VOLUME 39, NUMBER 3 FALL 2010

California Mathematics Council Community Colleges

CMC³ NEWSLETTER

Monterey Conference Announcement

Susanna Crawford, President-Elect, Solano College

Now is the time when many of us start to look forward to the Monterey Conference again. This year the fall conference will be held on **Friday, December 10th and Saturday, December 11th**. If you have not yet registered, please take a look at your mini-program which you should receive in early October through the mail along with a registration form, or go to the website http://www.cmc3.org/conference/fall_con.html to download a registration form to send in for the conference. If you are not currently a member, then you can still get information about and the registration form for the conference at the website, but will not be getting the mini-program this year. Once you are registered, you will be sent a confirmation email from Joe Conrad (our membership chair). Please make sure your email address is easy to read on your registration form. Your paper receipt can be picked up when you check in at the conference. If you have not done so, then please consider volunteering to be a Presider by sending in the form from the website at http://cmc3.org/conference/callForPresidersMonterey.html

Hotel reservations can be made at the Portola by calling 1-(888)-222-5851. Be sure to reserve your room as soon as possible, and to mention that you are coming for the CMC3 conference. A number of rooms are set aside for CMC3 attendees to be offered at $99/night, but these are available on a first come first served basis, and must be booked before November 12th.

If your schedule allows it, please try to get to Monterey early on Friday. To encourage early arrival, conference registration will be available from 2:30 pm to 6:30 pm on Friday. Workshops and activities for faculty arriving early include a Math Trivia session sponsored by McGraw Hill. Prior to the Keynote Speaker on Friday evening, McGraw Hill Higher Education will host a Math Trivia Session where participants can answer various types of trivia questions on topics such as the history of mathematics, interesting math problems, current McGraw Hill products, and famous quotes. Prizes will be given out to the best performers!

Our Friday night Keynote Speaker is John Martin from Santa Rosa Junior College. He will be giving a talk titled "A Piece of Pie". On Saturday, our Keynote will be Bill Dunham from Muhlenberg College who will present "Two Jaw Dropping Gems from Euler". Unfortunately, due to budgetary issues, there will not be dessert offered at the Friday night talk, however coffee and tea will available.

After the Friday night talk will be the 2nd Annual Pearson Educational Game Night from 9pm – 12am. Please come and enjoy a night of drinks, appetizers, games, poker, and Wii. (Don't forget that Pearson will also be once again raffling off the games and the Wii at their booth in the Exhibit Hall on Saturday.)

As usual, we have a fabulous group of presenters scheduled. They are all listed on the website and in your mini-program. In this article, I will highlight some non-traditional speakers. For adjunct faculty Tracy Jackson will run a panel discussion about what opportunities are currently available and

(see " Monterey Conference" continued on page 2)

Table of Contents

Executive Board & Special Committees

Volume 39, Number 3 Fall 10

CMC³ Newsletter is the official newsletter of the California Mathematics Council, Community Colleges, and is published three times a year--in the spring, summer, and fall. Printing costs for this issue have been underwritten by College of San Mateo.

Monterey Conference

(continued from front cover)

how to increase your likelihood of getting a full time faculty position. Corrine Kirkbride, a relatively recent full timer at Solano College, will be discussing her project and her experiences being a part of the AMAYTC Project Acccess program for new full time faculty. Dr. Dmitry Fuchs, a renowned U.C. Davis math professor, will be giving a talk on geodesics on regular polyhedra. Nicholas Gunther, with extensive experience in both mathematics and investment banking, will be discussing the relationship between mathematics and finance. During the last speaker session, Michael Eurgubian will be showing "The Oral History of CMC3". Additionally, there will be numerous interesting talks on technology, math history, teaching of developmental mathematics, statistics, and many other exciting topics.

Between talks, as well as after the last one, please don't forget to check out the exhibit hall. Look for something new this December! CMC³ will be displaying student posters during the Saturday sessions. To participate, students need to be currently attending a community college, be sponsored by a faculty member at that college, and fill out an application, which can be found on the CMC³ website. Posters can be at any level of mathematics to be eligible but should be based on the student's original work. Students are asked to provide their own easel and any other materials that may be needed for their presentation. Students are asked to set up their own posters Saturday morning at 9 am, and are responsible to take down their own posters between 3 and 5 pm. Students will be notified of their poster location and a time to be available for questions. Registration fees will be waived for the students submitting posters, but lunch is not included. Lunch can be purchased for $50. Applications are due by November 25, 2010. Contact Rebecca Fouquette at rfouquette@santarosa.edu with any questions. Please encourage your students to get involved!

