

NCMATYC NEWS

Winter 2005



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The President’s Message

by Chuckie Hairston, Halifax CC

Happy New Year! What marvelous opportunities we have for NCMATYC in 2005! There are a number of activities going on right now that you need to know more about and some new activities on the horizon.



The committees that are reviewing MAT 115, 121, 161, and 171 have been taking a hard look at the course descriptions and developing competencies for their respective courses. An article on these committees appears elsewhere in the newsletter. Read

through the initial drafts and make suggestions to the committees. Your input is vital.

Another on-going activity is the development of a network of campus representatives on NC community college campuses.

The Board feels that this network will be a way to improve communication to and, more importantly, from the members. At the present time, we have no adequate way of getting information to all the membership in a timely manner, and there are situations where the Board would like to have responses from you quickly. For more information, see the article later in the newsletter.

A new project for the spring conference will be the dissemination of electronic files for the presentations.

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The NCMATYC NEWS is an official publication of the North Carolina Mathematics Association of Two-Year Colleges. Articles for publication and comments should be submitted electronically to rkimball@waketech.edu. The deadline for the Spring 2005 issue is April 8, 2005.

By making all the sessions files available in one place, participants can get information on sessions they were unable to attend, as well as those they saw. In addition, the Board sees this as a way to make some money available for one school to assist one or more of its faculty in attending the next conference.

We have found it necessary to make a temporary personnel change. Mitzi Logan will be handling membership responsibilities for a while. The Board appreciates Mitzi's willingness to assume this job again.

If you have the chance, attend the conference of a sister AMATYC affiliate, as well as our own. Better yet, show our support for them by agreeing to present. That way, you can leave some new ideas with them and bring some new ones back.

Finally, please don't forget that your participation in the activities of NCMATYC is important. Our wonderful organization needs for all its members to be active and working. If you want a job to do, please contact me at hairstonc@halifaxcc.edu. There are plenty of jobs at all levels of participation.

Have a wonderful 2005!

Have You Seen This?

by Rob Kimball, WTCC

Have you seen the **Math Center**?

The purpose of the Mathematics Center is to help students at UNR improve their mathematical skills and increase their appreciation of the utility of mathematics, primarily through its support of a program called **Mathematics Across the Curriculum**. The program assists non-mathematics faculty in enhancing the mathematical content of their courses, with special emphasis on the core curriculum. The Mathematics Center has worked with professors from numerous courses to promote a greater appreciation of the uses of mathematics in diverse disciplines.

<http://www.unr.edu/mathcenter/mathctr3.html>

Math Across the Curriculum

<http://www.unr.edu/mathcenter/mac/index.html>

Where is the Party?

by Rob Kimball, WTCC

You know the NCMATYC spring conference is going to be in Durham, 10-11 March, 2005. However, several other southeast region AMATYC affiliates are also having conferences this spring. Some of you might want to attend and/or present! Here is the information. Even if you don't attend, check out the programs and see what they are talking about.

GMATYC – Atlanta 18-19 February

<http://www.gpc.edu/~gpcmathc/2005/index.htm>

The conference will be held on the Lawrenceville Campus of Georgia Perimeter College. If you have questions, please email the conference chairperson, Kimberly Bennekin <kbenneki@gpc.edu>.

FTYCMA – Bradenton 25-26 February

<http://mcc1.mccfl.edu/ftycma/index.htm>

The conference will be held at the Center for Innovation and Technology at MCC Lakewood Ranch (Manatee CC), Bradenton, Florida. If you have questions, please email the program chair, Pam Crawford <pcrawfo@ju.edu>.

SoCaMATYC – Charleston 9-10 April

<http://soca.matyc.org>

The conference will be held at Trident Technical College in Charleston, SC.

TMATYC – Knoxville 22-23 April

<http://www.tn.matyc.org/>

The conference will be on the campus of Pellissippi State TCC in Knoxville, TN.

ACCESS Members in Orlando



MULTI-SKILLED, MULTI-CRAFTED, AND MULTI-DISCIPLINARY TECHNICIANS

by Cyrus McCarter, Wake Tech CC

This article is based on notes taken in Washington, DC October 14, 2004 during the ATE-PI conference, a conference sponsored by the National Science Foundation (NSF) and the American Association of Community Colleges (AACC) for principal investigators of NSF – funded projects in Advanced Technology Education (ATE).

