2020 Joint Meetings
of the
Florida Section
of the
Mathematical Association of America
and the
Florida Two Year College Mathematics Association

Fibonacci 3 branches - Rafael Araujo

University of West Florida
February 21 & 22, 2020

2020 Joint Meetings

Of The

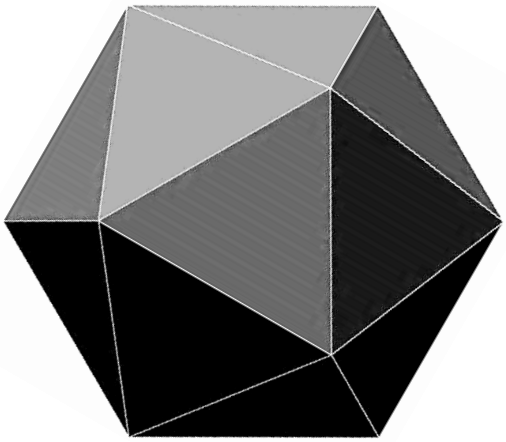
Florida Section

Of The

Mathematical Association of America (MAA)

And The

Florida Two-Year College Mathematics Association (FTYCMA)



University of West Florida
Pensacola

February 21 & 22, 2020

Florida Section of the Mathematical Association of America

2019 – 2020

Section Representative	Monika Kiss, Saint Leo University
President	Altay Özgener, State College of Florida
Past President	Penny Morris, Polk State College
Vice-President for Programs	Sean E. Murphy, Eckerd College
Vice-President for Site Selection	Kevin Murphy, Saint Leo University
Secretary-Treasurer	David Kerr, Eckerd College (retired)
Newsletter Editor	Daniela Genova, University of North Florida
Coordinator of Student Activities	Anna Wasilewska, State College of Florida
Webmaster	Altay Özgener, State College of Florida
President-elect	Milé Krajčevski, USF
VP for Programs-elect	Joy D'Andrea, USF Sarasota-Manatee
VP for Site Selection-elect	Julie Phelps, Valencia College-East Campus

Florida Two-Year College Mathematics Association

2019 - 2020

President	Sandra D. Seifert, Florida SouthWestern State College
Past President	Altay Özgener, State College of Florida
President-elect	Joni Pirnot, State College of Florida
Vice-President for Programs	Don Ransford, Florida SouthWestern State College
Secretary	Sidra Van De Car, Valencia College
Treasurer	Ryan Kasha, Valencia College
Newsletter Editor	Rebecca Williams, State College of Florida
Membership Coordinator	Dennis Runde, State College of Florida
Historian	Robert Shollar, State College of Florida
Webmaster	Altay Özgener, State College of Florida

PROGRAM

NOTE: Room numbers are in Building 4, with the first digit indicating the floor.
Conference Center rooms *A, B, & C* used for talks, *Lounge* for Saturday's Lunch.
All times listed are **Central Time Zone**.

Friday, February 21, 2020

Committee Meetings and Workshops

FL – MAA

9:30 – 11:00 Executive Committee Meeting 433

FTYCMA

10:00 – 11:00 FTYCMA Officer's Meeting 212

11:00 – 12:30 FTYCMA Annual Business Meeting 212

Registration

11:00 – Registration 1st Floor Lobby, Building 4
Publishers & Vendors
Sign in, then browse displays from several publishing representatives.

Hospitality Room 102

Welcome

1:40 – 2:00 Welcoming Remarks Conference Center

George Ellenberg, Provost and Senior Vice President - University of West Florida
Sandra D. Seifert, President, FTYCMA
Altay Özgener, President, FL-MAA
Dennis Runde, Membership Coordinator, FTYCMA

Friday, February 21, 2020

2:00 – 2:45 Plenary Session Conference Center

Michael Dorff, President of MAA – Brigham Young University

The Best Jobs This Century? – Mathematician/STEM Careers!

Contributed Papers Session I

3:00 – 3:45 Full Session

Bradley McQuaig - University of West Florida **406**

Non-Commutative Extensions of Divisibility

Sandra DeLozier Coleman - University of Connecticut (retired) **310**

The Non-Negative Semester

Scott Hochwald - University of North Florida **305**

Unexpected Connections

Lee Fearn (Undergraduate) – Hillsborough Community College **402**

Generalized Trigonometric and Hyperbolic Functions

3:00 – 3:20 Session A

Brian Camp and Jacci White – Saint Leo University **349**

Data Science and Programming With R

Scott H. Demsky – Broward College **205**

You Can "Count" on Me! A Counting Strategy for Undergraduates

Amber Weydert (Graduate) - University of West Florida **210**

Finite Sample Properties of an Exponential-Compound Symmetric

Contributed Papers Session I (continued)

3:30 – 3:50 **Session B**

Kevin Murphy – Saint Leo University **349**

An Introduction to Sage in a Differential Equations Course

Caitlin Walsh (Undergraduate) – Saint Leo University **205**

Early Counting Systems

Jay Kim Sparks (Graduate) – University of West Florida **210**
Anthony Okafor and Bruno Ariza (Undergraduate) - University of West Florida

Determining Who is More Likely to Pass Calculus 1 Using Naïve Bayes Classification

Student Events

Anna Wasilewska, Coordinator of Student Activities - State College of Florida

4:00 - 5:00 **Student Integration Contest** **406**

Come and test your integration abilities!

5:00 - 5:30 **Student Problem Solving Contest** **406**

Students: test your problem-solving skills! (Be sure to bring your phones with you.)

Contributed Papers Session II

4:00 – 4:45 **Full Session**

Ted Andresen – Honeywell Aerospace (retired) and St. Pete College **349**

Computing Human Generated Power

Joy D'Andrea – University of South Florida **348**

Latent Storm Factors and Their Indicators

Taylor Ireland – Hawkes Learning **210**

How Mastery Learning Affects Success Rates

Contributed Papers Session II (continued)

4:00 – 4:20 **Session A**

Raelyn White, Zsofia Vo, Jacquelyn White, Monika Kiss – Saint Leo University **205**

Grant Opportunities You Should Know About

Daniela Genova – University of North Florida **305**

Writing and Presenting Class Projects

Donald McGinn - University of West Florida **310**

Near Square Primes and Pell-Type Equations

4:30 – 4:50 **Session B**

Vyas Krishnan and Monika Kiss – Saint Leo University **205**

S-STEM Grant

Daniela Genova and Jenna Harwick – University of North Florida **305**
Joseph Ours – State College of Florida

Engaging Students in Lower-Level College Math Classes Through Real-Life Applications

James Brewer – Pensacola State College **310**
Rohan Hemasinha and James R. Weaver – University of West Florida

Cross Diagonal Matrices, Commuting Families, and the NIEP

5:00 – 5:45 **Section Representative's Session** **205**

Monika Kiss – Saint Leo University

News and Notes from the MAA

Contributed Papers Session III

5:00 – 5:45 **Full Session**

Lina Williams - Seminole State College of Florida **310**
Giang-Nguyen Nguyen - University of West Florida

Performance Based Funding:
Its Influence on Faculty Who Teach Mathematics Courses

