.com](mailto:DrLarryGreen@gmail.com) or (530) 541-4660 x 341. The CMC<sup>3</sup> board works well together to put on its annual conferences and serve as a voice for math faculty at California Community Colleges. I encourage all interested members to run for office and become a CMC<sup>3</sup> leader.

## What's Happening at Taft College

Brian Jean

We are now into our final year of a 5 year, \$2Million Title V grant. The primary emphasis of the grant is to increase the number of math/science transfer students through a change in pedagogy and the creation of a virtual transfer center.

In the classroom we have implemented Tablet PC's, which are being used in one form or another in all levels of algebra and calculus. Students at the second and third semester calculus levels are issued their own Tablet PC for the duration of the course. Students use screen capture software along with Classroom Presenter 3.0 software to create their own screen casts as part of wiki based research reports. The Tablet PC's allow the students to create short videos explaining how they solved a particular aspect of their project. Projects range from using calipers to collect data then curve fitting the data in order to find the volume of the object, to using high speed cameras to record the flight of a water rocket which is then modeled in Maple or Mathematica. The water rocket trajectories are then rescaled to represent a missile attack on a near by city. Students then plot the course of an intercept missile again using Maple or Mathematica to create an animation of the launches and intercept. Video screen captures are then uploaded to YouTube and embedded in a wiki. Students at those levels are now creating their own wikis at wikispaces.com where their multimedia report is created resulting in the beginning of an ePortfolio.

Statistics, Calculus II and Calculus III have transitioned from lecture based courses to active learning courses. Starting the spring semester 2011, students in those classes are also issued an iPad for the semester. Course lectures are now provided via screen-casts. Students are provided an outline for the screen-casts which they use to fill in while viewing the videos outside of

classroom time. Class time is now used to problem solve in small groups with the professor running around from group to group facilitating the process. Students can sync all course videos to the iPad which provides the students 24/7 access to the course content with or without an internet connection. In addition, the worksheets used as a basis for the in-class problem solving sessions are being converted to an ePub format which students can download and display in iBooks, an iPad app for reading books. The ePub format worksheets are provided after the fact and contain embedded screen-casts showing the students how the professor went about solving the problems. A similar implementation of home grown ePub content in iBooks is being considered by some of the science classes.



*Above: Students in a statistics class working with their iPads in class.*

Grading of exams has also transitioned to a digital format in many classes. Rather than reaching for the red ink pen and grading an exam in the traditional format, students in statistics, calculus II and calculus III receive a link and password to a private wiki/blog where a screen-cast of the exam being graded can be viewed by the student. This process has changed the grading process into a truly meaningful learning experience for the student since the professor does not simply take off two points for something done incorrectly - rather, the professor spends a few moments explaining "why" it was wrong, often showing a correct approach. Student response has been phenomenal. This same digital approach to grading has been adopted by an ESL professor with as equally a positive response from the ESL students.

One of our math professors is presenting these two techniques (the process of digital feedback and desktop ePub creation) at the eLearning conference in Florida, February 2011.

Now that all of the technology is in place, a pilot study is being conducted during the spring 2011 semester comparing student success and satisfaction between a technology based and a more traditionally taught statistics course. Although the sample size will be small - only one section of each type of course is in the study - we are hopeful the study will show some true insight into the effectiveness of the new approach in the classroom.



## Brain Strain

*Joe Conrad, Solano College*

Happy 2011! I hope you enjoy our online newsletter and that you will consider attending this year's Tahoe conference on April 29 and 30. Our new

problem is: Show that no partial sum (after the first one) of the harmonic series can be an integer. In other words show that if  $n > 1$ , then  $1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}$  can never be an integer.

Our problem in the fall was: The graph of

$y = x^6 - 4x^5 - 6x^4 + 32x^3$  lies above the parabola

$y = ax^2 + bx + c$  except at three values of  $x$  where the graph

and the parabola intersect. What are the three values of  $x$ ? The following individuals submitted solutions: Mel Hom, Larry Green, Kevin Olwell, Paul Cripe and Paul Edwards. (My apologies to Paul Cripe because he solved last spring's problem and I inadvertently left him off the list of solvers in the fall issue.) To solve the problem, we set

$f(x) = x^6 - 4x^5 - 6x^4 + 32x^3 - ax^2 - bx - c$ . Since the sixth

degree polynomial lies above the parabola,  $f(x) \geq 0$  for all  $x$ . Since the graphs intersect at three values of  $x$ , there are three (and only three) values  $x_1, x_2, x_3$  with  $f(x_i) = 0$ . This allows us to write  $f(x)$  as follows:

$$f(x) = (x - x_1)^2 (x - x_2)^2 (x - x_3)^3$$

$$= (x^3 + Ax^2 + Bx + C)^2$$

$$= x^6 + 2Ax^5 + (2B + A^2)x^4 + (2C + 2AB)x^3 + \text{other terms}$$

Equating coefficients of  $f$  and solving, we find  $A = -2$ ,  $B = -5$  and  $C = 6$ . Thus,  $f(x) = (x^3 - 2x^2 - 5x + 6)^2$ . This factors

to  $f(x) = (x - 1)^2 (x - 3)^2 (x + 2)^2$ , so the three values of  $x$  we need are 1, 3, and -2.

Send solutions to:

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## What's Happening at Hartnell College

*Greg Perkins*

Hartnell College has been very fortunate to be awarded several STEM grants. One of the programs that we have developed as a result of these grants is called the Math Academy. The Math Academy is a two-week intensive review for the math class that the student will be taking during the upcoming semester. Students work in non-traditional, low stress environments for up to 5 hours a day. Math Academy teachers were given the time and resources to develop very creative and fun ways to help students develop their basic skills. We have also experienced great success having students use the ALEKS program for about one hour a day.

We offer Math Academies at the Pre-Algebra, Algebra 1, Algebra 2 and Pre-Calculus levels. For each class of 25 to 30 students, there is one instructor and four tutors. As students work they find there is usually

There have even been several instances of students retaking the placement exam at the end of the academy and placing one or even two levels higher than before the academy. Below are some comparative results for students that took

Pre-Calculus during the Fall 2010.

### Math Academy Results for Pre-Calculus

<u>Non Academy Students</u>	<u>Academy Students</u>
N=62	N=17
Overall Grade =73.1%	Overall Grade =82.3%
59.7% passed Pre-Calculus	88.2% passed Pre-calculus

The grants have also paid for the production of video podcasts that are delivered to students for free. Currently there are about 100 problems worked out for Trigonometry, Pre-Calculus and Calculus I. With these we were able to address many of the common errors that we see our students make. We have found that students are more likely to use podcasts created by instructors they now have rather than ones provided by publishers.