The speakers for the 2010 conference are already scheduled, but if you think you may want to speak at CMC3 please send in a proposal for next year's conference. The proposal form for the 2011 Monterey Conference is already available on the CMC3 website.

December is almost here, and I look forward to seeing all of you in Monterey! If you have any questions or need to contact me for any reason please email me at scrawford2@sbcglobal.net or call (530)-848-8808.

President's Message

Barbara Illowsky, De Anza College

Welcome to fall term! I always love the beginning of the new year. At De Anza, we have close to 25,000 registered students with another 10,000 students who were on wait lists. I hear from many of you that your colleges are overflowing with students, as well. Do you wonder just how many of our 3 million California community college students are future mathematics majors? In a "good year", De Anza College might have five mathematics majors. In other years, we might not have any. This year, CMC^3 is starting a new tradition in the hopes of exciting more students to continue with their mathematics education. Please read Rebecca Fouquette's article about Poster Sessions for students at our conferences. I encourage you to encourage your students to participate. They may attend the conference for free and learn more about the beauty of mathematics.

Our annual Monterey Conference is fast approaching. Conference Chair Susanna Crawford's article gives more information, but I would like to inform you about another change for this year. We are setting up registration at 2:30 pm (instead of 5:30 pm) on Friday, December 10th. Several vendors are offering Friday afternoon workshops from 3:00 – 5:00 pm. As soon as we receive their information, we will post it on the CMC^3 web site: http://www.cmc3.org/conference. To receive a personal email directly from the publishers, check the box on the registration form giving permission for CMC^3 to forward your email address to them. You can also check the web site for updates.

If you have not yet watched the video about the founding and early years of CMC^3, you can view the 30-minute history at: http://www.cmc3.org/news. I found the stories of our founding quite interesting and know that I personally owe a huge debt to our founders as CMC^3 has provided me with consistent professional development over the 21 years that I have been a member.

Finally, we are now posting our newsletters online at: http://www.cmc3.org/news. At the Monterey conference, I will poll the attendees so as to advise the Board in its discussion about going completely "green" with future newsletters.

I hope to meet you in Monterey. For those of you I do not know, please introduce yourself to me. Enjoy your fall term!!

What's Happening at Las Positas College

Gregory Daubenmire, Las Positas College

The campus has just completed its new College Center for the Arts, it will be completing the Child Development Center in October and work on the Second Phase of the Physical Science building has just broken ground. Just last year, the Physical Education department opened its new Aquatic Center and Soccer fields and is presently developing several Athletic Fields. All of the buildings are being built to LEED Silver standards; many of the parking spots are covered with Solar Panels generating about one-third of our power usage and our cooling and heating system is state of the art. We have the Measure B Bond monies and our community to thank for this building out of our campus.

The Las Positas College Math department just celebrated the newly tenured members of our faculty, Craig Kutil and Brenda Weak. We also have three more members in their third

year of the Tenure process, Ruchira Majumdar, Howard Blumenfeld and Ashley Mc Hale. Last November a member of our department Randy Taylor, a former president of *CMC* ^{3} and long time board member, was honored with the American Mathematics Association of Two Year Colleges *Teaching Excellence Award* in Las Vegas. He was one of only six to receive this national award. The awardees are selected from all two year colleges in the United States and Canada, quite an honor. Randy went on to win the Las Positas College Academic Senate Award for *Teaching Excellence* in the spring.

Last May our President, Dr. Pollard, resigned after accepting the president's position at a college in Maryland; during that same week our Vice President of Academic Services, Dr. Laurel Jones, accepted the position of President at Mission College in Santa Clara. Dr. Pam Luster moved from Vice President of Student Services to act as the interim Vice President of Academic Services, and we have Dr. Lease the former President of Tahoe Community College as our acting interim President. As every where, we are working under a less than adequate budget and are fortunate that Dr. Lease is well versed in the budget process and helping us through this difficult time.

The Yellow Pages, Textbooks and Maps

Ken Bull, College of San Mateo

The yellow pages arrived today. This is only remarkable because I hardly ever use the yellow pages; I tend to search on-line. The new yellow pages will sit in a drawer along side the other telephone books until the next one comes, when it will be recycled — in perfect condition. The yellow pages publishers of course have no way of knowing that I hardly ever use their publication. But . . . does anyone use the yellow pages? The publishers evidently think so, at least for now, because they keep sending them. (In fact, they sent two versions: a big complete one, and a smaller "companion.")

It is tempting to compare textbooks to the yellow pages; Do math students read textbooks? Are textbooks outmoded, especially given that they tend to be costly (unlike the yellow pages) and are subject to a kind of planned obsolescence by the publishers?