Daniel Haiem – ClassCalc **210**

Promote Equity. Save Your Students from $150 Graphing Calculators

Dave Sobecki – Miami University (Hamilton, Ohio) **305**

Attention Science and the Importance of Active Learning

Wolfgang Schmid - European University Viadrina (Frankfurt, Germany) **349**

Monitoring Image Processes

6:00 – 6:45 **Plenary Session** **Conference Center**

Charles "Charlie" Hadlock, MAA Pólya Lecturer – Bentley University

Fun with Auctions

Saturday, February 22, 2020

Contributed Papers Session IV

9:00 – 9:45 Full Session

Michael Reynolds – Indian River State College **402**

Some Key Points in the History of Exponential Notation

Julie Phelps, Ryan Kasha, Sidra Van De Car – Valencia State College **406**

Making a Positive IMPACT on Student Learning in Mathematics

Jim Smart – Tallahassee Community College **349**

Getting Started with OER in MAC1114-Trigonometry

Subhash C. Bagui - University of West Florida **310**

The Convergence of Known Distributions to Normality or Non-normality and a Few Counter Examples in CLT

Anthony Okafor and Josaphat Uvah – University of West Florida **348**
Jay Kim Sparks (Graduate) **and Gary Marmon** (Undergraduate) – UWF

Retention in STEM Majors: A Predictive Analysis

9:00 – 9:20 Session A

Jacob Aguilar – Saint Leo University **210**

A Gentle Introduction to the Dynamic Modeling of Infectious Disease

Joseph Free (Graduate) – University of North Florida **305**

Hitting and Commute Times in Directed Graphs Using the Digraph Laplacian

Kelly Driskell (Undergraduate) – University of Tampa **205**

The Size of Coherent Partitions

Contributed Papers Session IV (continued)

9:30 - 9:50 **Session B**

Laura Brock (Undergraduate) – Abraham Baldwin Agricultural College **210**

Modeling the Transmission Dynamics of Classical Swine Fever in Wild Pigs

Tracy Leung, Mya Salas, Dylan Wilson (Undergraduates) – UNF **305**

Graph Minors and Minimally Nonembeddable Graphs

Jordan Machata (Undergraduate) – University of Tampa **205**

On the Number of Components of Coherent Optimal Partitions

10:00 – 11:20 Workshop

Melanie A. Sutton and Anthony Okafor – University of West Florida **348**
Logan Goodson (Graduate) - University of West Florida

Visual Engagement Techniques for Motivating Students and Just-In-Time Tutoring

Contributed Papers Session V

10:00 – 10:45 Full Session

Robert Lamar – Warner University **349**

Using Desmos in the Classroom (or The Graphing Calculator We Always Wanted)

Joy D'Andrea – University of South Florida **310**
Rebecca Wooten – Wooten-Analytics

Automorphism Groups and Transversals

Adebukola Adeyemi, Carrie E.A. Grant, Kurt Sebastian – Flagler College **402**

Course Coordination: Three Years Later

Contributed Papers Session V (continued)

10:00 - 10:20 **Session A**

Chris Snyder, Phillip Waitkevich (Undergraduates) – Saint Leo University **205**

World Health and Happiness

Lucien Poulin (Undergraduate) – University of North Florida **305**

Block Designs

Poroshat Yazdanbakhshghahyazi (Graduate) – University of Central Florida **210**

Applications of Target Reproduction Numbers in Infectious Disease Models: A Recipe

10:30 - 10:50 **Session B**

Christine J. Picot – Saint Leo University **205**

Mathematics Word Problems and Academic Vocabulary

Michael Long (Undergraduate) – University of North Florida **305**

Tournaments and a Fibonacci Link

Christopher Botelho (Graduate) – University of Central Florida **210**

Modeling Disease Impact of Vibrio-Phage Interactions

Contributed Papers Session VI

11:00 – 11:45 **Full Session**

Lindsey Fox – Eckerd College **210**

The Contribution of Environmental Pathways to Clostridioides difficile Transmission

Contributed Papers Session VI (continued)

Roger Isaac Blanco and Alina Coronel – Miami Dade College **406**

Recitation Hall: Effective Peer-Facilitation of a Gateway Math Co-requisite Course

Sid Grover – Edfinity **349**

Lowering Costs and Improving Outcomes with a Textbook-Agnostic Homework System for any Textbook or Course (Edfinity - NSF Award #1758301)

11:00 - 11:20 Session A

Matt Cuffaro – Independent scholar **205**

Logarithmic Algebraic Geometry Applied to Classical Knots

L.H. Kuo - University of West Florida **310**
C. S. Chen - University of Southern Mississippi

Localized Kernel Based Collocation Meshless Method for Solving Two Dimensional Wave and Telegraph Equations

11:30-11:50 Session B

Matt Cuffaro – Independent scholar **205**

Functoral Property in Calculating the Number of Unique Trees with Arbitrary Leaves

Max Buchanan (Undergraduate) - University of West Florida **305**

Pythagorean Triplets and Groups Associated with Them

Jia Liu - University of West Florida **310**

Community Detection in Complex Networks Using Node2vec with Spectral Clustering

12:00 – 12:50 Plenary Session Conference Center

Michael Dorff – MAA President, Brigham Young University

How Mathematics is Making Hollywood Movies Better.

1:00 – 1:10 Closing Remarks Conference Center

Sandra D Seifert, President, FTYCMA
Altay Özgener, President, FL-MAA

1:20 – 2:45 Luncheon & Awards Conference Center

FL-MAA Business Meeting

ABSTRACTS

Plenary Sessions

Michael Dorff - Professor of Mathematics at Brigham Young University;
current president of the Mathematical Association of America

Speaker's Bio: *Michael Dorff is department chair and professor of mathematics at Brigham Young University. He received his Ph.D. from the University of Kentucky. He is co-founder and co-director of the NSF-funded PIC Math (Preparation for Industrial Careers in Mathematical Sciences) sponsored by the MAA and SIAM.*
He is also the founder and previous director of the NSF-funded Center for Undergraduate Research in Mathematics (CURM). Dorff started the BYU "Careers in Math" Speaker series and the BYU summer 8-week mathematics REU. He is a popular mathematics expository speaker and has received several university and national teaching awards including the MAA Haimo Teaching Award, and BYU's top teaching award, the Maeser Excellence in Teaching Award. Dorff also received a Meritorious Service award as well as a Teaching award from the MAA Intermountain Section.

Friday Talk: *The Best Jobs This Century? – Mathematician/STEM Careers!*

A 2014 ranking from CareerCast.com, a job search website, recently named mathematician the best job of 2014. "Mathematicians pull in a midlevel income of $101,360, according to CareerCast.com, and the field is expected to grow 23% in the next eight years," states the Wall Street Journal blog post. Many students and professors think that teaching is the main (or only) career option for someone who studies mathematics. But there are hundreds of jobs for math students. However, just graduating with a math degree is not enough to guarantee to get one of these jobs. In this talk, we will talk about some of the exciting things mathematicians in business, industry, and government are doing in their careers. Also, we talk about the national PIC Math program that prepares students for nonacademic careers. Finally, we will reveal the three things that recruiters say every math student should do to get a job.

Saturday Talk: *How Mathematics is Making Hollywood Movies Better.*

What's your favorite movie? *Star Wars? Avatar? The Avengers? Frozen*? What do these and all the highest-earning Hollywood movies since 2000 have in common? Mathematics! You probably didn't think about it while watching these movies, but math was used to help make them. In this presentation, we will discuss how math is being used to create better and more realistic movies. Along the way, we will discuss some specific movies and the mathematics behind them. We will include examples from Disney's 2013 movie *Frozen* (how to use math to create realistic looking snow) to Pixar's 2004 movie *The Incredibles* (how to use math to make an animated character move faster). Come and join us and get a better appreciation of mathematics and movies.

Charles "Charlie" Hadlock – Retired Professor at Bentley University; current MAA Pólya Lecturer.