Over the past 3 years Hartnell College has had 3 full time Math Instructors retire, bringing us to 10 full time instructors at this time. We are very proud that we



someone there to help them as soon as they have a question. Most students also meet with counselors who help them with study skills and also help them connect with all of the student services our college has to offer.

The dedication and enthusiasm of the students has impressed all instructors involved.

were able to hire a full time instructor dedicated to engineering starting Fall 2010. Dr. Melissa Hornstein has her PhD in Electrical Engineering. We are currently working to hire one full time Math Instructor for the Fall 2011 semester.



## Music and Mental Arithmetic

*Ken Bull, College of San Mateo*

I spent Christmas Eve at the home of one of the members of a small Mennonite congregation in Seattle. My nephew and his wife are a part of this small church and they, parts of our extended family, and probably half the small congregation was there. We sang Christmas carols, read the Christmas story, ate Christmas goodies, and (by their tradition) ended the evening by singing the Hallelujah chorus from Handel's *Messiah*. The host had people gather in different parts of the room according to the part they were about to sing (soprano, tenor, bass, etc.) and copies of the score were handed to everyone, or nearly everyone. Almost everyone, evidently, could read music — except for me and my brother. It was, of course, still possible to sing without the score, and I found it very enjoyable. I do wonder though about the quality of my own contribution; even though I think I have the ability to sing, my attempts to follow the music “by ear” and “by memory” must have been crude when compared with the vast majority who appeared to be carefully following the music. At the very least, I felt somewhat left out, and humbled. My nephew's wife assured me that the ability to read music is *not* a requirement to be a part of their congregation, and that they do value people who are musically illiterate. (She did not actually use the words “musically illiterate,” I should add.)

At this point, you may be wondering where this is going. Just this: For students, is being able to do mental arithmetic necessary? Or, once arithmetic has been learned, can students get on just as well with a calculator, in a way similar to my being able to follow the music without being able to actually read music beyond knowing that the “higher up” symbols are higher on the scale? Can students succeed in mathematics without being good at arithmetic? At what level? And what level or kind

of arithmetic should be “readily-in-head”—rather than “readily-at-hand” as in a calculator?

For us, because we are constantly working with numbers, and because many of us grew up in a culture where it was valued and necessary, mental arithmetic comes fairly easily. And I have met students who are also good at mental arithmetic. Students probably get little opportunity to practice mental arithmetic outside of mathematics courses, and there is little incentive for engaging in mathematical calisthenics, and possibly little perceived payoff to doing so. I have met students who like mathematics, do well in their mathematics courses, but admit that they are “terrible at arithmetic.”

I was reminded of being “terrible at arithmetic” when evaluating a colleague teaching a precalculus course. He was doing a good job of interacting with his class, solving a problem together, and at one point he gave them a small “sub-problem,” that involved some simple arithmetic. The point of the sub-problem was not the simple arithmetic, but the arithmetic was still required. One student in particular, having determined what was needed, ran to his calculator to do the rather simple calculation. At this point, my colleague took him to task for doing something on his calculator that could easily been done mentally. He did not want to embarrass the student, (so he was fairly gentle) but at the same time he did indicate to the student that he was not exercising his brain the way he should be exercising it, and that there would be benefit to this kind of exercise.

I find that teachers appear to at opposite poles about students' no doing mental arithmetic. Some are appalled that there are students who either do not know the multiplication tables or so not use what they know. They are convinced that there is benefit from doing as much calculation mentally as possible; perhaps they just value this

kind of mental exercise, or are thinking that mental exercise is a bulwark against dementia. (Apparently, being bilingual — and using the two languages — delays the onset of dementia, and it is at least reasonable that doing mental arithmetic will have a similar effect.) Other teachers would insist that students show proficiency at mental arithmetic at some level (usually Elementary Algebra) but are content for students to rely upon calculators for all courses beyond a certain level. It is easy to go one way or the other, and it is easy to develop Luddite tendencies, but I think I would offer two observations.

One observation has to do with motivation. Is it laziness to use a calculator rather than doing a calculation in your head? Is it laziness or short-term efficiency? Running to the calculator is probably in the same category as finding the parking space closest to the door of your office block, or cutting diagonally across a lawn on campus. Of course, for students there may be an element of fear involved as well; the calculator will give the correct answer, and the head might not. It is just easier at the time, and without a good reason to do otherwise using the calculator becomes the default option. Doing the mental arithmetic consistently (rather than the calculator) might be equivalent to parking the car 500 yards away down the hill from my office because the walk and climb is good for my heart. (Only when I have made the commitment to the extra exercise should parking near the door be deemed laziness.)

The second observation is that in discussing students using mental arithmetic, it is well to specify the kind of mental exercise we are talking about. The ability to sum a long sequence of numbers does not play a significant role in our curriculum, nor does squaring three digit integers. Knowing the factors of 24, 64, or 96, etc. is more important. Knowing the squares and cubes of integers, so that one can make reasonable

estimates of the square or cube root of a number can be useful. Number sense is important. Knowing that 0.05 is smaller than 0.25, and that there is a difference between the result of  $2 - 5$  and  $5 - 2$  (and correspondingly, the way these are expressed in language!) are all important for learning statistics (perhaps the most popular transfer level course), as is knowing that multiplying something by  $1/242$  is the same as dividing something by 242. Is this number sense enhanced by doing mental arithmetic constantly or can it come just as easily using electronic devices? If we can show that it is, then let us push for more mental arithmetic. If not, let us figure out an alternate way of building the number sense.

For the students: It is unlikely that we will have great success in convincing students of the long-term benefits of keeping their mind active with mental arithmetic, but we may be able to make a case showing that there are benefits to having matters “readily-in-mind” rather than having to look somewhere for the answer.