The idea that students do not read textbooks probably stems from the tendency most of us have noticed for students to read textbooks "backwards" — to start with the problem sets and then look back to the examples. Some texts even encourage (or acquiesce in) this procedure with annotations next to the exercises to "See Example *k."* Given that students can now have a very large set of good math problems on-line, and an almost instant system for showing hints and examples, is the text really necessary? Do textbooks have a use?

The world of textbook publishing is in a state of flux, with a myriad of forms available for the production of educational materials. Instructors can self-publish, and that is becoming easier and easier. They can put material on-line, and choose to have the on-line access restricted to registered students — or not. Instructors or colleges can arrange for specialized editions of commonly used course materials to be published just for the courses at that one college. Instructors or departments can choose to enhance the use of texts with "Online Homework Services" (or OHS) such as MyMathLab, Aleks, or WebWork. Some of the OHSs presume the use of a text (in any of a number of forms), since they are tied to specific text materials, but other OHSs (WebWork, for example) do not. It would seem that it may be possible for both instructors and students to do without a "text" at all, if there are sufficient exercises to solve to which the students have access. Our question here is not about the advantages and disadvantages of self-published notes versus a published text from a "big" publisher, a published text from a "niche" publisher, or text on line versus paper, but whether texts are necessary at all.

What we mean by a text is an exposition of the mathematics together with teaching materials — exercises, projects, sometimes applets — designed for a particular course or sequence of courses. Notice here that the choice and the sequencing of the exercises is taken to be part of the total package. Moreover, for this discussion, these course materials can be in paper form or on-line, or some combination. What can or do students get from an exposition of the material (the "text") that they would not get if they had no text, whether paper or on-line?

We can start with an observation from the Esteemed Editor of this newsletter; this observation is really about the impact of the use of OHSs, but I think it will lead us forward. Typically, in some of the OHSs the student can gain help with hints or the student can see an example; MML (to choose one) gives immediate access to examples. Now, to consult an example using a paper text the student may have to leaf through the pages of the text looking for and ultimately assessing which of the examples is the relevant example. This process essentially drives the student back to reading a text, and what is more important, forces the student to think of why one example is relevant and another is not. Our EE notes that this assessment or judgment is something that is missed out when the example appears at the other end of a click. Not having an example readily available may be less efficient, may be harder, but more beneficial ultimately because it includes this extra step of assessment. As pointed out above, some paper texts also deprive the student of "the search" by pointing the student to the relevant example. Either of these procedures ("See Example *k"* or "Click to see an example") may encourage students to think of the mathematics they are studying as a string of discrete and unrelated problems whose solutions need to be memorized, a tendency that may well already be present.

Even at the lowest level of "How do I solve this problem?" one function of course materials is to stimulate students to evaluate and assess what kind of problem they are up against. Hence, in texts we see strategies for factorizing various kinds of quadratics, strategies for "What to do in the face of an Integral." There is an attempt, even at this level, to make connections in the material.

This brings us to a second observation concerning the functions of course materials. I would propose that one function is to show the interrelatedness of the material — how it hangs together. A kindred function is to consistently show the material from different points of view. The Rule of Three (or Four) makes explicit the intention to express the mathematical material in more than one way, and is an expression of this function. Both of these functions aim for student understanding rather than "merely" being able to successfully solve a set of problems. Even the mention of these two proposed functions raises questions; and the questions themselves may express some doubt whether course materials can be used to attain these goals. One question is: Cannot (or are not) the connectedness of the material be shown primarily through lectures and the way the instructor handles the course rather than the exposition in a text? A second question is: What fraction of students really pick up on the interrelatedness of the material, or come to see the material in different ways? Or do they see these matters as not really important, or as froth, even getting in the way of making good grades on tests?

My answer to the first question (about lecturing) would be to say both: "yes"and "no"; the way the connectedness of the material is shown *does* depend on the way the instructor handles the course, and therefore upon lectures. However, lectures themselves cannot carry the entire burden of this endeavor (and hence "no"). That we should think lecturing can reveals (in my opinion) an overestimation of the power of our own voice or personality. It is quite striking how much confidence we and our students put into the spoken rather than the written word. The familiar refrain amongst teachers, "I always tell my students . . . " is paralleled amongst students by "In class, she said . . . " . We seem to have the idea that if and only if something is said in class, that thing is understood. Surely part of what we want to do is to get students to be able to pick up an argument by carefully reading as well as listening. I do not think that it matters very much whether the exposition is on line or on paper or both; the important thing is that students have the experience of reading and comprehending something that presents an argument. The relatedness and the perspective of the material should be conveyed by lectures, but by other materials as well. Indirect evidence that lecturing cannot carry the full load comes from the number of instructors who provide lecture notes — notes that indeed sometimes turn into textbooks. There is of course a tradition in academic mathematics of purely lecture based courses, but this tradition is found mostly at the graduate level.