Speaker's Bio: Charlie Hadlock recently retired as Trustee Professor Emeritus from Bentley University in Waltham, Massachusetts, where he variously served as dean and as the chair of both the math and finance departments. He received his PhD in Mathematics from the University of Illinois in 1970. He is perhaps best known for his books published by the MAA: *Field Theory and Its Classical Problems*, which won the first Beckenbach Prize, *Mathematical Modeling in the Environment*, based on his earlier career as an environmental consultant, *Mathematics in Service to the Community*, exploring math-related service-learning options, and *Six Sources of Collapse*, which gives a mathematician's perspective on how so many things can surprisingly fall apart in the 'blink of an eye'.

Friday Evening Talk: *Fun with Auctions*

One of the most popular aspects of my game theory class has been the class auction meeting, where every class member must design an auction to sell something and then carry it out in class. Yes, real money is constantly changing hands during the class, usually via Venmo accounts. On one occasion, a student sold a Dunkin Donuts bagel sandwich for $55, and so he certainly had a fun day. That $55 is not a typo. How did it happen, and why does it happen almost every semester? Calculus teachers could probably have a lot of fun with auctions too because there are so many simple but interesting aspects to the math behind them, thus providing some nice opportunities for examples and extra credit problems, perhaps better than fencing in a field along a river or optimizing the shape of a

tin can. Oh, and perhaps one could hardly resist exploring some related ideas in probability and microeconomics at the same time.

Contributed Papers Session I

Full Session

Bradley McQuaig - University of West Florida

Non-Commutative Extensions of Divisibility

We look to extend certain notions from Abelian group theory and module theory over integral domains to modules over non-commutative rings. In particular, we investigate generalizations of divisibility. A right R-module D is *divisible in the classical sense* if Dc = D for every regular element c $\in$ R. In the general setting, a right R-module D is *divisible* if $Ext_R^1(R/Rs, D) = 0$ for every s $\in$ R. This leads to a discussion of two-sided submodules of the maximal ring of quotients Q. More specifically, we consider the structure of Q/R in the case that its projective dimension is ≤ 1 and R is a right and left duo domain. In this setting, we find that the various notions of divisibility coincide, and Q/R can be decomposed into a direct sum of countably-generated two-sided R-submodules, extending Matlis' Theorem for integral domains to a non-commutative setting.

Sandra DeLozier Coleman - University of Connecticut (retired)

The Non-Negative Semester

Through many years of teaching required mathematics courses at eight different colleges and universities I became aware that the most important problems in a math classroom are the problems that can make teaching and learning math a frustrating, negative experience. Determined to find a solution to the problems I had identified, I experimented with a whole new way of organizing my teaching and my testing. I was amazed at the results achieved. The new system erased all of the negativity and opened the door for students of all levels of capability and preparedness to participate without anxiety and to make documented progress in their learning. I am eager to share the story of my first "non-negative" semester.

Scott Hochwald - University of North Florida

Unexpected Connections

I will present intriguing results with unexpected proofs. Many different areas of mathematics will be on display. Topics to be presented include Pascal's Right Triangle, Bernoulli Numbers, Gamma, and others that just can't be described in a few words or symbols.

Lee Fearn (Undergraduate) – Hillsborough Community College

Generalized Trigonometric and Hyperbolic Functions

The unit circle given by $x^2 + y^2 = 1$ and angle measure, θ, provide a key to unlock the properties of the standard trigonometric functions. It is well known, also, that analysis of $x^2 - y^2 = 1$ with appropriate argument measure, leads to the hyperbolic functions. By allowing other exponents, we generate circles of differing metric and we have a key to defining generalizations of the standard trigonometric functions. The radial area function of the standard hyperbolic functions provides the key to defining generalizations of the standard trigonometric functions, and by parallel analysis, generalizations of the standard hyperbolic functions. Finally, these generalizations open the door to the generalization, also, of the exp function.

Session I - A

Kevin Murphy – Saint Leo University

An Introduction to Sage in a Differential Equations Course

In this talk, we will talk briefly about SageCellMath, a free online CAS, and how it can be implemented into an upper level mathematics course even with only a limited background. By providing shells of code and example problems, students can focus on algorithmic thinking and adapt given example solutions to new problems without being overwhelmed by notation and syntax.

Scott H. Demsky – Broward College

You Can "Count" on Me! A Counting Strategy for Undergraduates

Counting the number of ways in which an event can occur is a skill that students need to learn in courses that require the calculation of probability, such as Liberal Arts Math and Statistics. This is a skill that students usually find difficult because of the many

variations to consider. In this presentation, we will show how a one-page decision chart has been successfully used to help students learn "how to count," and we will use this chart and a basic scientific calculator to solve several such counting problems.

Amber Weydert (Graduate) - University of West Florida

Finite Sample Properties of an Exponential-Compound Symmetric

This project is a simulation study of model misspecification when analyzing cardiovascular MRI data observed post myocardial infarction. A covariance structure was designed specifically for left ventricular (LV) data based on clinical observations. Using the American Heart Association's segmentation model, LV data can be segmented into three levels, based on the location of the segments. Observations from the same level were assumed to have correlation depending on the distance between segments while observations from different levels share a common covariance. Rotation of the LV was simulated using the multivariate normal; a fixed-effects model was constructed to compare the rotation of diabetics and non-diabetics after adjusting for the level of LV. We modeled the simulated data using a simple fixed-effects model specifying the LV level and diabetic status as predictors. We examined bias, relative efficiency, power, and choice of working covariance structure via fit indices. Briefly, bias is close to zero for all structures, even when the covariance structure is misspecified and relative efficiency showed that our proposed structure resulted in the smallest standard error in most cases. However, type I error and power are inflated for the exponential and unstructured working structures, thus should not be specified when analyzing data of this type. When examining model fit indices, the proposed structure was chosen 99.90% of the time by both the AIC and BIC while the other structures were chosen less than 1% of the time. Specifying the proposed structure as the working structure, unsurprisingly, gives the best results in terms of type I error and power and is chosen as the best fit by fit indices.

Session I - B

Brian Camp and Jacci White – Saint Leo University

Data Science and Programming with R

Data Science is a rapidly emerging field that blends together mathematics, statistics, computer programming and subject knowledge to analyze (sometimes large) datasets. R is a programming language dating back to the early 90s whose strengths traditionally have been in the areas of statistics and its applications. R is a natural choice then for teaching programming skills to Mathematics and Data Science Majors. Saint Leo University has recently created a B.S. in Data Science whose goal is to complement our current course

offerings in Mathematics by adding in appropriate curricula designed to position our students well for entry into the field of Data Science. Here is presented an overview of our program as well as some ideas on how programming in R can generally be of benefit to any modern mathematics program.

Caitlin Walsh (Undergraduate) – Saint Leo University

Early Counting Systems

From a young age, we learn about numbers. Studies have shown that, by the age of three, children are able to understand phrases that refer to one of something, like "one cookie." In fact, the construct of counting items predates the abstract aspect of numbers. Ancient peoples' needs were practical and centered on their everyday lives. Essentially, the necessity of counting how many sheep a shepherd owned preceded his actual understanding of that number for its own sake. So, what did early counting systems look like? And, how did this effect the development of mathematics? The Babylonian, the Egyptian, the Mayan, the old Roman and Greek, and the ancient Chinese systems all developed because of their individual cultures and needs. Exploring them and their history can give us a better understanding of our current system, as well as providing us with a foundation from which to proceed.