Last semester I taught Trigonometry, and early on I emphasized that students should have in their heads in some form the values for sine, cosine and tangent for  $0^\circ$ ,  $30^\circ$ ,  $45^\circ$ ,  $60^\circ$ ,  $90^\circ$  when these angles were expressed in either degrees or radians, and that this information should be readily accessible at a moments notice, since we would use these and multiples of these over and over again. I made it clear that such basic knowledge, coupled with an understanding of how the trig functions worked around the unit circle, would allow them to use these functions easily whatever value they encountered. I got two responses to this insistence, neither of which pleased me. (Some students did see what I meant, especially when we started to develop the unit circle.) One displeasing response was resistance; no one actually said: “You can’t be serious” but for some it was in the air. The other (minority) reaction was to attempt to memorize all of the values -- degree and radian equivalents -- for

the entire unit circle, a plan that was prompted by a complicated diagram in the text showing the degree and radian equivalents. A third (better) response was to draw a 30-60-90 or 45-45-90 triangle, and label the sides every time it was necessary, something I think came from their high school right triangle trig, and which struck me as inefficient. I really was aiming at something that would be useful in seeing the connections between the unit circle and the graphs of the trig functions. Indeed, one of my overall goals was for students to see how neatly everything fits together! Through a combination of carrot and stick (the latter being calculator-free quizzes requiring rough placement of angles on a unit circle) I made some progress, but not before some students who had resisted had seriously jeopardized their standing. Did those who initially resisted but finally said, “well, we have to do this” really see any benefit from it in the end? I do not know.

The issue is: what kinds of memorization or mental activity are profitable, rewarding, or of use in learning how to think mathematically? Can we define the benefits either specifically or globally of mental exercise? Was my recommendation (and subsequent reinforcement and sanction using my teacher-power) of learning by heart *some* of the trig function values a good recommendation? Was my colleague’s admonition to the calculator-using student wise? These are the kinds of questions I am raising. And if we do come up with mental activities that we think are of use in learning some part of mathematics, can we “sell” these as beneficial -- or turn it into a carrot -- with students? Or must we always use sticks?

If I moved to Seattle I might well join my nephew’s congregation, and then have a strong motivation to learn (and practice) at least the rudiments of reading music, so that I could sing my part accurately. For now, learning to read music is somewhere down the list from learning Portuguese and writing a family history of the California Bulls.

## Updating the Bylaws and Constitution

*By Barbara Illowsky, De Anza College*

Most of you, if you thought about it, would probably realize that CMC<sup>3</sup> has a constitution and by laws. Have you ever read them? The original By Laws and Constitution were adopted on November 3, 1973. The Constitution has only been amended once, on December 6, 1991. Our By Laws have been amended three times, most recently in December of 1995. The current by laws and constitution are posted on the CMC<sup>3</sup> web site (<http://www.cmc3.org/resource.html>). Go ahead ... read them. You will find that the CMC<sup>3</sup> Constitution still serves us well, 37 years later.

For the past 1.5 years, your Board of Directors has been reviewing and discussing the CMC<sup>3</sup> By Laws and Constitution to determine if they need updating. It has been a fun process (really!). To start with, none of us had an electronic copy of either document. We scanned our soft copy and then converted the pdf to Word. In doing so, many of the original words and formatting changed. We then cleaned up the documents, sometimes learning new vocabulary and tax rules. (Who regularly uses the word “inure,” for example, or knows off-hand what Section 170(c)(2) of the Internal Revenue Code is? We do!)

I bet you are now at the edge of your chair, just waiting to read what we recommend. After reading and talking and emailing and dreaming, the Board of Directors recommends no changes to the CMC<sup>3</sup> Constitution, but several changes to the CMC<sup>3</sup> By Laws. One purpose of the By Laws is to reflect what we do in practice. We realized that in the past 15 years we have changed what many of the positions actually do

**(see “Bylaws” continued on page 22)**

## Awards, Awards and Awards

Barbara Illowsky, *De Anza College*

CMC<sup>3</sup> has three annual award categories: Distinguished Service Award, President's Award, and Teaching Excellence Award. We announce the "winners" each December and present them with a plaque to show our respect to these colleagues. A person may win each award only once.

Our most valued award is the **Distinguished Service Award**. This award began in 1992, 19 years after the founding of CMC<sup>3</sup>. This honor is given to a member who has donated his/her time to our organization in a variety of ways across several years. The board votes on the winner early each fall. **Randy Taylor** (Las Positas College), has kept a list of each member since 1973 who has chaired a committee or served as a board member. It is very impressive to read over almost 40 years of our organization's history and learn about our members' various contributions. The Awards Committee Chair, currently **Katia Fuchs** (City College of San Francisco), brings forth three names, along with the contributions of those three nominees. Then, the board votes by paper ballot for the winner. You can find the full list of past winners at: <http://www.cmc3.org/History/Distinguished%20Service.htm>

For those of you who attended this year's Monterey Conference, you know that **Jim Spencer** (Santa Rosa Junior College) earned this year's



Distinguished Service Award. Here's a little bit about Jim and why he deserves our highest award. Jim had been a teacher of mathematics

for more than 30 years. He began his teaching

career at Jamesville-Dewitt High School near Syracuse, New York, for two years and then eight years at Herkimer County Community College near Utica, New York. He worked for two years at Ford Aerospace in Colorado Springs as a systems engineer before moving to California. He then taught at Mission College in Santa Clara and finally on to Santa Rosa Junior College where he has been since 1988. He joined the board of CMC<sup>3</sup> 12 years ago as Membership Chair for four years and then went on to be Treasurer for 8 years serving as well the Foundation Treasurer the entire time. This is the longest any person has held those positions for CMC<sup>3</sup>. Jim has been a champion of fiscal responsibility and careful record keeping. He has remained steadfast in upholding the dignity of our organization's dedication to professional and community service. His distinguished service, of course does not end with CMC<sup>3</sup>. He has an unparalleled reputation of service to his college community and especially the students. We thank Jim for his years of dedication to CMC<sup>3</sup> and teaching.

Our next award is the **President's Award**. Started in 2002, this award is picked solely by the president as a way of thanking a member who has been especially helpful to the president. This year, **Rob Knight** (Evergreen Valley College) earned this honor. For the past several years, Rob has been a full-time faculty member at Evergreen Valley College. For CMC<sup>3</sup>, he is our Monterey hotel negotiator, working diligently year-round with the hotel staff to ensure we have the best rates and the best conference. He also volunteers whenever the need arises, such as printing the programs, getting the Internet for the conference, soliciting donations to reduce conference expenses, etc. He continues to do this, even though he is now a past past-President. To see the list of the other President's Awards winners, go to: <http://www.cmc3.org/History/PresidentsAwards.htm>

(see "Awards" continued on page 20)

# Through the History Glass

J. B. Thoo, Yuba College, jthoo@yccd.edu



You may recall that 6 is a *perfect number* because it is the sum of its proper factors:  $6 = 1 + 2 + 3$ . In this installment, we look at these so-called “perfect numbers” in Euclid’s *Elements*. We begin with Euclid’s definition of “factor.”