The answer to the second question is probably unknown to us. We typically test such matters only indirectly; they are typically not a part of the grade, and perhaps should not be. However, seeing connections and seeing things from multiple points of view is surely what understanding is about, and is a goal for all course materials: expository text, exercises and whatever else goes into a course.

If we pursue the connectedness theme a bit, we should choose another example that shows connections. I would argue that maps are a good analogy to course materials (by which I mean expository text, exercises, and projects, and whatever else). We often encourage students to make a mental map of the material in a course, because maps show connections. If we think of our course materials as maps to the mathematics, several things emerge. First, really good maps (and here I am thinking of maps such as the UK Ordnance Survey maps) give you much more than you typically need to get you from one place to another. In a sense, good maps are inefficient for the simple tasks; verbal car SAT-NAV is more efficient. However, my understanding is that the efficient option would not allow you know that there is a castle on the hill just off your route, or alert you to that lovely alternate route to the freeway. (Since none of my cars has a SAT-NAV, I may stand to be corrected here.) Second, maps require some expertise for their use; at first, the contour lines, the shading and the symbols may just look confusing. However, once one learns to read, good maps allow the traveller to "see" the lay of the land; good course materials, whether paper or on-line should as well.

Nothing here should be taken to mean that I think that all is well in the world of textbook publishing. Quite the opposite. Perhaps texts could be considerably simpler, or considerably more complicated; the on-line materials may be able to use the dynamic capabilities of software to much greater advantage. Course materials may look different in a few years time. For an instructor planning out a course, I should think that the question should be: "How can I employ the course materials at my disposal so that my students can use them to get the lay of the land?"

Through the History Glass

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

Many of us have heard of Euclid's *Elements*, but it may be that not many of us have read it. In this and the next two installments of this column, we shall take a look at a few of the "number theoretic" propositions in the *Elements*.

Not much is known about Euclid's life: where he was born, when he was born, when he died, and so on. The approximate dates for Euclid are ca. 323–285 BC, which are derived from Proclus's statement in the summary in his *Commentary on Euclid*, Book I [3, p. 51]. Proclus's summary places Euclid between Plato (427–347 BC) and Archimedes (287–212 BC). Moreover, because of a reference to Ptolemy I, it is believed that Euclid flourished around 300 BC, during which time he arrived in Alexandria and founded a school of mathematics at the Museum, perhaps at the invitation of the governor Demetrius of Phalerum.

Euclid[1] was interested in a variety of subjects, as evinced by his books, some of which have been lost entirely, and some of which have survived only in translations: the *Phaenomena* on spherical geometry applied to astronomy; *Optica* on perspective; *Catoptrica* on mirrors; the *Elements of Music* on the theory of musical intervals; the *Pseudaria*, the *Porisms*, the *Conics*, and the *Surface Loci*, which are lost geometrical works; *On Divisions of Figures* on conic sections; and the *Data*, which is closely related to the first six books of Euclid's most influential work, the *Elements*.

The *Elements* [2] is a compilation of all the basic mathematics up to Euclid's time. Euclid wrote the *Elements* in thirteen books (each book being what we would consider to be a chapter today). What makes the *Elements* such an important contribution to mathematics is that it lays out mathematics in an axiomatic and deductive fashion that became the standard by which mathematical rigor was judged until the eighteenth century. The *Elements* has been used by countless generations as an introduction to both mathematics and deductive reasoning: Archimedes referred to the *Elements* as the standard textbook of basic mathematics, and Abraham Lincoln (1809–1865), at the age of forty, mastered the first six books to make himself a more exact reckoner.

[1] Image from Wikipedia: The Free Encyclopedia. <http://en.wikipedia.org/wiki/Euclid>.

It is a common misconception that the *Elements* is a work only on plane geometry, that is, on what we may consider to be high school geometry today. This may be because the Greeks made geometrical arguments in all their mathematics. In fact, the *Elements* covers not only plane geometry, but it also covers geometric algebra and proportions, number theory (arithmetic), and solid geometry. On the other hand, the *Elements* omits such topics as "commercial mathematics," conic sections, and spherical geometry that were also known in that day. Calinger gives a brief description of the thirteen books of the *Elements* [1, pp. 133–134]:

Plane Geometry

I. Preliminary principles (definitions, postulates, and axioms) along with congruence theorems and geometry of straight lines and rectilinear figures