Jay Kim Sparks (Graduate) - University of West Florida
Anthony Okafor and Bruno Ariza - University of West Florida

Determining Who is More Likely to Pass Calculus 1 Using Naïve Bayes Classification

The importance of foundational math courses among first time in college STEM majors is well recognized. Calculus 1 is a keystone course tied to retention and graduation. Many students enter college unprepared for calculus and so there are multiple paths towards preparing for and taking the course. The effectiveness of these paths versus a student's performance in them is unclear. This research asks, "Based on a student's prior math course and grade, how likely are they to pass Calculus 1?" Data were analyzed using Naïve Bayes classification. Overall, the different courses preparing students for Calculus 1 are less important than students' performance in those courses. Generally, the higher the grade received the more likely a student is to pass. This suggests that in terms of improving STEM retention and graduation, improving student performance would be more effective than devising new paths towards preparation.

Contributed Papers Session II

Full Session

Ted Andresen – Honeywell Aerospace (retired) and St. Pete College

Computing Human Generated Power

This presentation will focus on human generated mechanical power; how it relates to human-powered flight, stair racing, short sprints and long runs. It will also cover the difference between metabolic and mechanical power and human efficiency. It will conclude with a number of activities that anyone can perform to measure their power output and estimate their metabolic power consumption. Attendees will receive a summary sheet, so they can guide their students in activities that will allow them to calculate and/or measure their mechanical and metabolic power.
If time permits the session will cover an effort to use a physics-based model to represent a runner's gait cycle and compute their power expenditure. Mechanical models will be passed around for inspection.

Joy D'Andrea – University of South Florida

Latent Storm Factors and Their Indicators

The concept of exploratory factor analysis (EFA) was used in this study to determine the latent storm factors of hurricanes in the Atlantic Basin (1992-2014), that explain variance and measure the correlation that exist between their respective storm indicators. There were two levels of the EFA process where the factors and their factor indicators were measured. In this talk, we present the findings of this study and show the valuable model that arose from this process.

Taylor Ireland – Hawkes Learning

How Mastery Learning Affects Success Rates

Mastery learning ensures all students with different skill sets understand the same material by adapting to their needs and providing additional support for those who require more time. Hawkes Learning uses a mastery-based approach to ensure that each student develops a solid foundation and deep understanding of the curriculum to be successful not only in their current course, but also subsequent courses.
Learn how the software's three-mode learning path allows students to explore interactive course content, practice while utilizing step-by-step tutorials and error-specific feedback in real time, and demonstrate mastery through homework that does not include learning aids. Efficacy studies will be shared.

Explore Calculus with Early Transcendentals, as well as the NEW title Mathematics with Applications for Business and Social Sciences for finite math with applied calculus and the NEW edition of Beginning Statistics.
All attendees will be entered to win a $25 Amazon gift card.

Session II – A

Raelyn White, Zsofia Vo, Jacquelyn White, Monika Kiss – Saint Leo University

Grant Opportunities You Should Know About

Many of you may have some brilliant project ideas to engage with students to do mathematics. Many of you may have started on projects and saw the potential of what your ideas could accomplish. Unfortunately, most of us know that for any size projects we must obtain money to realize our ideas or to keep them going. During this presentation, we shall explore some of the grant opportunities that you may wish to investigate. We will share different types of grant and some of our experiences with grants.

Daniela Genova – University of North Florida

Writing and Presenting Class Projects

Teaching students to write and present on a mathematical topic is a very complex, but highly rewarding process. This talk outlines my efforts to incorporate writing projects and presentations in my classes and explains associated challenges and benefits to students. I will discuss how student research projects can become part of any math course, from freshman to graduate level, and propose various forms that these projects may take. The talk includes samples of student project presentations.

Donald McGinn - University of West Florida

Near Square Primes and Pell-Type Equations

An outstanding conjecture in number theory is that there are infinitely many near-square primes, which are primes of the form $n^2 + 1$. This is part of a more general conjecture about prime producing polynomials. In the first half of this talk, we briefly talk about prime producing polynomials and partial results on near-square primes. In the second half of this talk, we analyze the factorizations of near-square integers and make a connection to Pell-type equations.

Session II - B

Vyas Krishnan and Monika Kiss – Saint Leo University

S-STEM Grant

In 2016, Saint Leo University was awarded an NSF grant – NSF Scholarships in Science, Technology, Engineering, and Mathematics Program (S-STEM). With the support of this grant, Saint Leo University has been awarding scholarships for 16 students who are majoring in Mathematics or Computer Science. In this talk, Dr. Vyas Krishnan, the Principle Investigator, and Dr. Monika Kiss, the Co-Principle Investigator of the grant, will describe the purpose of this grant and how Saint Leo University is progressing in the 4^{th} year of this grant. In addition, we will encourage others to apply for this grant to help other students successfully complete their college education with financial support from the NSF.

Daniela Genova and Jenna Harwick – University of North Florida
Joseph Ours – State College of Florida

Engaging Students in Lower-Level College Math Classes Through Real-Life Applications

As most students taking lower-level math classes do not intend to major in mathematics, teaching such classes is often quite challenging. The key to engaging a student is making the course material personal and relatable. By showing how the course is applicable to each student's specific major we motivate the student to engage in the class. Our teaching method involves identifying and adapting to the goals of our students and helping them achieve these goals. We will discuss teaching techniques implementing targeted applications that keep students engaged.

James Brewer – Pensacola State College
Rohan Hemasinha and James R. Weaver – University of West Florida

Cross Diagonal Matrices, Commuting Families, and the NIEP

The non-negative inverse eigenvalue problem (NIEP) is a long-standing problem in matrix analysis. It asks the question: which lists of n complex numbers can occur as the eigenvalues for an n-by-n non-negative matrix? This problem is solved for n = 2, 3, and 4, but remains unsolved in general for any $n \geq 5$.
A non-negative cross diagonal matrix is a matrix with non-negative entries in its diagonal and secondary diagonal, and with zeros for all other entries. For a given even value of n, we show that the set of centrosymmetric cross diagonal matrices form a commuting family and therefore an algebra.

We apply these results to determine eigenvalue and eigenvector structures for centrosymmetric cross diagonal matrices. Conditions for a set of n real numbers are found which assure the existence of non-negative cross diagonal matrices having these numbers for eigenvalues. This is a partial solution to the NIEP.

Contributed Papers Session III

Full Session

Lina Williams - Seminole State College of Florida
Giang-Nguyen Nguyen - University of West Florida

Performance Based Funding:
Its Influence on Faculty Who Teach Mathematics Courses

Performance-based funding is becoming the standard as noted in the Florida state's new performance funding measures. Faculty are feeling more pressure to improve retention and passing rates. This will be an interactive and informative session. The goal is for us to share our experience on how performance-based funding has impacted us as faculty members who teach mathematics content courses and mathematics methods courses. Additionally, we will discuss changes we have made as instructors inside and outside the classroom to better meet the needs of students, increase passing rates demanded by our institutions. We will facilitate an open discussion to generate inputs on these changes as well as your experience on how performance-based funding has affected you.

Daniel Haiem – ClassCalc

Promote Equity. Save Your Students from $150 Graphing Calculators

The session will be split into three parts: 1) Context. We will dive into a discussion on the scope, use and usefulness of calculators in the classroom. Specifically, I will engage the audience to share when and where a calculator should be used, and when not. We will also discuss calculator costs and its impediment to equity and access.
2) Demonstration. We will all download and learn to use various calculator apps - and decide which best fits each professor's individual classroom needs. The demonstration will be interactive, as professors will have the opportunity to see the app from both the student and professor side, and lock each other down.
3) Discussion - we will discuss the proper use of the calculator in the classroom, some of its caveats, and some new methods of pedagogy that can be experimented with, given the upgraded platform (smart device as opposed to handheld).