We find Euclid’s definition of factor at the beginning of the *Elements*, Book VII, Definitions [1, p. 157]:

“3. A number is a *part* of a number,

the less of the greater, when it measures the greater;

“4. but *parts* when it does not measure it.”

At first glance, Euclid VII.Def.3 does not seem to define “factor,” but it does. For example, we see here that 4 is “a part” or proper factor of 12 because 4 “measures” 12.



On the other hand, for example, we see here that 5 is “parts” of 12 because 5 does not measure 12.



Now, the Pythagoreans considered 10 to be the “perfect number” because  $10 = 1 + 2 + 3 + 4$ , so that 10 is the essence of the *tetractys*, one of the important symbols for the Pythagoreans along with the pentagram. It is Euclid who gives us our familiar definition of perfect numbers in Book VII, Definitions:<sup>1</sup>

22. A *perfect number* is that which is equal to its own parts.

(Since, a “part” is a *proper* factor, we see that Euclid’s definition of a perfect number is exactly our familiar definition. The proper factors of a number are also called its *aliquot parts*.)

Perfect numbers have fascinated many since antiquity. It turns out that all even perfect numbers have the same formulation that Euclid gives in the *Elements*, Book XI, Proposition 36 [1, p. 234]:

*If as many numbers as we please beginning from an unit be set out continuously in double proportion, until the sum of all becomes prime, and if the sum multiplied into the last make some number, the product will be perfect.*

<sup>1</sup>Heath [2, p. 74] tells us that this definition of a perfect number, Euclid VII.Def.22, has not been found in any works prior to the *Elements*.

Euclid proves the proposition, but we omit the proof here; instead, we only explain the proposition’s assertion.

To let numbers “beginning from an unit be set out continuously in double proportion” means to form the sequence

$$1, 2, 2^2, 2^3, 2^4, 2^5, \dots$$

Thus, “beginning from an unit be set out continuously in double proportion, until the sum of all becomes a prime” means to consider the sums and note

$$1 + 2 = 3 \quad \text{is prime,}$$

$$1 + 2 + 2^2 = 7 \quad \text{is prime,}$$

$$1 + 2 + 2^2 + 2^3 = 15 \quad \text{is not prime,}$$

$$1 + 2 + 2^2 + 2^3 + 2^4 = 25 \quad \text{is not prime,}$$

$$1 + 2 + 2^2 + 2^3 + 2^4 + 2^5 = 57 \quad \text{is not prime,}$$

and so on. Finally, “until the sum of all becomes prime, and if the sum multiplied into the last make some number, the product will be perfect” means that, for example, because  $1 + 2 = 3$  is prime,

$$(1 + 2) \cdot 2 = 6 \quad \text{is perfect,}$$

which we know is true. Similarly, because  $1 + 2 + 2^2 = 7$  is prime,

$$(1 + 2 + 2^2) \cdot 2^2 = 28 \quad \text{is perfect,}$$

which, again, we know is true. On the other hand,  $1 + 2 + 2^2 + 2^3 = 15$  is not prime and

$$(1 + 2 + 2^2 + 2^3) \cdot 2^3 = 120 \quad \text{is not perfect,}$$

for the parts of 120 are 1, 2, 3, 5, 6, 8, 10, 12, 15, 20, 24, 40, and 60, and

$$1 + 2 + 3 + 5 + 6 + 8 + 10 + 12 + 15 + 20 + 24 + 40 + 60 = 206 > 120.$$

In modern notation, Euclid IX.36 may be stated: If the sum

$$1 + 2 + 2^2 + 2^3 + \dots + 2^n$$

is a prime number, then the product

$$(1 + 2 + 2^2 + 2^3 + \dots + 2^n)2^n$$

is a perfect number.<sup>2</sup>

<sup>2</sup>If we let  $S_n = 1 + 2 + 2^2 + 2^3 + \dots + 2^{n-1}$ , then we can show that  $S_n = 2^n - 1$ . In this case, we may say: If  $2^n - 1$  is a prime number, then  $(2^n - 1)2^{n-1}$  is a perfect number.

A number that can be expressed in the form  $2^n - 1$ , where  $n$  is a natural number, is called a *Mersenne number* after the French mathematician Marin Mersenne (1588–1648). A Mersenne number that is prime is called a *Mersenne prime*. According to Ore [3, p. 71], “The historical justification for this nomenclature seems rather weak, since several perfect numbers and their corresponding primes have been known since antiquity and occur in almost every medieval numerological speculation. Mersenne did, however, discuss the primes named after him in a couple of places in his work *Cogita physico-mathematica* (Paris, 1644) and expressed various conjectures in regard to their occurrence.”

Perfect numbers are “rare.” Indeed, Nicomachus of Gerasa (fl. ca. A.D. 100) knew only four perfect numbers, namely, 6, 28, 496, and 8128. Based on this, Nicomachus asserted that there must be one perfect number among the ones (namely, 6), one perfect number among the tens (namely, 28), one among the hundreds (namely, 496), and one among the thousands (namely, 8128); moreover, he asserted that perfect numbers terminate alternately in 6 and 8. Later, Iamblichus (ca. A.D. 245–325) suggested that there is one perfect number in the first myriads (less than  $10,000^2$ ), one in the second myriads (less than  $10,000^3$ ), and so on.

Nicomachus was correct about 6, 28, 496, and 8128 being the first four perfect numbers; he was also correct that perfect numbers end in either 6 or 8, but not necessarily alternately. Iamblichus, however, was off the mark. Here are the first several perfect numbers in order:

$$\begin{aligned}2(2^2 - 1) &= 6, \\2^2(2^3 - 1) &= 28, \\2^4(2^5 - 1) &= 496, \\2^6(2^7 - 1) &= 8128, \\2^{12}(2^{13} - 1) &= 33,550,336, \\2^{16}(2^{17} - 1) &= 8,589,869,056, \\2^{18}(2^{19} - 1) &= 137,438,691,328, \\2^{30}(2^{31} - 1) &= 2,305,843,008,139,952,128.\end{aligned}$$

We note that it is not known whether there are infinitely many perfect numbers. Also, no odd perfect number has been found to this day.

Finally, if the sum of the aliquot parts of a number is *greater than* the number itself, then the number is said to be *overperfect* or *abundant*. On the other hand, if the sum of the aliquot parts of a number is *less than* the number itself, then the number is said to be *defective* or *deficient*. These definitions are due to Nicomachus and Theon of Smyrna (fl. ca. A.D. 125).