**“Change occurs at the pace of people,
not technology.” (Jeff Wacker,
EDS Fellow and Futurist)**

Tremendous advances are occurring in technology and businesses are struggling to adapt. Just purchasing new technology, no matter how advanced, does not improve productivity unless employees are adequately trained to use it. For instance, at BP (British Petroleum) technicians must now be multi-skilled or multi-disciplinary. A Maintenance Technician must be trained in flow mechanics, automation, and electronics to maintain the equipment. Furthermore, maintenance does not just mean “fixing things” - the technician must now do preventive maintenance and understand the mathematics and quality control issues of preventative maintenance.

To ensure that their technicians are adequately trained in all the skills necessary, BP has also initiated job profiling to quantify the skills required for each task a multi-skilled technician must perform. Once the job has been profiled, technicians are evaluated in their competency for the requisite skills. Those needing remediation are re-trained and re-evaluated. BP calls this a Competency Management System or CMAS.

**“Best Practices and innovation require
technician input. A technician must
understand the process in order for a
technician to be innovative.” (Jeff Wacker,
EDS Fellow and Futurist).**



Industry representatives also stressed learning in context and the transfer of knowledge to real-world settings. To accomplish this, most industry representatives mentioned case-studies and the importance of co-op programs. At BP alone, applications for co-op positions have increased from 40 in 2000 to 250 in 2004.

As a final note, BP allowed for attrition and voluntary severance to reduce employees in one branch from 900 to 600. It is anticipated that these 600 will do the work of the original 900 once they have been retrained and with the introduction of new technologies. Not only the technicians of the future, but also the technicians of today, must be multi-skilled, multi-crafted, and multi-disciplinary in order to compete in the workplace.

**Want to be More Active in NCMATYC?
NCMATYC needs a historian to collect
and organize information. For additional
information, contact:
Chuckie Hairston
hairstonc@halifaxcc.edu**

HAVE YOU SEEN THIS?

by Rob Kimball, WTCC

Have you seen the

What Works Clearinghouse?

On an ongoing basis, the What Works Clearinghouse (WWC) collects, screens, and identifies studies of the effectiveness of educational interventions (programs, products, practices, and policies). We review the studies that have the strongest design, and report on the strengths and weaknesses of those studies against the WWC Evidence Standards so that you know what the best scientific evidence has to say.

<http://whatworks.ed.gov/>

Below: Orlando Regional Meeting



Student Mathematics League Report

by Chuck Wessell, Durham Technical CC

Round 1 of this year's Student Mathematics League competition is completed, and twelve North Carolina colleges were among the record 170 schools that competed.

Holding a slim lead in the team competition is Durham Technical CC with 94.5 points, good for a four-point advantage over their historical rival Wake Technical CC. Wayne CC continues to show that Goldsboro is home to both great barbecue and top-notch math students, as they are in third place with 88 points.

Further down in the standings, it looks like the spring test will be a showdown between the two CCCCs, with Central Carolina currently leading Coastal Carolina by just four points. A hearty welcome to first-year participant Central Piedmont CC. Once the Student Math League gets established at this big school, Central Piedmont will be a powerhouse. Also, kudos to Nash CC, now competing in their second year and moving up in the standings, thanks in large part to the great score of 20.5 by Karen Sadauskas.

That score places Karen in fifth place among North Carolina students. A good score on the spring test could net Karen one of the cash prizes NCMATYC awards to the top three North Carolina students (\$300/\$200/\$100). At the end of this article are the complete team standings and the top ten student scores.

If you are thinking of starting the Student Math League at your school, please contact Chuck Wessell (wessellc@durhamtech.edu). If your college has not competed in the last three years, you are eligible to give the spring test for free. Take advantage of this offer and get a head start on the 2005-06 school year.

Team Standings, Round One

1	Durham Technical CC	NC	94.5
2	Wake Technical CC	NC	90.5
3	Wayne CC	NC	88.0
4	Catawba Valley CC	NC	83.0
5	Central Carolina CC	NC	79.5
6	Coastal Carolina CC	NC	75.5
7	Forsyth Technical CC	NC	70.5
8	Central Piedmont CC	NC	64.5
9	Nash CC	NC	53.0
10	Surry CC	NC	49.0
11	Asheville Buncombe TCC	NC	36.0
12	Guilford Technical CC	NC	27.5



Chuck Wessell in Orlando

Individual Standings, Round One

1	Jiang Yuan	Durham Technical CC	NC	25.5
2	Hai Duong	Wake Technical CC	NC	24.5
3	Josh Parker	Wayne CC	NC	23.0
4	David Yoder	Coastal Carolina CC	NC	21.5
5	Karen Sadauskas	Nash CC	NC	20.5
6	Yeo-hoon Yoon	Wake Technical CC	NC	20.0
7	Samantha Comfort	Wake Technical CC	NC	19.5
	Matthew W. Jester	Forsyth Technical CC	NC	19.5
9	Rebecca Sheldon	Wayne CC	NC	18.5
	Nathan Lane	Central Carolina CC	NC	18.5
	John Trowbridge	Durham Technical CC	NC	18.5