Dave Sobecki – Miami University, Hamilton, Ohio

Attention Science and the Importance of Active Learning

Attention science is a growing field that combines neuroscience, psychology, and economics to study the mechanisms and limitations of human attention. Let's talk about what this field has to say about modern students, and how many of them may be incapable of learning from a traditional lecture model.

- Provide an overview of attention science.
- Discuss and illustrate findings in the field of information science that indicate limitations of attention span in modern students.
- Discuss ramifications of these results to teaching college math in 2020 & beyond.
- Discuss teaching tools and strategies that can take advantage of these findings.

I think a lot of us have a general idea that a more interactive classroom is a good idea, but having actual science behind it is a very strong motivational tool for me.

Wolfgang Schmid - European University Viadrina (Frankfurt, Germany)

Monitoring Image Processes

In recent years we observe dramatic changes in the way in which quality features of manufactured products are designed and inspected. The modeling and monitoring problems obtained by new inspection methods and fast multi-stream high-speed sensors are quite complex. These measurement tools are used in emerging technologies like, e.g., additive manufacturing. It has been shown that in these fields other types of quality characteristics have to be monitored. It is mainly not the mean, the variance, the covariance matrix or a simple profile which reflects the behavior of the quality characteristics but the shape, surfaces and images, etc. This is a new area for SPC. Note that more complicated characteristics arise in other fields of applications as well like, e.g., the monitoring of optimal portfolio weights in finance. Since in the last years many new approaches have been developed in the fields of image analysis, spatial statistics and for spatio-temporal modeling a huge amount of tools are available to model the underlying processes. Thus the main problem lies on the development of monitoring schemes for such structures. In this talk new procedures for monitoring image processes are introduced. They are based on multivariate exponential smoothing and cumulative sums taking into account the local correlation structure. A comparison is given with existing methods. Within an extensive simulation study the performance of the analyzed methods is discussed. The presented results are based on a joint work with Yarema Okhrin and Ivan Semeniuk.

Contributed Papers Session IV

Full Session

Michael Reynolds – Indian River State College

Some Key Points in the History of Exponential Notation

In this talk, we trace the history of exponential notation, starting as early as Hippocrates of Chios in the fifth century BC. We will explore the evolution of both the mathematical notation, as well as the vocabulary used, for the operation of exponentiation, through the Middle Ages, the Renaissance, and up to the modern notation with which we are all familiar.

Julie Phelps, Ryan Kasha, Sidra Van De Car – Valencia State College

Making a Positive IMPACT on Student Learning in Mathematics

This session will discuss how the new guides published by AMATYC and MAA are leading the call to implement active learning in college mathematics. The presenter will engage the participants in the discussion around AMATYC's new standards document, IMPACT: Improving Mathematical Prowess and College Teaching, and MAA's Instructional Practices (IP) Guide development and contents. The participants will engage in a professional opportunity to learn and apply the four pillars of IMPACT (PrOwESS: Proficiency, Ownership, Engagement, and Student Success). Examples and innovative ideas from the IP Guide will be shared with the focus on designing an instructional practice that can be used immediately in the classroom. This session will empower faculty members to make mathematical content engaging and connected to the real world and career goals, as well as help students gain a better conceptual understanding of mathematics content.

Jim Smart – Tallahassee Community College

Getting Started with OER (Open Educational Resources) in MAC1114-Trigonometry

Students at Tallahassee Community College have saved over two million dollars as the Math department has transitioned to open educational resources in most courses. Would you like to get started doing the same for your students with fully open, fully customizable trigonometry materials? Come learn how you can use MyOpenMath integrated with Canvas to deliver high quality, free learning materials to your students.

If you'd like to get a preview of what MyOpenMath is like, request an instructor account at https://www.myopenmath.com/newinstructor.php and send an email to

smartj@tcc.fl.edu from your institutional email. I'll approve your account & send instructions for creating a copy of the OER MAC1114 course prior to the session.

Subhash C. Bagui - University of West Florida

The Convergence of Known Distributions to Normality or Non-normality and a Few Counter Examples in CLT

This talk presents an elementary technique for deriving the convergence of known discrete/continuous type distributions to limiting normal or non-normal distributions. This technique utilizes the ratio of the pdf/pmf at hand at two consecutive/nearby points. We illustrate this (ratio) method via a few well-known discrete and continuous distributions, along with discussing counterexamples in CLT.

Anthony Okafor and Josaphat Uvah – University of West Florida
Jay Kim Sparks (Graduate) **and Gary Marmon** (Undergraduate) – UWF

Retention in STEM Majors: A Predictive Analysis

We discuss a variety of factors that affect retention in Science, Technology, Engineering and Mathematics, STEM. Using recent data at The University of West Florida, we utilize regression analysis to explore the link between ACT scores and Academic Progress Rates, APR. Furthermore, we discuss the impact of the PreCalculus-with-Trigonometry course on success in the first Calculus course as well as change-of-major. Our analyses point to good predictive indices for retention in STEM.

Session IV - A

Jacob Aguilar – Saint Leo University

A Gentle Introduction to the Dynamic Modeling of Infectious Disease

Infectious diseases are caused by microorganisms, such as parasites, viruses, fungi or bacteria. These diseases can be passed from human to human, often by means of a vector. Some well-known examples of such diseases are Malaria, Zika and HIV/AIDS. The goal of this talk is to introduce students to dynamical modeling techniques utilized in the mathematical analysis of infectious diseases and the basic reproduction number (R_0).

Joseph Free (Graduate) – University of North Florida

Hitting and Commute Times in Directed Graphs Using the Digraph Laplacian

In this talk, we introduce the Digraph Laplacian (or Diplacian), the directed graph analog of the Laplacian, and establish its connections with the fundamental matrix of the Markov Chain underlying the random walk on digraphs. We then derive formulas for computing hitting and commuting times in terms of the pseudo-inverse of the Diplacian.

Kelly Driskell (Undergraduate) – University of Tampa

The Size of Coherent Partitions

This study is motivated by clustering, which is a crucial problem related to the organization of social networks and protein networks. To find what makes a "good" cluster, we study networks(graphs) and specific partitions on networks called coherent partitions. A coherent partition is a partition which yields only disconnected subgraphs in the complement. The optimal partition is a partition with the minimum edge cut. Based on previous research, we modified the definition of optimal coherent partition to exclude partitions which had one or more singleton components and studied what effect this change in definition would have. In trees, we can find an optimal coherent partition that avoids singleton components without changing the coherence number or the component number of the optimal coherent partition. However, for some graphs not allowing singleton partitions drastically increases the coherence number while the component number appears to stay the same or change by 1.

Session IV - B

Laura Brock (Undergraduate) – Abraham Baldwin Agricultural College

Modeling the Transmission Dynamics of Classical Swine Fever in Wild Pigs

Classical Swine Fever (CSF), also known as Hog Cholera, is a highly contagious viral disease with domestic pigs and wild boars as its only natural hosts. The disease mainly spreads from direct contacts with infected pigs and is not usually detected on time due to its nonspecific clinical signs. Although the virus is eradicated in the domestic pigs in most of the western world and Europe, it still persists in the wild boar populations in those regions. In the countries where the domestic pigs are not kept in the fenced farm, the outbreaks are highly likely due to the possibility of interactions with wild pigs. In this work, we develop a mathematical model to describe the dynamics of CSF in wild pig population. We discuss basic reproduction number and stability analysis. Parameters are estimated using experimental data where there are no domestic pigs. We perform sensitivity results and discuss some numerical results. We extend our model to include some control measures – vaccination and culling - and discuss the effect of control strategies.

