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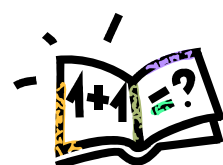
So, You Want to Be a Teacher!

by Ed Gallo

We have many students sitting in our classes that are future elementary school teachers. Before Fall 2005, these students could not start their math content courses for elementary school teachers at Sinclair Community College. But all that changed when the Ohio Board of Regents (OBR) announced that prospective elementary school teachers should be able to begin their preparation at Ohio's Community colleges.

Our Math Department Teacher Prep Committee devoted the Fall 2004 through Summer 2005 quarters to developing a three-course sequence to provide the required math content for pre-service teachers. The Teacher Prep Committee (consisting of Ed Gallo (Chair), Tom Wilson, Bob Chaney, Kay Cornelius, Jim Willis, and Gwen English (later replaced by Marie Stroh)) developed the following three courses:

COURSE	TOPICS
MAT 141 Numerical Concepts for Teachers	Problem solving, sets, functions, numeration systems, whole numbers, basic number theory, integers, rational numbers, and real numbers
MAT 142 Algebra and Data Analysis for Teachers	Linear and quadratic functions, linear inequalities, modeling data with functions, probability concepts, descriptive statistics, and basic inferential statistics
MAT 143 Geometry and Measurement for Teachers	Basic two- and three-dimension geometric concepts, basic constructions, congruence, similarity, concepts of measuring lengths, areas, and volumes, transformations of two-dimensional figures, and symmetries



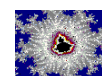
Course Development

The committee consulted with faculty members from Wright State University, University of Dayton, Rhodes State College, Edison Community College, and Delaware Technical and Community College (Wilmington, DE). We then insured that our three-course sequence covered all of the Math Learning Outcomes as required by the

following State of Ohio's Mathematics Academic Content Standards:

- ✓ Number, Number Sense, and Operations
- ✓ Measurement
- ✓ Geometry and Spatial Sense
- ✓ Patterns, Functions, and Algebra
- ✓ Data Analysis and Probability
- ✓ Mathematical Processes

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Faculty Feature – Al Giambrone



Al ponders retirement on his next to last day at Sinclair.

In this third and final installment of the faculty feature on Al, we give some advice he leaves new and fellow faculty members.

- Hold your students to a high standard and do everything you can to help them reach it.
- Don't become discouraged by your unsuccessful, undedicated students; instead, take satisfaction in the good ones and never give up on the others.
- Follow this strategy for your classes: tell them what you're going to tell them, then tell it to them, then tell them what you told them.
- Always teach for understanding, not just to get them to mimic an algorithm. But make them memorize the algorithm too!
- Get students involved in your presentation. Engage them in dialog with you as you teach and have them work problems at their place as you go along.
- Give your students lots of encouragement. Never say or do anything to make them lose heart.
- Administrators tend to come and go but you as a faculty member are likely to be here for your entire career. Take an interest in the well being of the college and work hard to make it be what it should be. Don't be afraid to speak up when necessary.
- Never shrink from telling the truth even when others don't want to hear it, but how

you deliver the message is as important as what the message is.



Karl, Glen, David, and Al take a moment to relax and enjoy a meal.

I am sure we are all very grateful for the support, encouragement and advice given by Al to each of us over the years regarding our teaching and career, and we recognize and congratulate him on a job so well done and a career in teaching and departmental administration so faithfully served.

He indicated to *Mathnet* that he had never won an award, but we wish to remind him that he did in fact win *Mathnet's* then Problem-Solver of the Year Award in 1999. However, his greatest reward has certainly been the quiet achievement and humble service given to so many for so many years. We will miss him in the department and his thoughtful perspective and influence on the many issues we face at the college and in our teaching, but we wish him well in his retirement and hope to see him teaching supplemental or part-time for the department in the years to come.

David Stott ■

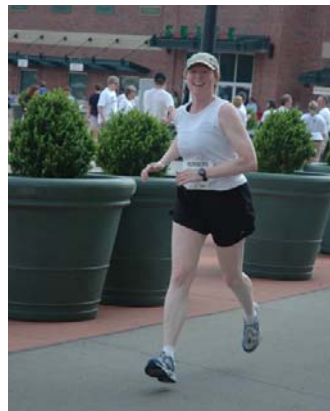


Problem-Solver of the Year Award



Team Sinclair

Many of our department members are involved in regular physical exercise – Vickie Lair swims, Kay Cornelius runs, Jim Hardman coaches soccer, Moez Ben Azzouz belongs to the “Sinclair Spitfires” soccer team captained by Mo Khani from Geography, and I walk my dog half a block and back at the blistering pace of approximately 4.2 meters per hour. A few of our number, however, have taken their activities to a higher level, and, no, I don’t mean that they have taken up skydiving; I mean they have entered the seriously grueling realm of competitive racing!