Group from FTYCMA:
organizers of the conference

COURSE REVIEW COMMITTEES

by Chuckie Hairston, Halifax CC

The Course Review Committees for MAT 115, 121, 161 and 171 are now in place. The plan is for the committees to receive your comments on their courses, make recommendations for changes to the CCL description, and develop course competencies. The first draft of their efforts will appear in this newsletter. On Thursday of the spring conference, each committee will host a session to allow for additional input from the membership. The final proposal will be presented to the membership at the breakfast on Friday morning.

The contact people are

MAT 115	Marjorie Gross Carteret CC
MAT 121	Cyrus McCarter Wake Tech CC
MAT 161	Lee Ann Spahr Durham Tech CC
MAT 171	Teresa Sink Davidson CC

Please contact these people with suggestions.

I appreciate the response that I received from both individuals and schools concerning the establishment of these committees. The success of this endeavor depends upon the involvement of each of you. Let your voices be heard.

Want to be More Active in NCMATYC? NCMATYC needs a historian to collect and organize information. For additional information, contact: Chuckie Hairston hairstonc@halifaxcc.edu



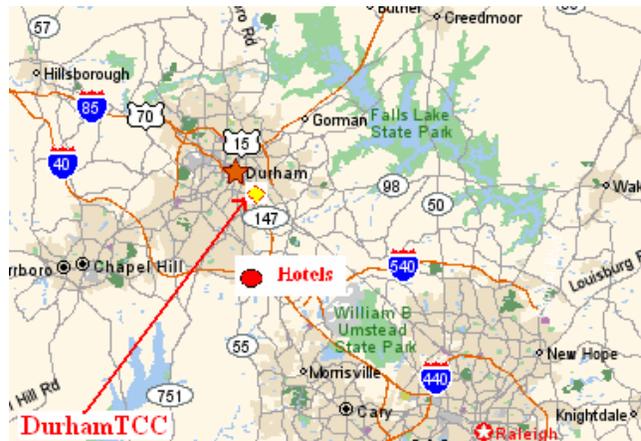
Local Arrangements for NCMATYC 2005

by Mary Marsha Cupitt, Durham TCC

Durham Technical Community College is hosting the 2005 NCMATYC Conference on the main campus located just off of Highway 147. Rooms are reserved at two area hotels. When making reservations, expect to guarantee your stay with a credit card, ask for the "NCMATYC" price. Call before February 16.

The Marriot Courtyard is located just off of Interstate 40 at the intersection of HWY 55 and 54. The room rate is \$79 for double. Free breakfast is included in the rate. Directions: Take I-40 to Exit 278 and go south. Courtyard is on the right. Phone: 919-484-2900 or go to <http://www.stayatcourtyard.com/NCMATYC/>

<http://marriott.com/property/propertyPage.mi?marshaCode=RDURT>



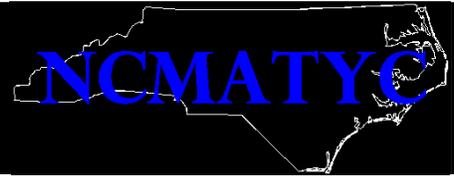
The Comfort Inn is located at the intersection of HWY 55 and 54 with a room rate of \$59. Free breakfast is included in the rate. Take I-40 to Exit 278 and go south. Phone: 919-361-2656. <http://www.choicehotels.com>

Durham Tech is planning to host a party on Thursday evening at the Marriot Courtyard. So, if you attend our party and stay at the Marriot, you will not need to drive (or even walk) home when you leave the party: a special benefit for paying \$20 extra dollars. (The Marriot will require us to purchase our drinks at their honor bar. So expect to provide your own drinks. We are allowed to bring in snacks, so expect that, as well.)

For more information, contact Mary Marsha Cupitt, 919-387-7993.

Left: Saturday Morning Breakfast at AMATYC

REGISTRATION FORM
2005 NCMATYC Conference
 Durham Technical Community College, Durham, NC
 March 10-11, 2005



**Form must be POSTMARKED by
 Feb. 26, 2005 for early registration discount.**

[A] Print or type the following information.