II. Transformation of areas

III. Major propositions about circles

IV. Construction of regular polygons of three, four, five, six, and fifteen sides

V. Eudoxus' theory of proportions applied to commensurable and incommensurable magnitudes

VI. Application of this general theory of proportions to similar figures

Theory of Numbers

VII. Pythagorean theory of numbers

VIII. Series of numbers in continued proportions

IX. Miscellany on the theory of numbers, including products and primes

Plane Geometry

X. The classification of certain incommensurable magnitudes (irrationals)

Solid Geometry

XI. The geometry of three dimensions, particularly parallelepipeds

XII. Areas and volumes found by the method of exhaustion

XIII. Inscription of the five regular solids in a sphere

Even and odd numbers

To Pythagoreans, what we call the number one is not a (natural) number at all, but rather a "generator" of numbers. Indeed, Euclid says as much in the *Elements*, Book VII, Definitions [2, p. 157]:[2]

[2] A footnote in the translation of the *Elements* explains [2, p. 1]: "Euclid's definitions, postulates, and common notions—if Euclid is indeed the author—were not numbered, separated, or italicized until translators began to introduce that practice. The Greek text, however, as far back as the 1533 first printed edition, presented the definitions in a running narrative, more as a preface discussing how the terms would be used than as an axiomatic foundation for the propositions to come. We follow Heath's formatting here. —Ed."

1. An unit is that by virtue of which each of the things that exist is called one.
2. A number is a multitude composed of units.

So, the unit is named "one," and is not itself a number, but all numbers are composed of units; for example, three is composed of 3 units and twenty is composed of 20 units. We note that Euclid distinguishes between "number," which is discrete, and "magnitude," which is continuous.

Now, evenness and oddness are the most elementary ways of classifying numbers. We find definitions of even and odd in Euclid VII.Definitions:

6. An even number is that which is divisible into two equal parts.
7. An odd number is that which is not divisible into two equal parts, or that which differs by an unit from an even number.

For example, we apply the definitions of even number and odd number given in Euclid VII.Definitions to determine if the numbers 6 and 7 are even or odd.

First, if we represent the number 6 by a collection of dots, {• • • • ••}, we see that 6 can be divided into two parts as follows:

{(•) (• • • • •)}, {(••) (• • ••)}, {(• • •) (• • •)}.

Since 6 can be divided into two equal parts, {(• • •) (• • •)}, we conclude that 6 is an even number. Next, consider the number 7, {• • • • • • •}. We see that 7 can be divided into two parts as follows:

{(•) (• • • • ••)}, {(••) (• • • • •)}, {(• • •) (• • ••)}.

Since 7 cannot be divided into two equal parts, we conclude that 7 is an odd number.

Note that we may also conclude that 7 is an odd number from the fact that it "it differs by an unit from an even number":

{A• • • • • • •} → {• • • • ••} = {(• • •) (• • •)}.

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

References

[1] Ronald Calinger, A Contextual History of Mathematics, Prentice Hall, Upper Saddle River (1999).

[2] 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).

[3] Sir Thomas Heath, A History of Greek Mathematics, Volume 1, From Thales to Euclid, Dover Publications, Inc., New York (1981).

Brain Strain

Joe Conrad, Solano College

I hope you are having a great start to the school year! Our new problem is: 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? This problem is modeled after one that appeared on a recent American Mathematics Contest for high school students. Students have 75 minutes to answer 25 questions, so I guess if it takes you more than three minutes, you are taking too long!

Last issue's problem was: If a, b, c are odd integers, then the roots of $ax^2 + bx + c = 0$ cannot be rational numbers. There were many correct solutions: Mo Geraghty, Bob Hasson, Joe Berland, Larry Green, Tom Grube, Kevin Olwell, Mark Harbison, Joel Siegel, Paul Edwards, Fred Teti and Melvin Hom. There were a few different types of proofs and I will give one style here. In order to have rational roots, the discriminant must be a perfect square. If it is the square of an even number it must be even and if it is the square of an odd number it must be odd of the form 4(even) + 1 since $(2n + 1)^2 = 4(n^2 + n) + 1$. If a, b and c are odd, then the discriminant is of the form:

$$\begin{aligned}(2n+1)^2 - 4(2m+1)(2k+1) &= 4(n^2+n) + 1 - 4(4mk + 2m + 2k + 1) \\ &= 4(n^2 + n - 4mk - 2m - 2n - 1) + 1 \\ &= 4(\text{odd}) + 1\end{aligned}$$

Thus, the discriminant cannot be a perfect square.

Send solutions to:

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CMC³ Foundation

Cynthia Speed, CMC³ Foundation President

In Spring 2010, the CMC³ Foundation awarded $7,200 in CMC³ Foundation Scholarships and $1,750 in AMATYC Student Mathematics League Competition Scholarships.