Susan
Harris

I have enjoyed entering various races over the past few years, mostly 5k races. Recently Tom Wilson and I competed in a sprint triathlon at

Miami University, which included a 400m swim, a 20k bike, and a 5k run. We will be competing in another sprint triathlon in Cincinnati in May. I have also committed for a triathlon on June 3 at Deer Creek State Park. This one is a bit longer -1500m swim, 40k bike, and a 10k run. I have been trying to fit in as much training as my crazy schedule will allow. I really think of myself as a participant, rather than a competitor, and try to set realistic goals. My goal for that race is just to finish standing up!

Tom Wilson

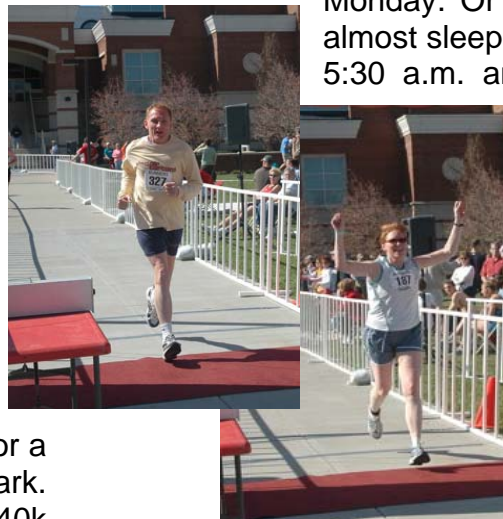
A personal goal I have had for a few years is to enter a mini-triathlon. Susan Harris and I have been talking about this for a while and at

her urging (or perhaps coercion) I decided to enter such race at Miami University on April 21. Susan had already registered, so I was pleased to have company for this my first attempt.



Susan’s husband, Ken, drove us to Oxford the evening before to pick up our registration packets and scope out the bike route. We returned home

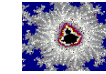
and I went to bed early—about 9:30 p.m. Since I seldom go to bed before midnight, there was no hope of getting to sleep until I had thrashed about for 3 hours. Besides this, I was quite nervous about the next day and whether I could finish all 3 parts of the race. And I kept dreaming that I would get lost on the bike route and not make it back to Oxford until



Monday. Or Tuesday. After an almost sleepless night, I arose at 5:30 a.m. and called Susan to say I didn’t know if I should go. Ken said why don’t you just ride down with us and “See how you feel.” I felt queasy during the ride on the winding road to Oxford and thought I would happily

cheer Susan on from the sidelines. Ken urged me to try the swim and said again, “See how you feel.” The swim was fairly short, 400 meters. I jumped in the pool and felt some release of tension and return of some energy. After I finished the swim, I thought I’d give the bike part a try. Once I figured out how to put my helmet on the correct way, I headed out to the countryside surrounding Oxford.

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It was a stunningly beautiful day and the farm land was peaceful and relaxing. I focused on enjoying the scenery and was encouraged when I saw an emergency medical vehicle about half-way through the ride that could rescue me if I fell off my bike or got attacked by a bull from a nearby field. Fortunately, neither happened and I made it back to campus in one piece. Next was the 5k run. At this point I had completed two of the three parts and thought, gosh, I might just finish this thing. Thankfully, the run was around campus on FLAT ground! And I finished it! It took me a little over 2 hours (the tortoise group), while the first place finisher did the race in under one hour. Survival was my goal; time was not.

This was an incredible experience and I want to thank Susan for encouraging me to give it a try, and her husband, Ken, for practicing some shrewd psychology on me. Without his low-key, no-pressure approach, I may never have gone at all. So now I have a purpose for my workouts; and I’m even thinking of entering another mini-triathlon in May in Cincinnati!

Len Ruth

I began running about two years ago to help keep off the weight that I had lost after my most recent diet (under doctors orders). For about a decade I had threatened to run in the annual 5K race at my church. With my newfound running hobby I did not have an excuse not to enter. After running the 5k at church, I was soon entering 5 mile, 15k and half-marathon races. I am the type of person who sometimes takes hobbies to an extreme, so the next logical step was to train for a marathon.

Marathon training is a big time commitment. It typically takes about 22 weeks of training to prepare properly for a marathon. You start with at least a 4-week base, running 30 miles per week. Then over the course of 18 weeks you progress up to 50 miles per week. Most

weekdays I would run 4-8 miles with runs of 18-22 miles on Saturday.