Name: _____
 School: _____
 E-mail Address: _____
 Preferred mailing address: _____

[B] Please circle your membership status:

current member	non-member (joining)	non-member (not joining)
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[C] NCMATYC Membership Fee

One-year membership (new___ renewal___)	\$10.00
Three-year membership (new___ renewal___)	\$25.00

Your Selections

[D] Registration Fee (Includes lunch on Thursday and breakfast on Friday)

Early Registration (postmarked by Feb. 26, 2005)	\$30.00
On Site Registration.	\$35.00

[E] GRAND TOTAL (Funds payable to NCMATYC)

\$

OTHER INFORMATION:

Select One (✓):
 Vegetarian Meal _____ Non-Vegetarian Meal _____
 AMATYC Member? Yes _____ No _____

Mail form and payment to:
Sharon Killian
AB Tech
340 Victoria Road
Asheville, NC 28801
 (828) 254-1921 ext. 228

Refund Policy: No refunds will be issued after Feb. 23, 2005.

Conference registration fees are the same for presenters and non-presenters.

**Don't forget to spread the good word about what is going
 on in NCMATYC and AMATYC!**

Articles from AMATYC, 2004



by Jan Mays, Guilford Technical CC

Have you tried using service learning to spice up your classes? Service learning is the practice of incorporating projects that provide a service to the community as part of students' coursework.

I attended a session at the AMATYC conference in Orlando that shared ideas for service learning. In this session, Gina Reed of Gainesville College in Georgia shared a service learning project she uses as part of her introductory statistics class. Before the semester begins she contacts local non-profits to see if any may have need of statistical services. Recently, she found a local non-profit organization that gives a mid-year evaluation survey to all the parents using their services. Gina's students gathered the completed surveys, tabulated the results, provided an analysis compared to the previous year's responses, and wrote a report for the agency. This project allows students to see how the material they are learning in class is applied to a real situation and the agency is saved the expense of hiring someone to compile the survey responses. Ms. Reed finds that her students take the project very seriously since they know someone outside the class will see the results. You can find more details on her project at: <http://www.gc.peachnet.edu/math/greed/slprojects.htm> . Other possibilities for projects include creating surveys for clients or doing statistical work for departments within your own institution.

by Chuck Wessell, Durham TCC

Orlando in November is a wonderful place, and it was made even more wonderful

this past November by the arrival of over 1000 math instructors from around the country. I met wonderful people, ate great meals, and probably learned a bit along the way. What follows is a quick, bulleted list of some of the sessions I attended. If you are disappointed by the low-tech presentation of print-and-paper, pretend each of the bullet items is a Power Point slide that I'm reading to you.

I must admit that the reason I went to see Gina Reed of Gainesville College is because her school hosts a calculus contest Durham Tech attends each spring. Gina won a 2003 AMATYC INPUT award and was this was her presentation about it. In each of her statistics courses Gina requires the class to perform a service project, generally helping a local non-profit with data analysis of a survey. To learn more about this check out her web-site at <http://www.gc.peachnet.edu/math/greed/slprojects.htm> .

Jane Tanner of New York's Onondaga CC had a great review day idea that she shared. She hands out a 4-by-4 or 5-by-5 grid and then as many problems as there are spaces in the grid (16 or 25 problems if that wasn't clear). Students work in groups on the problems and put their answers anywhere they want in the grid. Near the end of the review session, the teacher calls out correct answers and the students mark them off until someone has BINGO! In our session Jane used problems from old *Mathematics Teacher* magazines, and we really had to bounce ideas off each other to make progress.

My TI-83 programming experience is minimal, so I decided to sign up for a workshop on programming. Kevin Bodden (kbodden@lc.edu) and Randy Gallaher (rgallaher@lc.edu) of Lewis & Clark Community College were the presenters. We spent two hours working on one program, first getting it to work at a very basic level and then adding more features to it. Kevin and Randy then provided us with a CD with 30 additional programs on it.

continues on page 8

If you'd like a copy the CD, you can try emailing either of the presenters, or send me a note and I'll see if I can burn you one.

I woke up early Sunday morning to check out Laurie K. McManus's

(lmcmanus@stlcc.edu) presentation

"Three R's for Alternative Assessment".

The three R's, by the way, are Rationale (why am I doing this?), Recipe (how do I describe it to the student?) and Rubric (how am I going to grade this?). It was great to hear a down-to-earth presentation from someone who uses portfolios and journal entries as part of their class. Laurie was very honest about the mistakes she has made and provided guidance for us just dipping our toe in the portfolio pool, and she

convinced me try some portfolio items with my spring semester trig students. Feel free to email Laurie for a copy of her slides.