The CMC³ Foundation Scholarship winners and their colleges are

American River College	Bryn Ellison
Butte College	Jody Ryker
Chabot College	Andria Barraza
College of the Redwoods	Ian M. Snyder
College of the Sequoias	Guadalupe Garcia-Diaz
College of the Siskiyous	Kyson Culp
Evergreen Valley College	Minh Thao Luong
Feather River College	Octavio P. Flores
Fresno City College	Lucimar Myers
Hartnell College	Ryan Rimbey
Mendocino College	Shawna Byrns
Monterey Peninsula College	Willy Anderson Dinata
Ohlone College	H. Lau M. Ong
Sacramento City College	Lei Lei
San Joaquin Delta College	John Clark
San Jose City College	Alice R. Toms
Sierra College	William Allbritain
Skyline College	Daniel Mendoza

The AMATYC Student Mathematics League Competition winners and their colleges are

First Place	Samuel Ahn	San Jose City College
Second Place	Dang Minh	Mission College
Third Place	Eunjee Lee	De Anza College
Fourth Place	Nghia Nguyen	Diablo Valley College
Fifth Place (tie)	Felix Sung	De Anza College
Fifth Place (tie)	Peter Heitmann	Sierra College

The recipients of a CMC³ 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 following colleges are eligible to award one CMC³ Foundation Scholarship in Spring 2011. The Nomination Form, instructions, and criteria will be mailed to the CMC³ Campus Representative early next year. Nomination Forms are due by April 30th, 2011 and students' scholarship checks are mailed shortly thereafter.

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 funding for our scholarships comes primarily from our member's donations, door prize proceeds, professional organizations, and business contributions. We are preparing for our Fall Mathematics Conference in Monterey 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 wish to donate for our drawing. The Foundation Board members for 2010 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 Monterey Conference Program. This fiscal year, the donors from July 1st, 2009 through June 30th, 2010 are Charles Barker, Steve Blasberg, Robert Bradshaw, Edward Braunhut, Joe Conrad, Susanna Crawford, Guy De Primo, Noelle Eckley, Wade and Jane Ellis, Michael Eurgubian, Richard Hansen, Alice Kaseberg, Marcella Laddon, Debra Landre, Tina Levy, Gary Ling, Anita Maxwell, Cynthia Speed, Cynthia Stubblebine, Janet Tarjan, Randy Taylor, Frederick 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.

Former CMC³ President, Debra Landre, has donated funds to support a Student Speaker Scholarship at the CMC³ Lake Tahoe Spring Conference. Next April 2011,

there will be another opportunity for one of your students to compete for this great scholarship. Applications, instructions, and selection procedures are available on our CMC^3 website, http://www.cmc3.org . Please help us recruit applicants by announcing this wonderful opportunity to the students and faculty at your college. The 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^3 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^3 Foundation in the amount of:

$5____, $10____, $20____, $50____, $100____, or
Other _____

Name_____

Address_____

City_____State_____Zip_____

College or
Company_____

Friends of the Foundation

Cynthia Speed, Foundation President

The CMC^3 Foundation would like to acknowledge the generous support of the following individuals, foundations, and corporations during 2009-2010. We wish to express our heartfelt thanks and appreciation to these contributors whose donations have made possible a large increase in the number of scholarships that the Foundation has awarded to community college students in Northern and Central California. These donations are from July 1st, 2009 through June 30th, 2010.

● Circle of Friends ($500 or more)

CMC^3
Debra Landre

⬢ Hexagon of Friends ($200-$499)

Charles Barker
Robert Bradshaw
Wade and Jane Ellis
Alice Kaseberg
Marcella Laddon
Allyn Washington

⬟ Pentagon of Friends ($100-$199)

Steve Blasberg
Guy De Primo
Richard Hansen
Gary Ling
Anita Maxwell
Janet Tarjan
Raymond Wuco

■ Square of Friends ($50-$99)

Edward Braunhut
Susanna Crawford
Noelle Eckley
Michael Eurgubian
Cynthia Speed
Frederick Teti

▲ Triangle of Friends ($5-$49)

Joe Conrad
Tina Levy
Cynthia Stubblebine
Randy Taylor

Competencies and Assessment: Two Statewide Conversations

Ian Walton, Mission College

This year sees the culmination of two statewide conversations that have the potential to greatly affect the preparation level of our mathematics students.