Previous columns are on the Web at <http://ms.yccd.edu/~jb2/histglass.html>.

## References

- [1] Euclid, *Euclid's Elements* (all thirteen books in one complete volume), the Thomas L. Heath translation, editor Dana Densmore, Green Lion Press, Santa Fe (2003).
- [2] Sir Thomas Heath, *A History of Greek Mathematics, Volume 1, From Thales to Euclid*, Dover Publications, Inc., New York (1981).
- [3] Oystein Ore, *Number Theory and Its History*, Dover Publications, Inc., New York (1976).

## CMC<sup>3</sup> Foundation

*Cynthia Speed, CMC<sup>3</sup> Foundation President*

In the spring of 2010, the CMC<sup>3</sup> Foundation awarded \$7,200 in CMC<sup>3</sup> Foundation Scholarships and \$1,750 in AMATYC Student Mathematics League Competition Scholarships. This spring, the following nineteen colleges are eligible to award one \$400 CMC<sup>3</sup> Foundation Scholarship. The Nomination Forms, instructions, and criteria will be mailed to CMC<sup>3</sup> Campus Representatives in February and the Nomination Form with faculty signature for verification of student qualification, are due on or before May 1<sup>st</sup>, 2011.

Allan Hancock College	Lake Tahoe Community College
Berkeley City College	Lassen College
Cabrillo College	Merritt College
Canada College	Porterville College
College of Alameda	Santa Barbara City College
College of Marin	Solano Community College
College of San Mateo	Taft College
Columbia College	West Hills College
Folsom Lake College	Yuba College
Foothill College	

The recipients of a CMC<sup>3</sup> Foundation Scholarship must meet the following criteria:

- a. Completed first semester Calculus or higher,
- b. Declared Mathematics, Physical Science, Computer Science, or Engineering as a major,
- c. Earned more than 30 semester or 45 quarter units and plans to transfer to an accredited college or university for the next academic year, and
- d. Earned a GPA of 3.0 or higher.

The funding for our scholarships comes primarily from our member's donations, door prize proceeds, professional organizations, and business contributions. We are preparing for our Spring

Mathematics Conference at Lake Tahoe and are seeking donated items for our Scholarship fund-raising activities. Please contact any of the Foundation Board members if you have any prizes, puzzles, books, or any other miscellaneous items that you will donate for our drawing. The Foundation Board members for 2011 are Rebecca Fouquette of Santa Rosa Junior College, Larry Green of Lake Tahoe Community College, Wei-Jen Harrison of American River College, Debbie Van Sickle of Sacramento City College, and Cynthia Speed from Mendocino College.

We are deeply grateful to all of our Donors and they will be acknowledged in the 2011 Monterey Conference Program. This fiscal year, the donors from July 1<sup>st</sup>, 2010 through January 29<sup>th</sup>, 2011 are Anonymous, Charles Barker, Steve Blasberg, Guy De Primo, James Eckerman, Noelle Eckley, Michael Eurgubian, Rebecca Fouquette, Patty George, Barbara Illowsky, Marcella Laddon, Gary Ling, A. Podkolzin, Tracy Rabinowitz, Cynthia Speed, Cynthia Stubblebine, Janet Tarjan, Frederick A. Teti, Allyn Washington, and Raymond Wuco. Please consider joining this list of Donors by completing the attached Donation Form and mailing your donation to Rebecca Fouquette at Santa Rosa Junior College.

The CMC<sup>3</sup> Foundation is extremely grateful for all of the prizes that were donated at our Monterey Conference. We wish to acknowledge and thank Mary Kay Beavers of Conceptual Math Media, Inc.; Diane Whitfield of Casio Education Technology; Barbara Illowsky from AMATYC; Chris Barker and his wife; Janine M. Chicourrat of Portola Hotel & Spa; Jane Stahler of Texas instruments; John FitzGibbon of McGraw Hill Higher Education; Debbie Van Sickle of Sacramento City College; MaryAnne Anthony of MDPT; Rita Peterson of Cengage; Hawkes; Freeman; Wiley; Mina Rosales of TriCord Tradeshows; CMC<sup>3</sup>; Mark Harbison;

Marcella Laddon; and Wade Ellis. A special thanks to Ray Wuco and Anna Mary Speed Figueroa who worked tirelessly all day Saturday to fund-raise for our CMC<sup>3</sup> Foundation Scholarship Program.

Former CMC<sup>3</sup> President, Debra Landre, has donated funds the last several years, to support the Student Speaker Scholarship during the CMC<sup>3</sup> Spring Conference at Lake Tahoe. On May 1<sup>st</sup>, 2011, there will be an opportunity for one of your students to compete for this great scholarship. Applications, instructions, and selection procedures are available on our CMC<sup>3</sup> website, <http://www.cmc3.org> . Please help us recruit applicants by announcing this wonderful opportunity to the students and faculty at your college. The Student Speaker Scholarship winner will receive a \$500 check and a marble plaque.

The Foundation relies heavily on your generous donations to fund scholarships. Please consider making a donation to the CMC<sup>3</sup> Foundation Scholarship Fund so that we can continue to honor our most gifted, talented, and deserving students. Whether your donation is \$5, \$10, \$25, \$100, \$500 or more, we thank you for your continued support. Contributions are tax deductible, as provided by law, and our Taxpayer ID number is 94-3227552. Please complete the attached donation form and mail your donation to Professor Rebecca Fouquette  
 Santa Rosa Junior College  
 Mathematics Department  
 1501 Mendocino Avenue  
 Santa Rosa, California 95401

Please accept my donation payable to CMC<sup>3</sup> Foundation in the amount of:  
 \$5\_\_\_\_, \$10\_\_\_\_, \$20\_\_\_\_, \$50\_\_\_\_, \$100\_\_\_\_, or  
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## Developments in Developmental Mathematics

Wade Ellis, West Valley College

### Introduction

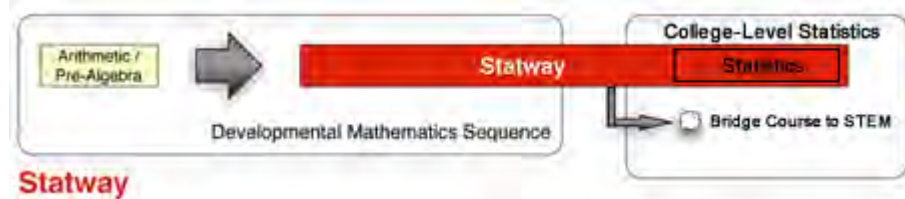
Many Developmental Mathematics projects have recently been funded or are about to be funded here in California and in the nation. Whether or not your college is part of one of these projects, the products and results of these projects will be of interest to us, especially with the increasing pressure for community college mathematics faculty to make our developmental mathematics courses more a pipeline and less a filter.

