M.A.A.

SUNCOAST XXVIII

REGIONAL MEETING

PROGRAM and ABSTRACTS

HILLSBOROUGH COMMUNITY COLLEGE
DECEMBER 5, 2003

PROGRAM

2:45 – 3:20	**Registration** *Sign in and browse the displays from several publishing representatives.*	DLIB 106 (DLRC)
3:20 – 3:40	**Welcome** *Dean Alejandro-Deleon, Mathematics/Science* *Dr. Robert Chunn, Dale Mabry Campus President*	DLIB 106 (DLRC)
3:40 – 4:10	**Presentations – Session I**	
	Jim Rutledge *St. Petersburg College* *Interactive Learning Strategies: MERLOT Learning Materials for Liberal Arts II*	DLAB 215
	Greg McColm *University of South Florida* *What are grades for, anyway?*	DLAB 231
	Maryam Vulis *Queensborough Community College, New York* *Solving a chessboard problem using a cryptographic scheme*	DLAB 232
	Dr. Emilio Toro and Ms. Ana Lay *University of Tampa* *10 to the power 10 to the power 10 to the power 34 and the history of Prime Number Theory*	DLAB 233
	Kathryn Pantelis *Hillsborough Community College* *The Use of Mathematically Based Student Project Presentations*	DSSC 331

4:15 – 4:45 **Presentations – Session II**

Alex Ambrioso — DLAB 215
Hillsborough Community College
Teaching with a Computer Algebra System (CAS)

Denisse R. Thompson — DLAB 219
University of South Florida
Functions through Literature

Daniela Genova — DLAB 231
University of South Florida
Computing with Membranes

Sharon Sweet — DLAB 232
Leto High School
The Words of Mathematics

Gerald Junevicus — DLAB 233
Eckerd College
A solution for vertically-limited rock fracturing

4:50 – 5:20 **Presentations – Session III**

Tammy Higson and George Romero — DLAB 215
Hillsborough Community College
Interactive graphing using Excel

Ken Henderson, — DLAB 231
Dan Jelsovsky, and Susan Serrano
Florida Southern College
Algebra as a General Education Requirement,
A Round Table Discussion

(Session III continued on next page)

4:50 – 5:20 **Presentations – Session III (continued)**

Vicki Schell — DLAB 232
Pensacola Junior College
Climbing the Incline of the Slope Concept

Fernando Burgos — DLAB 233
University of South Florida
Is what appears to be the best population really the best?

5:25 – 5:55 **Presentations – Session IV**

Michael Odu — DLAB 219
Hillsborough Community College
The Mathematics Portfolio

Monika Vo, Jacci White, and Siamack Bondari — DLAB 231
Saint Leo University
Mandatory Computers in the Classroom

Li Zhou — DLAB 232
Polk Community College
Excursion from a Trigonometry/Calculus Exercise

Dr. Mile Krajcevski — DLAB 233
University of South Florida
Spherical or Hyperbolic

6:05 – 6:50	*Plenary Session* *John E. Whitlock* *Hillsborough Community College* *Bacteria, Biostatistics, and Biological Boundaries: Tracking bacteria through time and space*	*DLIB 106* (DLRC)
6:55	*Dinner* *By Reservation only*	*DSSC 108/110*

ABSTRACTS

SESSION I

Jim Rutledge – St. Petersburg College – Interactive Learning Strategies: MERLOT Learning Materials for Liberal Arts Mathematics II.

This presentation will describe MERLOT (Multimedia Educational Resource for Learning and Online Teaching) and demonstrate how MERLOT learning materials are being used in a Liberal Arts Math class to actively engage students in their learning.

Greg McColm – University of South Florida – What are grades for, anyway?

Grading is at the center of several squabbles involving High Standards, student retention, standardization, and the agendas of various pressure groups. We go to the beginning: What are grades? Are they rewards for virtue? Payment for good work? Diagnostics on performances? And how does it matter?

Maryam Vulis – Queensborough Community College, New York – Solving a chessboard problem using a cryptographic scheme.

This presentation will demonstrate a topic for a student project. The idea is to use a solution of a particular chessboard problem to implement a cryptographic scheme. A message in English is coded in ASCII, then each byte is rewritten according to the solution of the chess problem. Then the idea of using the same scheme for a different size board will be also discussed.

Dr. Emilio Toro and Ms. Ana Lay – University of Tampa – 10 to the power 10 to the power 10 to the power 34 and the history of the Prime Number Theorem.

Very large numbers occasionally play an important role in mathematics. The number 10 raised to the power of 10 raised to the power of 10 raised to the power of 34 has been called 'the largest useful number' in mathematics. It arises in connection with the Prime Number Theorem which estimates the number of prime numbers less than or equal to a given positive integer. This talk will trace the history of the theorem and its connection with the number mentioned above.