My first marathon was the Flying Pig Marathon in Cincinnati in May 2006. There were about 10,000 marathon and half-marathon runners at the start. There was entertainment and cheering crowds all along the course, and drink stations every mile. Of the four marathons I have completed, this was the only marathon in which I “hit the wall.” I was doing pretty well the first 15 miles but then began to run slower and slower over the last 11 miles. By mile 22 I had lost the ability to read or do simple math. By mile 26, I was in pretty bad shape finishing in 3:54:38 and coming in 1,214th out of 4,172. As bad as I felt, I knew that I wanted to run in more marathons. I loved the challenge and the excitement of running.

My second marathon was the Columbus Marathon in the fall of 2006. This time I never hit a wall. I kept waiting for it to come, but it never did. I ran fast enough (3:28:50) that I was able to qualify for the Boston Marathon in 2008. This February I ran a third marathon in Gainesville Florida in 3:31:14. It was cold for Florida (35 degree wind chill) and also a surprisingly hilly course, but it was very enjoyable (except for running through the University of Florida stadium, and seeing the



national championship banner hanging up). This May, I ran the Flying Pig marathon for a second time. This time things went much better. I had another Boston marathon qualifying time of 3:28:30, and finished 349th out of about 4,000.

My plans for the rest of the year are to run in a 50k race in June, possibly the Pike Peak marathon in August, and then a 50-mile race in September. Then I plan to run in Boston in April 2008. ■



For each of the following statements decide whether the variation referred to should be direct variation or inverse variation. (Answers are on page 8.)

TEST YOUR SKILLS

Example

Zadra's Law of Biomechanics

The severity of the itch is inversely proportional to the ability to reach it.

Greta's Law of Supply and Demand

The number of trick-or-treaters who come to the door is _____ proportional to the number of treats on hand.

Edington's Theory

The number of different hypotheses erected to explain a given biological phenomenon is _____ proportional to the available knowledge.

Reynolds' Law of Climatology

Wind velocity increases _____ with the cost of the hairdo.

Klipstein's Second Law

Firmness of delivery dates is _____ proportional to the tightness of the schedule.

Winfield's Dictum of Direction-Giving

The possibility of getting lost is _____ proportional to the number of times the direction-giver says, "You can't miss it."

Bellotti's Computer Axiom

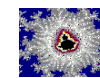
Your ability to recall the name of a file is _____ proportional to its importance.

The Quality Factor

Quantity is _____ proportional to quality.



CONGRATULATIONS to **Barb Carruth** for her selection as Professor Emeritus 2007. Barb joined the Mathematics Department in 1982 and retired in 2005. Her accomplishments include (among many others) serving as assistant to the chair, helping to create the hands-on activities used in the statistics sequence, helping to develop and teaching the innovative computer-enhanced introduction to algebra course, serving as president on the WSU Area Council of Teachers of Mathematics, presenting at conferences and helping to host them, and having the honor of being selected for Sinclair's Innovation of the Year award in 2002. Way to go, Barb!



Part-time Faculty Member of the Year Award Winner - Lynn Schutte

Congratulations to Lynn Schutte who recently earned the Part-time Faculty Member of the Year Award from the Sinclair Mathematics Department. Lynn was recognized at the department awards ceremony held following the Mathematics Department Colloquium on April 6.

Having retired from teaching mathematics at the high school level, it was Lynn's love of music that brought her to Sinclair. She says, "One of my pastimes is to study and play piano. In 2000 I joined the piano performance class and studied with Dr. Ruckman here at Sinclair. I loved being on campus and missed being in the classroom, so teaching part-time here at Sinclair seemed a great solution."

Lynn earned a Bachelor of Science degree in Mathematics from Eastern Kentucky University, and a Masters degree in Secondary Mathematics Education from Wright State University. She also has additional graduate level hours from the Ohio State University, and Ohio University.

I asked Lynn if she had a favorite class to teach. She has taught roughly ten different classes for the department, and she says, "I enjoy all the classes; however, when I started teaching at Sinclair, I increased my awareness of how math is used in the 'real world' by teaching classes such as business math and nursing math."

Lynn has lived in the Dayton area for 42 years. Her son Shawn lives in Washington DC with his wife and their daughter Morgan, who is 18 months old. As a mortgage broker, Shawn has provided information regarding eligibility for home loans that Lynn has been able to share with her business math students.

Susan Harris ■



REMINDERS

✚ The Testing Center no longer accepts tests during the last week of the quarter. The Math Lab is very limited in its ability to administer exams particularly in the last week of the quarter when they are quite busy. Please plan ahead and make appropriate arrangements for your students to get their tests.

✚ Exams should be returned to students the very next class period if at all possible and that lab assignments in statistics be returned within one week.

✚ Please do not cancel classes even if you have completed the material. Find some way to make good use of the time. If it is impossible for you to make a class please get a substitute.