What follows are brief summaries of projects (with their major sponsors) that have affected or will affect California:

- **Pathways Project** – Carnegie Foundation for the Advancement of Teaching
- **Completion by Design** – Gates Foundation
- **Achieving the Dream** – Lumina Foundation for Education
- **Changing the Equation** – National Center for Academic Transformation (NCAT)
- **Transforming Undergraduate Education in STEM (TUES)** – National Science Foundation
- **TAACCCT Grants Program** – Department of Education and Department of Labor  
(TAACCCT: Trade Adjustment Assistance Community College and Career Training)

### Pathways Project – Carnegie Foundation for the Advancement of Teaching

The Carnegie Foundation is developing two Pathways projects called Statway and Quantway. These two developmental mathematics projects are designed as new, one-year pathways to completing the usual four-year college mathematics requirement and are intended for the diverse community college student populations. They also intend to be more streamlined and cost effective than the usual set of three or four developmental mathematics courses (Arithmetic, Pre-Algebra, Algebra, and Intermediate Algebra). The content and instructional outcomes of both Pathways projects will have rigorous learning standards. The Statway project is a one-year course that takes students at the Pre-Algebra level through the completion of a standard Elementary Statistics course.



Several California community colleges are involved in this project including American River College, Foothill College, Los Angeles Pierce College, Mt. San Antonio College, and San Diego City College. Myra Snell of Los Medanos College is one of the developers of the materials.

The Pathways projects are jointly funded by the Bill & Melinda Gates Foundation, the Lumina Foundation, the William and Flora Hewlett Foundation, the Kresge Foundation, and Carnegie Corporation.

Additional information is available at the following website:

<http://www.carnegiefoundation.org/problem-solving/developmental-math>



**Completion by Design – the Gates Foundation**

The Gates Foundation \$35 million Completion by Design program is a five-year program that will be funding projects based on proposals submitted in November, 2010. Not surprisingly, the program stresses the identification of ways to use technology more efficiently to serve and assess students. The funded projects should also be designed to create innovative approaches to financial aid counseling, course scheduling, and advising and to develop strategies for intervening at critical points throughout a student's college career. Though the program involves all developmental areas, mathematics is a central part of such programs at every community college. A number of California community colleges have applied for funding through this program; final awards will be made in April or May of 2011.

Additional information can be found at the following website:

<http://www.gatesfoundation.org/press-releases/Pages/increasing-community-college-graduation-rates-101004.aspx>

**Achieving the Dream** (*adapted from the Achieving the Dream website*)

The Achieving the Dream program, funded by the Lumina Foundation for Education, is focused on making student success a priority at community colleges and with policymakers and stakeholders at the state and national levels.

To create and implement student success strategies, Achieving the Dream provides:

- On-campus coaching with faculty, staff and leadership
- Assistance with data collection and analysis
- Access to information on innovative and successful practices
- Networking opportunities and resources to address barriers
- Guidance on engaging the college and community in supporting student success

Again, though the program involves all developmental areas, mathematics is a central part of such programs at every community college.

San Jose City College, Evergreen Community College, College of the Sequoias, and Los Angeles Southwest College are part of this program. Applications for the 2012 Cohort will be available 4th Quarter, 2011.

Additional information can be found at the following website:

<http://www.achievingthedream.org/>

**Changing the Equation – The National Center for Academic Transformation**

This NCAT Course Redesign program focuses on large-enrollment introductory courses that reach significant numbers of students. Lowering costs in these courses can generate substantial savings. These courses are targeted because undergraduate enrollments in the United States concentrate in only a few academic areas. In fact, just 25 courses generate about 50% of student enrollment at the community college.

To have a significant impact on large numbers of students, an institution should concentrate on redesigning the 25 courses in which most students are enrolled. By making improvements in a restricted number of large-enrollment courses, a college can literally affect every student who attends.

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Additional information about NCAT is available at the following websites:

<http://www.thencat.org/whoweare.html> and <http://www.thencat.org/howtodoit.htm>

Thirty-eight (38) community colleges are participating in *Changing the Equation*, a new program focused on redesigning remedial/developmental math supported by a \$2.3 million grant from the Bill & Melinda Gates Foundation. The projects in the program are intended to improve student learning outcomes while reducing costs for both students and institutions by using NCAT's proven redesign methodology. Collectively, these 38 redesigns will impact more than 120,000 students annually, none of them in California.

Each participant in *Changing the Equation* will redesign its entire developmental math sequence--all sections of all developmental courses offered – using NCAT's Emporium Model and commercially available instructional software. Each redesign will modularize the curriculum, allowing students to progress through the developmental course sequence at a faster pace if possible or at a slower pace if necessary, spending the amount of time needed to master the course content. Institutions will pilot their redesign plans in spring 2011 and fully implement their plans in fall 2011. (*from the NCAT website*)

Additional information on the Emporium Model is available at the following website:

<http://www.thencat.org/R2R/AcadPrac/CM/MathEmpFAQ.htm>

## **Department of Education and the Department of Labor**

### **Trade Adjustment Assistance Community College and Career Training Grants Program - SGA-DFA-PY-10-03** (*adapted from the Department of Education website*)

The U.S. Department of Labor (DOL or the Department) announces the availability of up to **\$500 million** in grant funds to be awarded under the Trade Adjustment Assistance Community College and Career Training grants program (TAACCCT). These funds are available to eligible institutions of higher education to serve workers who are eligible for training under the TAA for workers program in the 50 States, the District of Columbia, and Puerto Rico. The TAACCCT provides community colleges and other eligible institutions of higher education with funds to expand and improve their ability to deliver education and career training programs that can be completed in two years or less, are suited for workers who are eligible for training under the Trade Adjustment Assistance for Workers program, and prepare program participants for employment in high-wage, high-skill occupations. The Department intends to fund grants ranging from **\$2.5 million to \$5 million** for individual applicants and from **2.5 million to \$20 million** for consortium applicants. This is the first year of a 4-year program totaling **\$2 billion**.

**Issue Date: January 20, 2011**

**Closing Date: April 21, 2011**

From my reading of the program, workers who are eligible can be defined in many ways.

The following is an adaptation of a clarifying statement of the program by Timothy Vollmer, January 20, 2011. The underlined words are links to Department of Labor websites.