The first was the April publication by the Intersegmental Committee of the Academic Senates (ICAS) of the revised 4th edition of the **Statement on Competencies in Mathematics Expected of Entering College Students**. Previous editions were published in 1982, 1989 and 1997 but are perhaps not as widely known by community college math faculty and students as they should be. You can help by sharing this edition with your colleagues. The electronic version is available at http://icas-ca.org/Websites/icasca/Images/ICAS-Math-competency.pdf

In many ways this is a remarkable document. Its introduction states that its goal is:

> to provide a clear and coherent message about the mathematics that students need to know and to be able to do to be successful in college. While parts of this Statement were written with certain audiences in mind, the document as a whole should be useful for anyone who is concerned about the preparation of California's students for college. This represents an effort to be realistic about the skills, approaches, experiences, and subject matter that make up an appropriate mathematical background for entering college students.

The document is created by math faculty from all three systems of public higher education in California plus representatives of K-12 math teachers and the California department of Education. It is adopted by the statewide academic senates of all three systems. Community college representatives on the committee that created the current edition were Joan Cordova (Orange Coast College), Wade Ellis (West Valley College) and Ian Walton (Mission College). The chair was Alfred Manaster from U.C. San Diego.

Interestingly, the committee agreed that the fundamental premise of the previous editions was sound, and concentrated on minor changes to update language and examples. The document also adds an appendix that provides a crosswalk to the relevant California Mathematics Standards for California Public Schools and the NCTM standards. It describes holistic approaches to the successful study of mathematics, plus descriptors of subject matter areas desirable and essential for all entering college students, and those for students intending a quantitative major. Notice that in this document "entering college students" means those intending to pursue a bachelors degree; the document comments that one role of California's community colleges is to prepare students who have not yet reached that level.

The committee felt that given the current plethora of outside individuals and organizations pressing for statewide or even nationwide math standards and outcomes, it would be useful if this united opinion of California's math faculty were more widely recognized and utilized. Please read and discuss and share the document.

The second conversation is the **CCCAssess** project, led by Mark Lieu, past president of the statewide Academic Senate and Patrick Perry, vice chancellor in the Chancellor's Office. The summer newsletter contained an article by Katia Fuchs describing her participation in one of the project's spring work sessions. In May, I facilitated two discipline brainstorming sessions (one at Rio Hondo College and the other at Delta College) where math faculty provided ideas on the "must have" features of any statewide mathematics assessment tool plus additional desirable features. These produced lively debate.

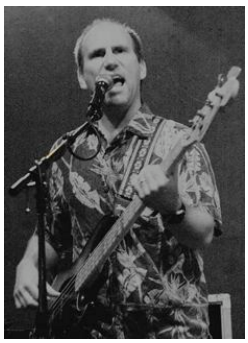
The most obvious disagreements centered around those who wanted a local linear test that covers everything in order, versus those who wanted to use adaptive testing technology. Linear tests have the likelihood of intimidating students by the sheer length, whereas malfunctioning adaptation can ignore significant deficient areas (for example can a student entering calculus still add fractions?). In contrast to some of the other faculty participants (I also facilitated a group of student services colleagues in June), math faculty seemed less interested in assessment, per se, and more interested in the potential for assessment, course placement and remediation of identified missing skills as a combined package.

The political intent of the project is to make a statewide test available "for colleges who choose to participate." But of course, local budget pressures may strongly encourage its use. Most colleges still expect local control of course placement that would include additional evidence, while students expect portability of assessment scores from one college to another. Math faculty felt that an opportunity to review and provide input on test questions is important. It was a consensus that questions should be written so that "calculators are not necessary, and are not available during the test."

With the help of two representatives from each session, the desires of the two math sessions were resolved into a single combined list of requirements, and then forwarded to Mark Lieu and the CCCAssess working group. The Request for Interest (RFI), which lays out the requirements for the tests, has been available to vendors since the end of August, and you can view the RFI at www.cccassess.org. Completed applications are due by the end of October, and the next step will be meetings with potential vendors and review of their products during the months of December and January. In addition, the process continues in the Chancellor's Office with the quest for funding from the legislature for the project. Watch out for progress updates from the Academic Senate and from the Chancellor's Office.

Math Nerd Musings

Jay Lehmann, College of San Mateo



Names are important. Too bad my rock band didn't take that to heart when we decided to name ourselves "The Procrastinistas." It seemed like such a playful name. And it is. People always smile when they hear our name. But sadly, it has proved to be predictive of how often we gig, record, and even rehearse. So much so, that in our lifespan of four years, we've considered changing our name several times. I'm sure we'll get to it eventually.

Given my bad luck with my band's name, I'm a little concerned that the acronym for Student Learning Objectives is SLO. I mean, when does "slow" ever connote something positive? Well, a slow-cooked turkey can be quite tasty on Thanksgiving, but how can "slow" possibly be an attractive adjective connected to learning? Objectives for slow learners comes to mind.