Kathryn Pantelis – Hillsborough Community College – The Use of Mathematically Based Student Project Presentations.

This session will discuss the use of math based student project presentations to enhance interest and learning in Liberal Arts math courses. Explanation of the format, presentation requirements, and grading rubric will be included. A brief demonstration of a few past student presentations will be shown.

SESSION II

Alex Ambrioso – Hillsborough Community College – Teaching with a Computer Algebra System (CAS).

We often tell our students they need to do mathematics. But how much fin is the homework we assign them? A CAS allows the user to explore mathematics in dynamic ways. We will present various examples of exploring a basic mathematical concept in a more compelling way using a CAS.

Denisse R. Thompson – University of South Florida – Functions Through Literature.

Many children's books are excellent resources for introducing functions to preservice teachers or to students in K-12 classrooms. We will explore several books that illustrate linear, quadratic, or exponential functions.

Daniela Genova – University of South Florida – Computing with Membranes.

Membrane systems are models of computation abstracted from basic properties of living cells. Each membrane system consists of hierarchical arrangement of regions (membranes) equipped with multisets of objects and evolution rules. This talk will present the computation process along with examples and some recent results.

Sharon Sweet – Leto High School – The Words of Mathematics.

Most students are dumbfounded not only by the content of mathematics, but also by the terminology used. We will explore some origins of words used in mathematics that might inspire students to take more interest in mathematics.

Gerald Junevicus – Eckerd College – A solution for vertically-limited rock fracturing.

A model for vertically-limited rock fracturing is presented resulting in a partial differential equation with moving boundary. The model is solved numerically and results compared with appropriate limits. The limit analysis involves an interesting application of Laplace Transforms.

SESSION III

Tammy Higson and George Romero – Hillsborough Community College – Interactive graphing using Excel.

Using Excel, graphs of functions can be created with attached tangent lines that move along the function. This illustration allows students to relate the effects of slope over the domain of a function. Graphs of parabolas, circles, etc. can also be generated through Excel that are helpful in explaining new topics.

Ken Henderson, Dan Jelsovsky, and Susan Serrano – Florida Southern College – Algebra as a General Education Requirement, A Round Table Discussion.

Presenters will discuss the General Education Requirements for mathematics at Florida Southern College, give the pros and cons for requiring algebra of non-mathematics majors, and then open the session up for a general discussion.

Vicki Schell – Pensacola Junior College – Climbing the Incline of the Slope Concept.

The concept of slope is fundamental to understanding the study of calculus. This presentation investigates student conceptualizations of slope, through the use of concept maps, and describes the components of the slope concept.

Fernando Burgos – University of South Florida – Is what appears to be the best population really the best?

We will look at ways of assessing whether the population with the largest observation corresponds to the population with the largest location parameter. Statistical selection methods will be discussed.

SESSION IV

Michael Odu – Hillsborough Community College – The Mathematics Portfolio.

To improve student success and retention in College Algebra, this study investigated the use of a mathematics portfolio as a teaching and assessment tool. A preliminary result shows that in all cases considered, students with portfolios out-performed those without portfolios.

Monika Vo, Jacci White, and Siamack Bondari – Saint Leo University – Mandatory Computers in the Classroom.

Saint Leo University provides a computer to all campus students. The presenters will demonstrate how they incorporate the use of those computers into the mathematics classroom. The session will include applications such as Derive in Calculus, as well as software and Companion Web sites in Statistics.

Li Zhou – Polk Community College – Excursion from a Trigonometry/Calculus Exercise.

We start with the painting-in-an-art-gallery problem: "How far should the observer stand to get the best view?", then take an excursion to visit a multiplex stadium-seating theater, ruler-compass construction, Regiomontanus, Brocard points, and a dog-eat-dog world, with some Monthly problems as our tour guide.

Dr. Mile Krajcevski – University of South Florida – Spherical or Hyperbolic.

We will describe a way of introducing hyperbolic geometry as a spherical geometry on an imaginary sphere. Among other things, this will reflect on the conditions for tilings of the hyperbolic plane with regular polygons as direct counterpart of the spherical tilings with such polygons.

PLENARY SESSION

John E. Whitlock – Hillsborough Community College – Bacteria, Biostatistics, and Biological Boundaries: Tracking bacteria through time and space.

The presentation will revolve around the application of multivariate statistical analyses to the classification of bacteria into groups. Such statistical methods are an invaluable part of the scientific method when testing hypotheses regarding the natural history of bacteria, disease, and the environment.