I can't share everything I learned, but hopefully that's a start. Aside from all the practical lessons for the classroom, the AMATYC conference is also just great place to spend some time with people who do what you do -- people who understand your problems and your triumphs. Start working on your administration now to get funds for next year's conference in San Diego. If that doesn't work, try convincing them for the three years after that, when the locations will be the more geographically accessible Cincinnati, New Orleans and Washington, DC.

TMATYC'S 4TH ANNUAL CONFERENCE

by Robert Jackson, Pellissippi State Tech. CC

I would like to invite any members of NCMATYC (or any relevant person in NC) to TMATYC's 4th annual conference in Knoxville, TN at Pellissippi State Technical Community College on April 22-23, 2005. Rob Kimball has been able to join us the last two years and I hope he will be able to make it again

(a little closer to you this time). With the conference being in Knoxville it is a convenient location especially for those in western North Carolina. I was at WPCC in Morganton for 5 years before coming to Knoxville. I know you all have a lot of good ideas and projects that us "folks" in TN need to hear

about (or maybe just come to visit the Smokies and/or Pigeon Forge/Gatlinburg).

If there are questions, please feel free to contact me at this phone number or, if you prefer, use email.

(865) 539-7060
rtjackson@pstcc.edu

SUBSCRIBE TO THE NCMATYC LISTSERV



This email forum allows community college mathematics instructors throughout the state to instantaneously discuss issues of concern and to share ideas. To join, send an email message to majordomo@ncccs.cc.nc.us from your email account. Don't include any subjectline and include only "subscribe NCMATYC" in the body of your message. You will automatically receive a response with a welcome message containing instructions for posting to the list.

MAT 121**ALGEBRA/TRIGONOMETRY I**

Prerequisites: MAT 070

Class: 4 hours per week = 2 Lecture + 2 Lab

Credit: 3 hours

Corequisites: None

COURSE DESCRIPTION

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include simplification, evaluation, and solving of algebraic and radical functions; complex numbers; right triangle trigonometry; systems of equations; and the use of technology. Upon completion, students should be able to demonstrate an understanding of the use of mathematics and technology to solve problems and analyze and communicate results.

COURSE COMPETENCIES

The student will demonstrate the ability to properly:

1. use appropriate significant figures, units, scientific notation, and percent
2. simplify, evaluate, and solve algebraic functions,
3. solve radical equations,
4. solve rational equations,
5. analyze and graph linear functions using the slope and intercepts,
6. solve problems that require the use of several formulas and/or theorems from geometry,
7. evaluate expressions involving the trigonometric functions and their inverses,
8. solve right triangles and applications that result in right triangles,
9. solve quadratic equations,
10. solve problems involving complex numbers and their operations,
11. solve systems of equations both algebraically and graphically,
12. represent statistical data using various statistical numerical descriptions as well as with graphs,
13. work in groups cooperatively,
14. organize, analyze, and interpret results of calculations or experimental data, using technology where appropriate,
15. communicate procedures and results in a clear and concise form.

MAT 115**MATHEMATICAL MODELS**

Prerequisites: MAT 070

Class: 4 hours per week = 2 Lecture + 2 Lab

Credit: 3 hours

Corequisites: None

COURSE DESCRIPTION

This course develops the ability to utilize mathematical skills and technology to solve problems at a level found in non-mathematics-intensive programs. Topics include modeling and application to percent, ratio and proportion, formulas, functional notation, linear functions, probability, descriptive statistics, scatter plots, and linear regression. Upon completion, students should be able to solve practical problems, reason and communicate with mathematics, and work with confidence both collaboratively and independently.

COURSE COMPETENCIES

The student should be able to model application problems that involve:

1. Solving linear equations in any form.
2. Solving percent problems using the percent equation or the proportion method.
3. Finding linear equations given the requisite data, graphing the resulting equation, and interpreting the resulting graph.
4. Utilizing function notation in different types of linear and nonlinear functions.
5. Solving variation problems.

6. Calculating the perimeter and area of basic geometric shapes.
7. Applying the Pythagorean Theorem.
8. Solving basic finance and business problems.
9. Solving probability problems, including permutations, combinations, and counting problems.
10. Utilizing statistical methods including but not limited to finding measures of central tendency and dispersion and determining linear regression models.
11. Constructing and interpreting basic statistical graphs.
12. Using appropriate technology (may include graphics calculator and/or spreadsheets).

The above competencies should comprise 80% of the course content. The remaining 20% of the course content may be used for local competencies or for additional instruction/enrichment in the above competencies.

A recommendation for the other 20%: Research and report on one or more applications to the student's field of study.