### **New federal education fund makes available \$2 billion to create Open Educational Resources (OER) in community colleges**

The Department of Labor and the Department of Education has announced a new education fund that will grant \$2 billion to create OER materials for career training programs in community colleges. According to Secretary of Labor Hilda L. Solis and Secretary of Education Arne Duncan, the Trade Adjustment Assistance Community College and Career Training Grant Program (TAACCCT) will invest \$2 billion over the next four years into grants that will “provide community colleges and other eligible institutions of higher education with funds to expand and improve their ability to deliver education and career training programs.” The full program announcement (PDF) states that all the resources created using these funds must be released under the Creative Commons Attribution (CC BY) license. (Barbara Illowsky, our CMC<sup>3</sup> President, has been instrumental in promoting the OER movement.)

Additional information about this program can be found at the following website:

<http://creativecommons.org/tag/taaccct>

### **National Science Foundation** (*from the NSF website*)

#### **Transforming Undergraduate Education in Science, Technology, Engineering & Mathematics (TUES)**

##### **Synopsis of Program:**

This solicitation especially encourages projects that have the potential to transform undergraduate STEM education, for example, by bringing about widespread adoption of classroom practices that embody understanding of how students learn most effectively. Thus, transferability and dissemination are critical aspects for projects developing instructional materials and methods and should be considered throughout the project's lifetime. More advanced projects should involve efforts to facilitate adaptation at other sites.

**Full details at:** <http://www.nsf.gov/pubs/2010/nsf10544/nsf10544.htm>

**Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time): Type 1 May 27, 2010 States beginning with W.

Subsequent Type 1 proposals: May 27, 2011 and May 28, 2012

**Results from MDRC** – MDRC is best known for mounting large-scale evaluations of real-world policies and programs targeted to low-income people.

Several results from a MDRC assessment of the Achieving the Dream program entitled *Turning the Tide* are given below and are available at: <http://www.achievingthedream.org/docs/2011si/TurningtheTide.pdf>

- **Colleges instituted a wide range of strategies to improve student achievement, but a majority of them remained small in scale.** The most popular strategies were tutoring, supplemental instruction, advising, success courses, and learning communities. However, a majority of these reforms reached *less than 10 percent* of their intended target populations.

- **Achieving the Dream had an important influence on most colleges.** Representatives from three-fourths of the colleges said that the initiative had *at least some influence on their development of a culture of evidence*. Other important influences included accreditation systems, grants in addition to those from Achieving the Dream, and visionary college leaders.
- **Trends in student outcomes remained relatively unchanged, with a few exceptions.** On average, after Achieving the Dream was introduced, colleges *saw modest improvements* in the percentage of students completing gatekeeper college English courses and percentage of courses completed. In contrast, students' persistence and the percentage of students completing developmental math, developmental English, developmental reading, and gatekeeper math courses *remained substantially the same*.

### Comments

The results from MDRC are probably applicable to many California colleges involved in or about to be involved in Developmental Mathematics projects. The message here, however, should not be misconstrued. Change is happening at our colleges. But with difficult problems, change may happen slowly and unevenly. For those of us who remember the civil rights movement, major change began with the 1954 Brown v. Board of Education of Topeka Supreme Court judgment and has not yet finished. There are many great ideas about how to improve student performance at the developmental mathematics (and other) levels. Some great ideas are initially hard to implement because attitude changes are often required. Joel Klein, the retiring Chancellor of the New York City School System, has said, "Great ideas poorly implemented are going to

fail." And the current financial situation in our state would tend to provide insufficient funds to properly implement the effective ideas that we have. The good news is that there is money (literally billions of dollars) to help us improve the performance of our students. Doing this will be fraught with uncertainty and require sacrifice, but the work is gratifying for us as individuals and critical for California and our nation.

How is your college spending its Basic Skills Initiative funding? **A place to start!**

### Awards (continued from p. 12)

By a complicated algorithm, even for us mathy folks, that only the Awards Chair (and past chairs) and about one-third of the board knows, approximately seven to eight colleges are chosen each year to pick its own winner of the **Teaching Excellence Award**. The number of CMC<sup>3</sup> members that college has, how recently that college has been picked and a few other items determine when it is a college's turn. Only current members, both full and part-time, with a certain minimum years of teaching at that college may receive the award. The Campus Representative receives the rules, current college members, and deadline information. The departments choose their winner and send the name to the Awards Chair. Remember: you may still pay annual dues whether or not you attend the conference. (In fact, we welcome it!!)

This year's Teaching Excellence Award recipients are **Sandy McKaig** (American River College), **Charlene Wieser** (Chabot College), **Lenore Desilets** (De Anza College), Tina Levy (Diablo Valley College), **Marc Knobel** (Foothill College), **LaRae Helliwell** (San Jose City College), **Dorothy Hawkes** (Solano College), and **Steve Blasberg** (West Valley College).

Congratulations to all of the awards recipients. Thanks for all your hard and excellent work!

## Scholarships

*Cynthia Speed, CMC<sup>3</sup> Foundation President*

The CMC<sup>3</sup> Foundation, on behalf of CMC<sup>3</sup>, awards scholarships to community college students enrolled in the 56 colleges in our region, which extends from the Oregon border to Santa Barbara City College and Bakersfield College. For the last three years, we have been able to award one \$400 scholarship to one-third of the colleges in our region. This spring, the nineteen colleges that are eligible to nominate one CMC<sup>3</sup> Foundation Scholarship winner are Allan Hancock College, Berkeley City College, Cabrillo College, Canada College, College of Alameda, College of Marin, College of San Mateo, Columbia College, Folsom Lake College, Foothill College, Lake Tahoe Community College, Lassen College, Merritt College, Porterville College, Santa Barbara City College, Solano Community College, Taft College, West Hills College, and Yuba College. The Nomination Forms and Scholarship Criteria document will be mailed to the CMC<sup>3</sup> Campus Representatives in February and are due, with faculty verification signatures, on or before May 1<sup>st</sup>, 2011.

In addition to these nineteen scholarships, the CMC<sup>3</sup> Foundation also awards five scholarships to the top five winners from our region in the Student Mathematics League Competition, which is sponsored by AMATYC. For the last two years the scholarship amounts awarded to the AMATYC SML Competition winners are as follows: first place \$500, second place \$400, third place \$300, fourth place \$200, and fifth place \$175.