Tracy Leung, Mya Salas, Dylan Wilson (Undergraduates) – UNF

Graph Minors and Minimally Nonembeddable Graphs

This presentation discusses graph minors and the embeddability of a graph on a sphere with *k* handles. A planar graph is a graph that can be drawn in such a way in the plane, so that no edges cross each other. In other words, it is a graph that can be embedded in the plane. We discuss the conditions that make a graph embeddable on a sphere with *k* handles. Then, using vertex deletions and edge contractions, we examine if a graph is minimally nonembeddable on a surface. To conclude, we show that the set of minimally nonembeddable graphs on a surface is finite.

Jordan Machata (Undergraduate) – University of Tampa

On the Number of Components of Coherent Optimal Partitions

Motivated by the clustering problem, we study coherent network partitions, defined as partitions which yield only disconnected subgraphs in the complement. The optimal partition is a partition with the minimum edge cut. For this research, we restrict the coherent partitions by excluding partitions that contain singleton components. We examine the relationship between the number of components of a coherent partition and its edge cut, specifically when looking for the optimal coherent partition. We were expecting to find that the optimal coherent partition would always be the coherent partition with the least number of components. We proved that this is the case for a 6-vertex graph and any less than 6 vertices is a trivial case. However, we found a counterexample on a 7-vertex graph where there are two optimal coherent partitions, meaning they both have the minimal edge cut, and they each have a different number of components.

Workshop

Melanie A. Sutton and Anthony Okafor – University of West Florida
Logan Goodson (Graduate) - University of West Florida

Visual Engagement Techniques for Motivating Students and Just-In-Time Tutoring

This workshop will provide hands-on training on techniques to visually engage students to better understand the significance of data analysis and results. Features of Excel 3D Maps will be used to plot geographic and temporal data on 3-D globes and to create shareable visual data tour movies. Screen video recording features of Microsoft PowerPoint will be covered to demonstrate how to rapidly assist a student with a generated MP4 training video. Finally, uploading created resources to a YouTube channel for easy dissemination to students will be explored alongside examples of using these tools for just-in-time tutoring.

Contributed Papers Session V

Full Session

Robert Lamar – Warner University

Using Desmos in the Classroom (or The Graphing Calculator We Always Wanted)

Desmos is a graphing calculator for your browser or phone that *just works*. It is a free, easily accessible, and flexible tool for exploring math and solving problems. It also provides a very adaptable framework to support group discussions and learning in a classroom setting. This talk will focus on how Desmos can support a student's learning as well as an instructor's teaching in multiple environments. Through discussion, demonstration, and first-hand experience, this talk will cover the fundamentals of working with Desmos, including interesting features useful in exploring topics including algebra, calculus, and statistics.

Joy D'Andrea – University of South Florida
Rebecca Wooten – Wooten-Analytics

Automorphism Groups and Transversals

In 1939, there was a graph theory problem solved by Robert Frucht - which states that every finite group is the group of symmetries (automorphism group) of a finite undirected graph finite group is the group of symmetries of a finite undirected graph. A transversal, given a partition of vertices and edges, will consist of one vertex and one edge from each orbit of a group of automorphisms. We are expanding this concept to connect, so to speak, the idea of information from Frucht's Theorem to the information from transversals. This is a work in progress and we will provide examples and nomenclature of where we are and will be hopeful in progression.

Adebukola Adeyemi, Carrie E.A. Grant, Kurt Sebastian – Flagler College

Course Coordination: Three Years Later

Course coordination describes coordination in the design, structure, and teaching of a course, to the extent that multiple instructors within a multi-section course have come to common agreement. We will discuss our course coordination model and the outcomes experienced over the last three years as the Introductory Statistics course was transformed into a coherent multi-section course. We will explain the course design, to include textbook selection, final group project, *Canvas* instructor course structure, exam

content, grading, and other assessments. We will share how course coordination has improved the consistency of the statistics courses as well as consistency in student success and how it has created a strong team of instructors who have maintained their individual instructor academic freedom. We have analyzed student grades data from Fall 2016 to Spring 2019, and based on our experience and data analysis, we make recommendations regarding course coordination.

Session V - A

Chris Snyder, Phillip Waitkevich (Undergraduates) – Saint Leo University

World Health and Happiness

Happiness is a subjective, abstract term which represents many things to many people. However, it is valued worldwide. The goal of this project is to see if there are any correlations between a country's happiness and other socioeconomic factors. We relied upon data from the World Health Organization and World Bank to compile a data set of sociological, educational, environmental and economic data, one of which includes a composite score representing an overall value of societal health that represents happiness. This presentation will summarize the datasets used, explain the process of compilation & analysis, and discuss the results and conclusions made from the analysis.

Lucien Poulin (Undergraduate) – University of North Florida

Block Designs

This presentation discusses block designs, a unique type of combinatorial structures. Block designs can be used to model many different types of problems ranging from experimental design to computer software testing. The talk focuses mainly on Steiner and Kirkman triple systems, as well as, on different ways for constructing block designs. Well known results in combinatorics such as Fisher's inequality & Kirkman's schoolgirl problem are also discussed.

Poroshat Yazdanbakhshghahyazi (Graduate) – University of Central Florida

Applications of Target Reproduction Numbers in Infectious Disease Models: A Recipe

The problem of eradicating infectious diseases has attracted both mathematicians' and biologists' attention. This talk focuses mainly on control strategies targeting certain interactions between and/or within categories of individuals to treat an

infection after being introduced into a susceptible population. To do so, we develop a threshold parameter, called the "*Target reproduction number*," and study its applications in some infectious disease models including airborne, waterborne, and direct transmission diseases. We show that the target reproduction number enables us to target not just certain entries, but also certain parameters of the next generation matrix. We also analyze different "next generation matrices" corresponding to the same linearized system, and make the connection between the target reproduction number of each.

Session V – B

Christine J. Picot – Saint Leo University

Mathematics Word Problems and Academic Vocabulary

In the current high-stakes testing environment, mathematical competency is often defined as how well a student performs in the area of reasoning through word problems. While these data-driven tests illustrate some essential literacy learning, they are not adequate in providing a full analysis of conceptual understanding in mathematics due to the complexity of language within the prompt. An analysis of early learner's solution processes identifies patterns of misconceptions connected to the academic vocabulary and the linguistic structure of the problem. An intervention process in the form of a Tiered Academic Vocabulary Framework is used as a method for planning and modifying word problems as an intervention. This framework is utilized to modify the complexity of the task based on levels. In order to have students reason they must first comprehend the prompt as noted in the first principle of George Pólya (1975) problem solving principles of "understand the problem." The developed framework aims at addressing this principle.

Michael Long (Undergraduate) – University of North Florida

Tournaments and a Fibonacci Link

This presentation discusses round robin tournaments, a type of digraphs with applications to athletic competitions and transportation logistics. We present a number of results about properties of tournaments, including transitivity and connectivity. Observations about unique Hamiltonian cycles in n-tournaments and their relationship to the Fibonacci numbers are also discussed.

Christopher Botelho (Graduate) – University of Central Florida

Modeling Disease Impact of Vibrio-Phage Interactions

A mathematical model of *V. cholerae* incorporating bacterial, phage and human populations is developed. It is shown that, potentially, two endemic equilibria exist. One in which phage persist and one in which phage fail to persist. Model analysis is done to determine stability conditions on each equilibrium point. Disease control strategies based on bacteria and phage interactions are discussed. It is shown that the presence of phage effectively reduces bacterial concentrations within the environment.