Thinking in terms of the process of developing and assessing SLOs, the word "slow" has been predictive as much as my band's name. It can take a *long* time to craft meaningful objectives. Not to mention sorting out how to effectively assess whether we instructors are meeting our objectives. It can take even longer to determine how to adjust our pedagogy, curriculum, and structure of courses to respond to our departments' deficiencies.

Take my department. We have spent years and years developing our objectives and assessing our performance. Only just this semester have we begun to discuss options to improve our performance. Once we arrive at a consensus, we'll need to implement and assess some more. Rinse and repeat.

But maybe a Thanksgiving meal isn't the only thing that can benefit from slow change. Taking significant time to craft objectives gives professors time to brainstorm, air concerns, and gain true consensus. A lengthy assessment process can buy departments time to accept their shortcomings and develop meaningful improvements.

Our department, for example, is now considering significant changes we would never have considered before we embarked on the SLO trail. One of the more conservative members of our department has taken to saying, "What we've been doing for the past several decades isn't working. Why not try something else?" Indeed.

There are two ways people change: abruptly or gradually. Abrupt changes stem from a crisis. Gradual change occurs over a long period of self-reflection and experimentation, often with the support of others. Abrupt change can be cathartic or devastating. Gradual change is quite often a beautiful thing to witness. Abrupt change can snap back to the status quo. Gradual change usually sticks, or leads to an even more significant transformation.

The Procrastinistas have experienced both types of change. Our most abrupt change was sparked by our grouchy, controlling keyboard player quitting the band. Good news: the band's tension dropped precipitously. Bad news: we then had a huge hole in our sound.

Our band has also brought about gradual change, through experimenting in songwriting, complementing each other's style of play, and learning that sometimes the best thing to do is play minimally so another player can shine. It is through this deeper form of transformation the band has grown tighter, both musically and emotionally, which leads us to taking greater risks. And improving.

After years of trudging through the SLO process, my department has grown tighter too. We're listening more closely to each other, working more cohesively with instruments such as core finals, and gearing ourselves up for taking greater risks with our courses.

It's a mind-bender to take part in a process that seems to creep along at a snail's pace, but may be imparting greater change than all the quick-fixes our department has tried. I'm sure if our retirees from ten years back were to return and observe our department, they'd think our progress was anything but slow.

Still, SLO is not a very snappy acronym. And I don't think SLOnistas is going to catch on anytime soon. Perhaps we just need a motto to spice things up. Maybe something simple like: If you want to see student learning change fast, go SLO.

Adjunct Update

Tracey Jackson, Santa Rosa Junior College

The 2010 CMC^3 Fall Conference in Monterey is December 10th-11th, and there is a reduced adjunct rate for the conference registration. At the conference this year there is a panel discussion on the tenure-track hiring process, which may be of interest to those seeking full-time positions. 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, especially in late fall when most positions are posted. At the panel discussion, a list of current open positions will also be provided.

In addition, a speaker proposal form is available on the website. If you have a talk that would be of interest to the CMC^3 community, please consider presenting at either the Monterey conference or the Tahoe conference.

Calendar

October 15-16, 2010 FTYCMA Fall Retreat, Polk State College, Lakeland, FL. Contact: Don Ransford, dransford@edison.edu

October 16, 2010 CMC3-South Fall Miniconference, Norco College, Contact: Patty George, pgeorge@cerritos.edu

October 17-19, 2010 ArkMATYC Meeting, hot Springs, AR. Contact: Nanette Berry, berry@uaccme.edu

October 22, 2010 SOCAMATYC Conference, The Carolina First Center, Greenville, SC. Contact: Catherine Whatley, cwhatley@yorktech.edu

November 11-14, 2010 AMATYC 36th Annual Conference, Boston, MA. Contact: AMATYC Office, (901) 383-4643, email: amatyc@amatyc.org

December 10-11, 2010 CMC³ 38th Annual Conference, Portola Hotel and Spa, Monterey, CA. Contact: Barbara Illowsky, (408) 864-8211, email: illowskybarbara@deanza.edu

January 6-9, 2011 MAA-AMS Joint Mathematics Meeting, New Orleans, LA

March 4-5, 2011 CMC3-South Spring Miniconference, Norco Doubletree Hotel, Anaheim/OC, Contact: Sherri Wilson, swilson@craftonhillls.edu

March 31-April 2, 2010, 36th Annual IMACC Conference, Allerton House &N Conference Center, Monticello, IL. Contact: Rodger Hergert, r.hergert@rockvalleycollege.edu. Website: www.imacc.org

November 10-13, 2011, 37th Annual AMATYC Conference, Austin TX. Contact: AMATYC Office, amatyc@amatyc.org

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