✚ Please remember to turn in a copy of your tests as well as their grade distributions to your course coordinator.

✚ Except for an I grade revision, a grade change is generally not appropriate for a student who submits work after the end of the quarter. See section 4.2 in our handbook.



(Continued from page 1)

In addition to covering this mathematics content, our three Teacher Prep courses include a “modified inquiry-based approach.” Some of the main elements in this approach include that students:

- ✓ Are actively involved in their learning
- ✓ Work collaboratively in small groups
- ✓ Identify problems
- ✓ Ask questions and propose their own answers
- ✓ Reflect on the results of their work
- ✓ Write about what they did and what they learned

Each of the three Teacher Prep courses are lab-based courses, with 4 credit hours devoted to **three hours of “lecture”** and **two hours of lab-based activities**. A key part of the lab activities is that the students have an opportunity to investigate concepts, form conjectures, and use data to help them fully understand new material.



The Sinclair three-course Teacher Prep sequence transfers to Wright State University and the University of Dayton. Students can now do their math content courses at Sinclair, and then transfer into a four-year program that would lead to a degree in either ECE (Early Childhood Education, grades PreK – 3) or MCE (Middle Childhood Education, grades 4 – 9).

We offer one section of each of the MAT 141-142-143 courses in the Fall, Winter, and Spring quarters.

Emphasis on Writing

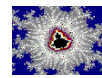
Students have many opportunities to explain their work. A major part of their lab reports, homework, and exams is for them to explain “what they did,” “why this works,” and “how this works.” In addition, there are two formal, 3-5 page written papers in each course. Topics for these papers range from “Problem Solving Techniques” to “Mathematical Modeling” to “Two-Dimensional Geometry.”



We also provide all of the MAT 102 instructors with a Teacher Education Flyer each quarter since MAT 102 is the prerequisite course for MAT 141. This flyer has a short explanation of the Teacher Prep courses and a one-year plan that shows when each of the MAT 141-142-143 courses will be offered over the next year.

How can you influence the Teacher Prep program? **Many of our MAT 101 and MAT 102 students are the future elementary teachers for the State of Ohio!** So, as you teach these lower-level courses, **you are contributing to the preparation of our future teachers.**

Ed Gallo ■



Brain Friendly Learning Strategies

On April 6 the Mathematics Department sponsored a college-wide symposium featuring Diana Hestwood, a professor and coordinator of developmental mathematics at Minneapolis Community and Technical College in Minneapolis, Minnesota. This effort was spearheaded by the Colloquium committee under the able leadership of Vickie Lair.

Two general sessions were offered for the entire campus community to attend. The topic for both dealt with brain-based learning strategies that are useful and applicable to any discipline. In the afternoon Diana led a discussion for Dev and Math department faculty on “Improving Success in Mathematics Using Brain Friendly Strategies.”

During the two general sessions, Diana discussed the physiology of the brain—i.e., the physical changes that take place in the brain when learning occurs. Our brain contains

about 150 billion cells called neurons. As one learns a new concept, web-like structures called dendrites are created that connect neurons related to a specific task or idea. Dendrites grow, she stressed, only with REPEATED practice. In fact she said if no reinforcement takes place after we hear or see something for the first time, we remember only 60% after 20 minutes and 30% after 24 hours. BUT, if practice and reinforcement take place within 24 hours, we retain approximately 80%. This is very useful information to pass along to students.

She also mentioned that emotions can affect ones ability to think clearly. Research has shown that anxiety, for example, produces



hormones that inhibit transmission between neurons, thereby producing a “blank” mind. It is helpful to know that there is a valid reason some students don’t test well even if they have studied and prepared ahead of time.

Another important point Diana made was that it is not possible to learn a new concept if the basic pre-requisite knowledge is not there to build on. For example, if the neurons and dendrites have not been developed related to elementary algebra concepts, it is virtually impossible to learn more advanced algebra topics.

Diana also talked about the importance of varying the routine in a class to keep the brain engaged and to offer opportunities for “active” involvement such as group work from time to time. This also translates into the need for students to vary their approach to studying when at home.

And a final encouraging note to those of us who are more “mature” is that age has not shown to be a factor in the ability to learn something new!

Diana’s tips and suggestions were most valuable and useful. She will be returning to campus in the near future for a follow-up session with both the Math and Dev departments.

Tom Wilson ■

Harvey’s Joke Corner

Elementary mathematics classroom scene (1950):

Teacher: “Harvey, how far can you count?”

Harvey: “1, 2, 3, 4, 5, 6, 7, 8, 9, 10.”

Teacher: “Any further?”

Harvey: “Jack, Queen, King.”



Test Your Skills solutions: All are inversely proportional except for Reynold’s and Winfield’s laws.