Contributed Papers Session VI

Full Session

Lindsey Fox – Eckerd College

The Contribution of Environmental Pathways to Clostridioides difficile Transmission

Clostridioides difficile is the leading cause of infectious diarrhea and most frequently identified infection in US hospitals. *C. difficile* is contracted after antibiotic use, when healthy gut microbiota that prevent colonization is compromised. Colonized patients shed spores that can survive for long periods of time outside the host and are resistant to commonly used disinfectants. Transmission pathways include contact with environmental reservoirs of spores on fomites, objects and surfaces that can harbor infectious agents. This study adds environmental reservoirs to a previous epidemiological model of *C. difficile* transmission to focus on the effect of fomite touch frequency on *C. difficile* transmission within a hospital ward. The dynamics of transmission are modeled deterministically using a system of ordinary differential equations representing patient population classes and pathogen environmental reservoirs. Due to the small population size of the considered hospital ward, the system is simulated stochastically and compared to the average population behavior described by the deterministic system. The presented results are based on research with Cara Sulyok, Suzanne Lenhart, and Judy Day (University of Tennessee); Hannah Ritchie, and Cristina Lanzas (NC State).

Roger Isaac Blanco and Alina Coronel – Miami Dade College

Recitation Hall: Effective Peer-Facilitation of a Gateway Math Co-Requisite Course

If the *basic improvement in teaching Intermediate Algebra can be calculated as an area*, how can that area be bolstered? Further gains can be achieved by employing energized student role models as Instructional Learning Assistants (ILAs) who facilitate dynamic Recitation Hall Sessions. Data from a broad swath of post-secondary institutions attest to the effectiveness of these perceived peers at increasing active learning and improving outcomes. We present both our current research findings and best practices for college math departments considering this proven innovation, in order to not only calculate that area but to expand it into a *perfect square!*
Under Miami Dade College Recitation Hall Model, we reveal how the course content gets reviewed, how engagement techniques can be taught, and how ILAs assist with Early Alerts and Intervention Systems. The faculty-led class, the group work with ILAs, and the one-on-one tutoring by ILAs create a fully-supported environment for student success—that is what we call a *perfect square in Recitation Hall*!

Sid Grover – Edfinity

Lowering Costs and Improving Outcomes with a Textbook-Agnostic Homework System for any Textbook or Course (Edfinity - NSF Award #1758301)

This is an interactive workshop on affordable online homework strategies using Edfinity, a low-cost homework system supported by the National Science Foundation (Award #1758301). 150+ institutions have assembled peer-reviewed online homework mapped to over 200 commercial and OER textbooks such as Stewart's Calculus and OpenStax. The workshop will demonstrate how institutions can use peer-reviewed, ready-to-use homework templates mapped to any commercial/OER textbook for courses ranging from Corequisites and Developmental Math support to Multivariable Calculus, Linear Algebra and beyond, and customize them in minutes with a peer-reviewed corpus of problems. See how easy it is to migrate from any other platform (including WeBWorK, iMathAS), make choices that are best for you and your students, and save hundreds of thousands of dollars.

Session VI - A

Matt Cuffaro – Independent scholar

Logarithmic Algebraic Geometry Applied to Classical Knots

Logarithmic Algebraic Geometry (LAG) is an extension of algebraic geometry by shifting the focus from rings to (commutative) monoids. We show how concepts in LAG apply to understanding the symmetric monoidal category of classical 1-knots.

L.H. Kuo - University of West Florida
C. S. Chen - University of Southern Mississippi

Localized Kernel Based Collocation Meshless Method for Solving Two Dimensional Wave and Telegraph Equations

We present a newly developed localized Kernel Based Collocation meshless method and apply it to solving Poisson's type partial differential equations. The method uses small neighborhoods of points to find the approximate solution of the given partial differential equation, and requires only the solution of a large sparse matrix.
We also extend the localized meshless method to solving time-dependent problems with higher order time-marching schemes, and introduce adaptive approaches that allows the solution of large-scale engineering problems.

Session VI – B

Matt Cuffaro – Independent scholar

Functoral Property in Calculating the Number of Unique Trees with Arbitrary Leaves

Unique trees with arbitrary leaves represent the different ways that functions with no particular type can compose into one another (once). However there is no closed-form expression for the number of unique trees with arbitrary leaves. While working on this problem, we show there is an interesting algebraic structure obedient to a nice functoral property.

Max Buchanan (Undergraduate) - University of West Florida

Pythagorean Triplets and Groups Associated with Them

A Pythagorean triple is a set of three integers, x, y, and z, that satisfy the Pythagorean condition, or $x^2 + y^2 = z^2$. A primitive Pythagorean triple is a Pythagorean triple in which the only common factor of all three integers is 1. Our goal in this talk is to describe and examine the properties of the 3 x 3 integer matrices that map primitive Pythagorean triples to primitive Pythagorean triples.
We use group theory as a tool for this as it provides an elegant, useful, and unifying framework for our main objective described above. We show that the set of such 3 x 3 matrices forms a Group G. We also examine the set of 2 x 2 integer matrices that map relatively prime pairs to relatively prime pairs since it is closely related to G. We will discuss the isomorphic nature of these two groups and look into generating sets of matrices for each group. For G, these generating sets will help to construct a ternary tree with a well-defined structure that includes every primitive Pythagorean triple.

Jia Liu - University of West Florida
Yanhui Zhu (Graduate) - University of West Florida

Community Detection in Complex Networks Using Gaussian Mixed Model with Spectral Clustering

Community structure in complex networks has been proven to be valuable in a variety of fields, such as biology, social media, health, etc. Researchers have investigated a significant amount of algorithms in complex network analysis and community detection. However, most of them are not expressive to acquire the node and edge representations observed in complex networks. In this paper, we present a new algorithm based on spectral clustering to detect the communities. To improve the performance of the spectral clustering algorithm, we consider an algorithmic framework for learning continuous feature representations for nodes in networks. Experiments show that the proposed algorithm exceeds other state-of-the-art community detection algorithms among various real-world networks from diverse domains and synthetic networks. The algorithm provides a high-quality and accuracy performance in a wide range of data sets.

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- George Ellenberg, Provost and Vice President
- Jaromy Kuhl, Dean, Hal Marcus College of Science and Engineering
- Jia Liu, Chair, Department of Mathematical and Statistics
- Department of Mathematics and Statistics

The Conference Committee:

- Anthony Okafor, Local Organization Chair
- Lisa Kowalski, Math/Stat Office Administrator
- Tiffany Harper, Marketing Coordinator
- UWF Math Association (Math Club)

Publishers/vendors

- ClassCalc
- Hawkes Learning
- Lumen Learning

NOTES OF INTEREST

Based in Pensacola with additional locations in the region, the **University of West Florida** (UWF) has awarded more than 100,000 degrees from over 70 undergraduate and graduate programs. Small class sizes ensure personalized, focused attention from some of the nation's most engaging professors.

As the home of the Argonauts, UWF builds champions for life through the intercollegiate athletics program, leading the Gulf South Conference in all-time championships and all-sports trophies.

A driver of economic impact in Northwest Florida and beyond, UWF generates approximately $1 billion in total annual sales across the Florida economy. UWF is more than a university. It's a symbol of success, commitment to lifelong learning and change.