MAT 161

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 161A

COURSE DESCRIPTION

This course is an integrated study of algebraic topics incorporating problem-solving concepts and techniques. Topics include equations and inequalities; polynomial, rational, exponential and logarithmic functions; graphing, modeling and data analysis. Upon completion, students should be able to choose an appropriate mathematical model, algebraic method, and/or technology in order to interpret, analyze and solve application problems. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

COURSE COMPETENCIES

The student will demonstrate the ability to:

1. Solve analytically and/or graphically linear, quadratic, polynomial, rational, and other algebraic equations.
2. Solve analytically and graphically algebraic inequalities.
3. Solve literal equations for specified variables.
4. Find the slope and intercepts, graph, and write the equation of lines.
5. Identify, evaluate, find the domain and range, and sketch the graphs of selected families of functions.
6. Sketch the graphs of selected functions using the techniques of shifting, stretching, compressing, and reflecting.
7. Identify the domain, range, x-intercepts, y-intercept, extreme values, and sketch the graphs of polynomial functions .
8. Write the equations of selected rational functions and identify the domain, range, asymptotes and intercepts.
9. Use a graphing utility to construct a scatter diagram, analyze data, find a curve of best fit and make predictions regarding the data.
10. Analyze the relationship between a function and its inverse.
11. Graph exponential and logarithmic functions and identify their domain, range, intercepts and asymptotes.
12. Solve exponential and logarithmic equations analytically and graphically.
13. Solve applied problems involving exponential growth and decay.
14. Communicate algebraic ideas using appropriate vocabulary and symbols.
15. Use all of the above concepts, techniques and skills and appropriate technology to construct models and solutions for realistic application problems.

COLLEGE ALGEBRA

Class: 3 hours per week

Credit: 3 semester hours

MAT 161A

Prerequisites: MAT 080 or MAT 090

Corequisites: MAT 161

COURSE DESCRIPTION

This course is a laboratory for MAT 161. Emphasis is on experiences that enhance the concepts presented in class. Upon completion, students should be able to solve problems, apply critical thinking, work collaboratively, and communicate effectively. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.

COURSE COMPETENCIES

1. The student will demonstrate the ability to:
 2. Learn mathematics through modeling situations from the world around them and use the models to make predictions.
 3. Interpret problems algebraically.
 4. Employ algebraic techniques to obtain and interpret solutions to realistic problems.
 5. Communicate algebraic ideas using appropriate vocabulary and symbols.
 6. Use appropriate technology to explore ideas and to aid in the solution of realistic algebraic problems.
 7. Make connections between algebra and other disciplines.
 8. Work effectively and interactively to reinforce the above objectives.
-

COLLEGE ALGEBRA LAB

Lab: 2 hours per week

Credit: 1 semester hour

Campus Reps

The NCMATYC Board wants to improve the lines of communication to and from the membership. Therefore, it is looking for a campus representative at each of the NC community colleges. The duty of the campus rep is to disseminate information to NCMATYC members on his/her campus and to get feedback from local members on association matters. Some members have already agreed to represent NCMATYC on their campuses; however, not all community colleges are represented. Find out who your campus rep is, and if your school doesn't have one, contact your regional vice-president to volunteer.

Conference Session Information

Something new is happening at the spring conference. Electronic copies of all session information will be made available at one central location. For a small fee, conference participants will be able to download any session information they want to take home with them. Files will be available on a CD that we make for you or can be loaded onto your memory stick. The first \$100 of profit from this endeavor will be given to a NC community college math department to be used to help send someone to the 2006 NCMATYC conference. The school will be selected at random from one of the regions of the state in which the upcoming conference will not be held. The NCMATYC members at the selected school will decide to whom the money will be given.

The success of this project depends upon you for two reasons. The first is that session presenters must make their electronic files available to the person in charge when they arrive at the conference. The second is that conference participants avail themselves of this service. Additional information will be available when you check in at the conference.

Change in Responsibilities:

For the time being, Mitzi Logan will assume responsibility for NCMATYC membership. If you have membership questions, please contact Mitzi at Pitt CC.



CRAFTY

The mission of the Curriculum Renewal Across the First Two Years (CRAFTY) subcommittee of the Committee on the Undergraduate Program in Mathematics (CUPM) is to lead national initiatives to renew mathematics course work and instruction offered for students in their first two years of college. In making decisions about timely renewal efforts concerning lower level courses and programs, CRAFTY considers CUPM recommendations including the CUPM Curriculum Guide and information obtained from representatives of employers and of partner disciplines. (MAA, 2004)

Focus: College Algebra

The committee is considering Standards for College Algebra. This is in conjunction with a proposal to NSF that will assist “eleven college and universities to make use of newly developed course materials and texts to offer pilot sections of modeling based college algebra courses and to determine the effectiveness of these approaches.” (NSF Proposal, 2004)

The need for clear direction for colleges determined to offer appropriate courses for all students (not just for students who plan to go on to the traditional calculus sequence) is very apparent. First, the success rate, nationwide, for “College Algebra” is about 50%

Second, the attitude of students towards math is very negative. But most of all, based on the recent CRAFTY disciplinary workshops, the material in a traditional college algebra course is just NOT appropriate for the majority of students. In fact, many studies show it is not appropriate for 90 – 95% of college students.