The funding for these twenty-four scholarships comes from donations. The current cash donors from July 1<sup>st</sup>, 2010 through January 29<sup>th</sup>, 2011 are Anonymous, Charles Barker, Steve Blasberg, Guy De Primo, James Eckerman,

Noelle Eckley, Michael Eurgubian, Rebecca Fouquette, Patty George, Barbara Illowsky, Marcella Laddon, Gary Ling, A.Podkolzin, Tracy Rabinowitz, Cynthia Speed, Cynthia Stubblebine, Janet Tarjan, Frederick A. Teti, Allyn Washington, and Raymond Wuco. This year, we are very much in need of additional funds. If you know of a business, enterprise, corporation, or similar entity that would be willing to help out, please have them contact Cynthia Speed at 707-489-6221 or [cspeed@mendocino.edu](mailto:cspeed@mendocino.edu). If you would like to contribute a cash donation, please mail your check, payable to CMC<sup>3</sup> Foundation, to our Treasurer Rebecca Fouquette, at Santa Rosa Junior College Mathematics Department, 1501 Mendocino Avenue, Santa Rosa, California 95401.

The CMC<sup>3</sup> Foundation also oversees and administers a \$500 scholarship for the Student Speaker Competition during the CMC<sup>3</sup> Spring Conference at Lake Tahoe. Debra Landre, a former CMC<sup>3</sup> President, has sponsored this scholarship for the last several years. Applications are open to any currently enrolled community college student in our region and the paperwork can be found online at [www.cmc3.org](http://www.cmc3.org). Further information regarding the Student Speaker Scholarship is available by contacting Dr. Larry Green at Lake Tahoe Community College, 530-541-4660 ext 341, [DrLarryGreen@gmail.com](mailto:DrLarryGreen@gmail.com) or online.

## Recreational Conference

(continued from p. 3)

include a meal voucher of toward any of the hotel's eating establishments.

For more information, contact your department chair or CMC<sup>3</sup> campus representative. Full-time college students may register for a nominal fee (inquire at numbers below), which does not include the lunch voucher.

By mail or phone, contact Larry Green, Professor Larry Green at Lake Tahoe Community College ([drlarrygreen@gmail.com](mailto:drlarrygreen@gmail.com)) or Michael Eurgubian ([meurgubian@santarosa.edu](mailto:meurgubian@santarosa.edu)). Conference information and registration forms can also be found on the CMC<sup>3</sup> website, ([cmc3.org](http://cmc3.org)).

Year after year people have spoken praise of this conference as one of the best !

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## Bylaws

(continued from p. 11)

and our By Laws do not reflect those changes.

The current Constitution and By Laws, along with the proposed amended By Laws are posted at the web site. Our web master, Past President Larry Green, has added a link to where you can post comments and questions. We will monitor and the remarks and reply. After lunch at the December conference in Monterey, we will have a general membership meeting where we vote on accepting the proposed amendments. Please read the proposed changes and provide us with feedback. You, too, can increase your vocabulary and knowledge of federal tax laws, along with us!



## Math Nerd Musings

Jay Lehmann, College of San Mateo

Well, I'm excited that our newsletter has gone online! The timing of our green efforts is perfect, what with the page-count on this issue being twice the normal size. Given this mammoth issue, I'll keep it short and sweet, and say that

it's been an honor to serve as newsletter editor for the past nine years, and I look forward to future editions, which will have sharper photos and more varied color, now that we've gone online.

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## Breakfast, Anyone?

Steve Blasberg, West Valley College

You may not be aware that the California Math Council of Community Colleges provides financial support for articulation activities sponsored by community colleges in Northern California. In the past, these activities have included such events as Saturday breakfasts, afternoon meetings, and weekday dinners. A typical event might involve inviting high school math teachers from the surrounding area to your campus on a Saturday morning for breakfast to discuss such issues as math prerequisites at the community college, course equivalencies between high school and college, the handling of Advanced Placement courses, and any other issues of interest to both high school and community college math instructors.

Up to \$300 of financial support can be provided by CMC<sup>3</sup> for hosting an articulation event. If you would like to host such an event and are interested in support for it, contact the Board Member in charge of articulation, Steve Blasberg, by mail at West Valley College, Saratoga, CA 95070, by phone at (408) 741-2564, or by email at [steve.blasberg@wvm.edu](mailto:steve.blasberg@wvm.edu). Funds are distributed on a first-come, first-served basis, subject to consideration of geographical diversity.

## Calendar

March 4-5, 2011 CMC3-South Spring Miniconference, Norco Doubletree Hotel, Anaheim/OC, Contact: Sherri Wilson, [swilson@craftonhills.edu](mailto:swilson@craftonhills.edu)

March 10-11, 2011, NCMATYC Conference, Davidson County CC, Lexington, NC. Contact: Nancy Rivers, [njrivers@waketech.edu](mailto:njrivers@waketech.edu)

March 25-26, 2011, TMCTYC Annual Conference, Dyersburg State CC, Dyersburg, TN. Contact: Timothy Britt, [tbritt@jscc.edu](mailto:tbritt@jscc.edu)

March 31-April 2, 2011, 36th Annual IMACC Conference, Allerton House &N Conference Center, Monticello, IL. Contact: Rodger Hergert, [r.hergert@rockvalleycollege.edu](mailto:r.hergert@rockvalleycollege.edu). Website: [www.imacc.org](http://www.imacc.org)

March 31-April 2, 2011 MOMATYC Conference, Columbia MO. Contact: Lola Swift, [lswint@mail.cmissouri.edu](mailto:lswint@mail.cmissouri.edu)

April 8, 2011 NebMATYC Conference, Metropolitan CC-Ft. Omaha Campus, Omaha, NE. Contact: Frank Weidenfeller, [fweidenfeller@mccneb.edu](mailto:fweidenfeller@mccneb.edu)

April 28-30, 2011 MinnMATYC Conference, Duluth, MN. Contact: Viann Olson, [viann.olson@rochedu](mailto:viann.olson@rochedu). Website: [www.minnmatyc.org](http://www.minnmatyc.org)

April 28-30, 2011 NEMATYC Annual Conference, Cape Cod CC, West Barnstable, MA. Contact: Mary Moynihan, [mmoyniha@capecod.edu](mailto:mmoyniha@capecod.edu). Website: [www.nematyc.org](http://www.nematyc.org).

May 6-7, 2011 MichMATYC/ Michigan MAA Annual Joint Spring Meeting, Western Michigan Univ., Kalamazoo, MI. Website: [www.michmaa.org](http://www.michmaa.org).

November 10-13, 2011, 37th Annual AMATYC

Jay Lehmann

Editor

CMC<sup>3</sup> Newsletter

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