Using the MAA Liaisons, an email was sent to 1600 institutions asking them to consider being one of the schools to pilot test reform-based college algebra and to support that study with financial backing. IN ONE WEEK, there were 210 schools that responded in the affirmative. In order to prepare for this initiative, the Standards are being considered.

Goal: Encourage students to become exploratory learners while developing an analytical basis for students to address the quantitative needs they will encounter in the academy, society, and the workplace.

College Algebra

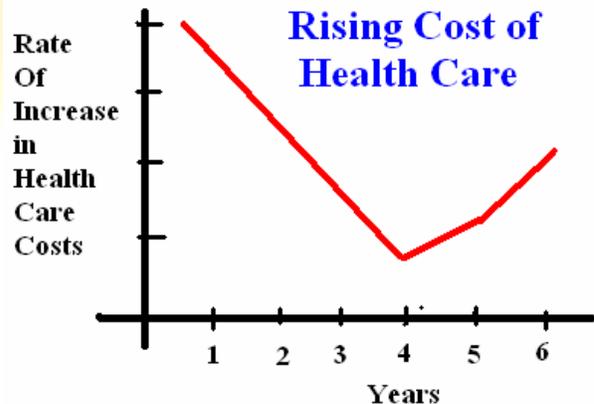
**JUST IN
TIME**

Or

**JUST IN
CASE**

Would your College Algebra graduates understand this graph?

During which years were health care costs increasing?



Joint Meetings



AMS
2005

Fundamental Experiences: The student will experience a program that emphasizes creative problem solving – leveraging the power of human reasoning to formulate and validate, while using the power of technology to calculate. Emphasis is placed on (a) Small Group Work – in class activities, out of class projects; (b) Communication Skills – writing, presenting, reading, listening; (c) Real Life Problems – modeling and solving; (d) Appropriate Use of Technology – graphing calculators or spreadsheets; (e) Development of Student Confidence and self-esteem.

Problem Solving: the student will experience problem solving with real world situations according to **Figure 1**. Strong emphasis is placed on the Model Creation and Interpretation stages while the use of technology reduces the emphasis on the Solution Techniques stage. The student will experience using the method of successive approximations in creating models and solving problems.

Data Analysis: The student will experience collecting and plotting data, fitting a curve to the scatter plot, and using the resulting function for predictive purposes. Students

will collect data, display data, compare and contrast statistics about the data, and use data to predict.

Functions: The student will understand function as an “input – output” relation subject to a uniqueness property. Students will discover, develop, and work with five categories of functions: power, radical, exponential, logarithmic, and periodic; they will understand the multi representation of functions (graphic, numeric, symbolic, verbal); and will understand how to fit a curve to a scatter plot and make decisions about the goodness of fit as well as the reasonableness of the model.

Algebraic Systems: the student will experience using systems of equations in modeling real world situations.

Pedagogy: student centered, activity centered, reduced lecture. Emphasis on developing students to be confident and competent problem solvers. Algebraic techniques are developed when needed to solve meaningful problems. Mastery of algebraic techniques is not the goal of this course.

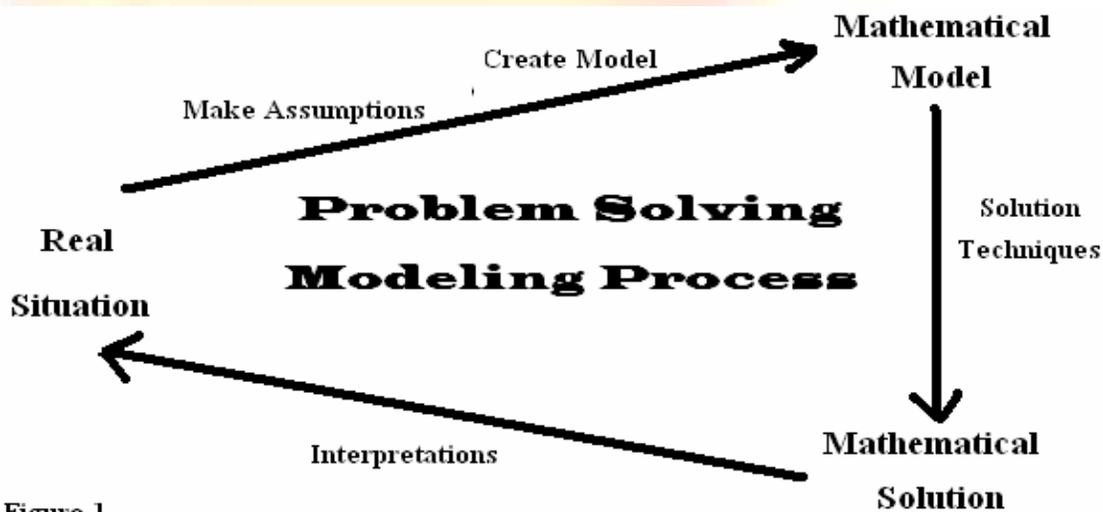


Figure 1

CUPM

The Mathematical Association of America's Committee on the Undergraduate Program in Mathematics (CUPM) is charged with making recommendations to guide mathematics departments in designing curricula for their undergraduate students. In 1953, CUPM began issuing reports updating them at roughly 10-year intervals. The committee began work on 2004 CUPM Guide in 1999, culminating in recommendations approved unanimously by CUPM in January 2003. CUPM has held panel discussions, met with focus groups, and solicited position papers from prominent mathematicians.

Through its [Curriculum Foundations Project](http://www.maa.org/cupm/crafty), < www.maa.org/cupm/crafty > CUPM's subcommittee on Curriculum Renewal Across the First Two Years (CRAFTY) has conducted "disciplinary" workshops with participants from a broad range of partner disciplines.

Earlier CUPM reports have focused primarily on the mathematics major. However, CUPM Guide 2004 makes six broad recommendations for *the entire college-level mathematics curriculum*. These six recommendations have been endorsed by the Board of Governors of the MAA.

Illustrative Resources

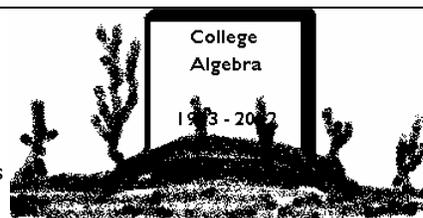
This online document describes a variety of experiences and resources associated with *Undergraduate Programs and Courses in the Mathematical Sciences: CUPM Curriculum Guide 2004*, following the organization in Parts I and II of *CUPM Guide 2004*. During the development of this document, CUPM made an extensive and broad request for reports on experiences from individuals who had implemented various ideas discussed in earlier drafts of *CUPM Guide 2004*, including specific requests to departments with large numbers of majors and/or recent NSF or FIPSE awards for

curricular projects. (See Appendix 1 of CUPM Guide 2004 for additional details on the gathering of information.)

There was a large response to the CUPM request. The contributed examples, experiences and resources were instrumental in developing the resources, and they provide evidence that the CUPM recommendations are indeed feasible.

(References to many of the contributions are made in the document.)

Just exactly what is College Algebra? Is it the algebra one should learn in College? Is it the algebra that everyone should know? How is College Algebra different from Intermediate Algebra? It would be nice to bury College Algebra and teach the algebra one should know for calculus (precalculus) to those students and to the rest, teach the little bit of algebra and heavy dose of other content most everyone (according to CBMS >90%) else should know. (Editorial)



THE CUPM Curriculum Guide

Additional recommendations concern specific student audiences: students taking general education and introductory courses, those majoring in partner disciplines and preparing for K-8 teaching, and mathematical sciences majors. In addition to recommendations for all majors, CUPM Guide 2004 addresses the special needs of majors who intend to teach or seek nonacademic employment as well as those preparing for graduate study in the mathematical sciences or in related fields.

Also available is draft 6 of the online document Illustrative Resources for CUPM Guide 2004. This online document will be

updated and expanded in January 2004 and again in January 2005. CUPM seeks additional suggestions of examples for the Illustrative Resources; they should be sent to cupm@maa.org.

Editor's Note: Below, you will find the outline for the Illustrative Resources currently on the MAA website. Each subheading contains additional subheadings. For example, subheading A is further broken down to show additional topics. For lack of space, each subheading is not completely shown.

Start at www.maa.org/cupm and follow the links to the Curriculum Guide and the Illustrative Resources.

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2006 Joint Meetings

12 – 15 January, 2006

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Math Fest

4-6 August, 2005

Albuquerque, NM

Southeast Section

11-12 March, 2005 -

Meredith College

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Meetings**

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