(Courtesy https://uwf.edu/about/)

Connecting to Wi-Fi:

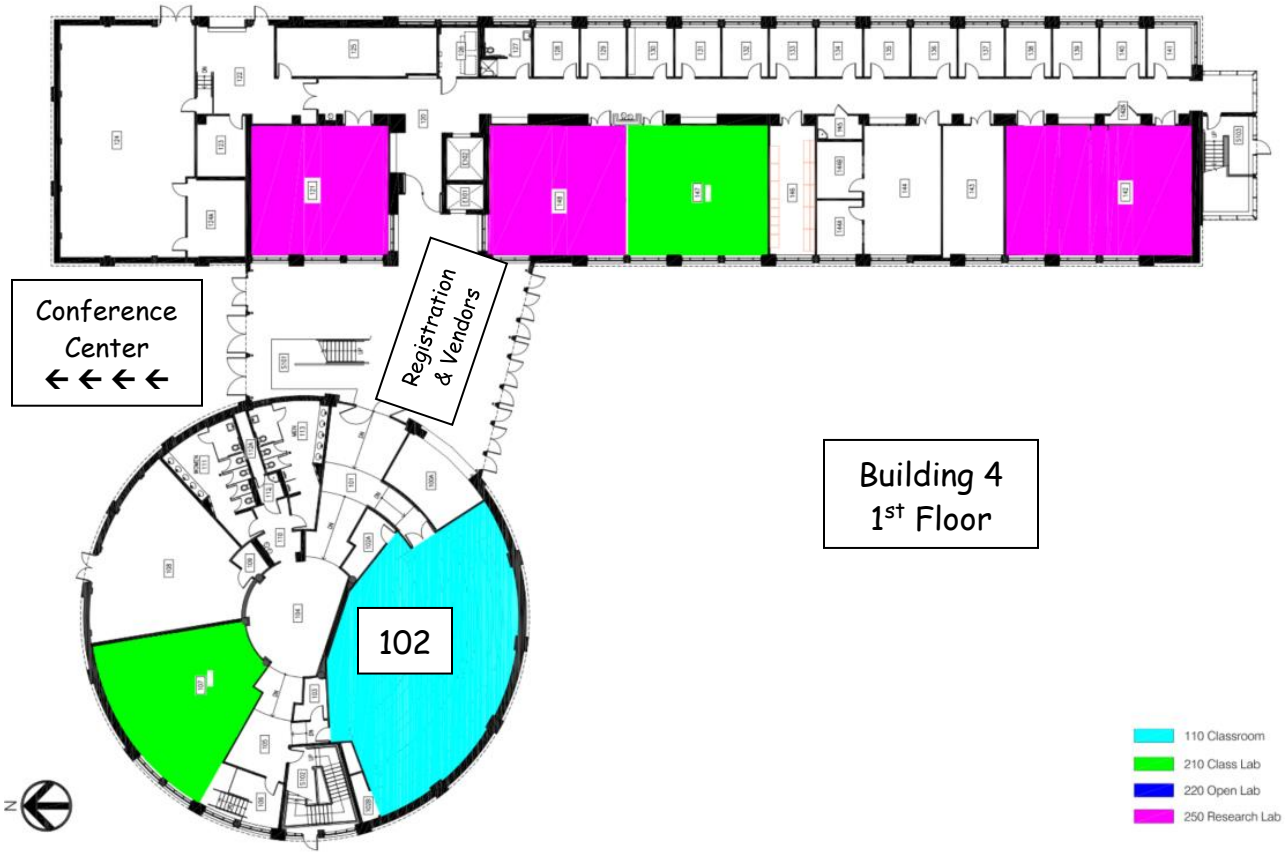
University of West Florida Wireless Network Guest Instructions

1. To connect to campus WIFI, follow this link for instructions: https://confluence.uwf.edu/display/public/Configuring+your+device+for+ArgoAir

   (Make sure you are connected to *uwf-argo-air* and not *eduroam*.)

2. Enter your guest username and password, below.

   - Guest username: wirelessguest
   - Guest password: argos-d1ca


Conference Center
←←←←
Registration & Vendors
Building 4
1st Floor
102
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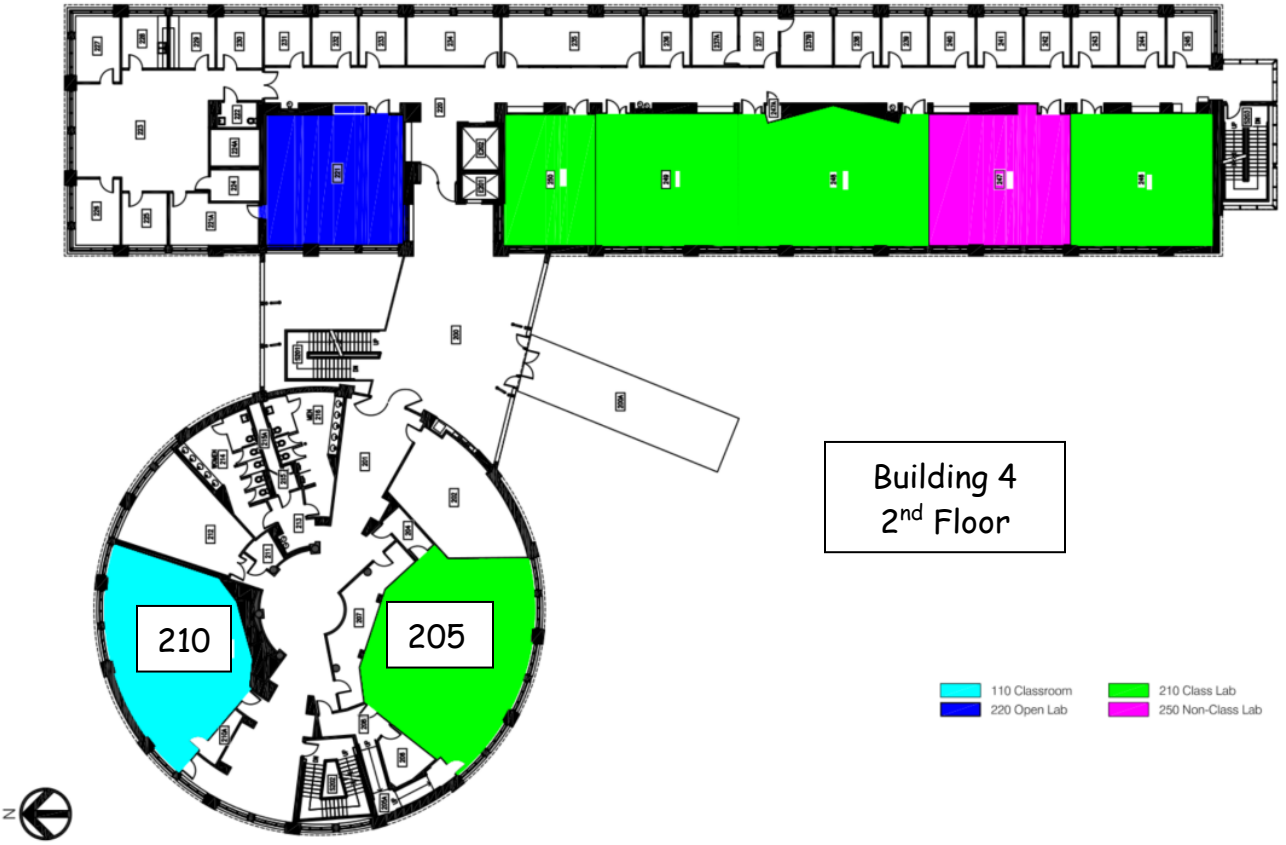
210 Class Lab
220 Open Lab
250 Research Lab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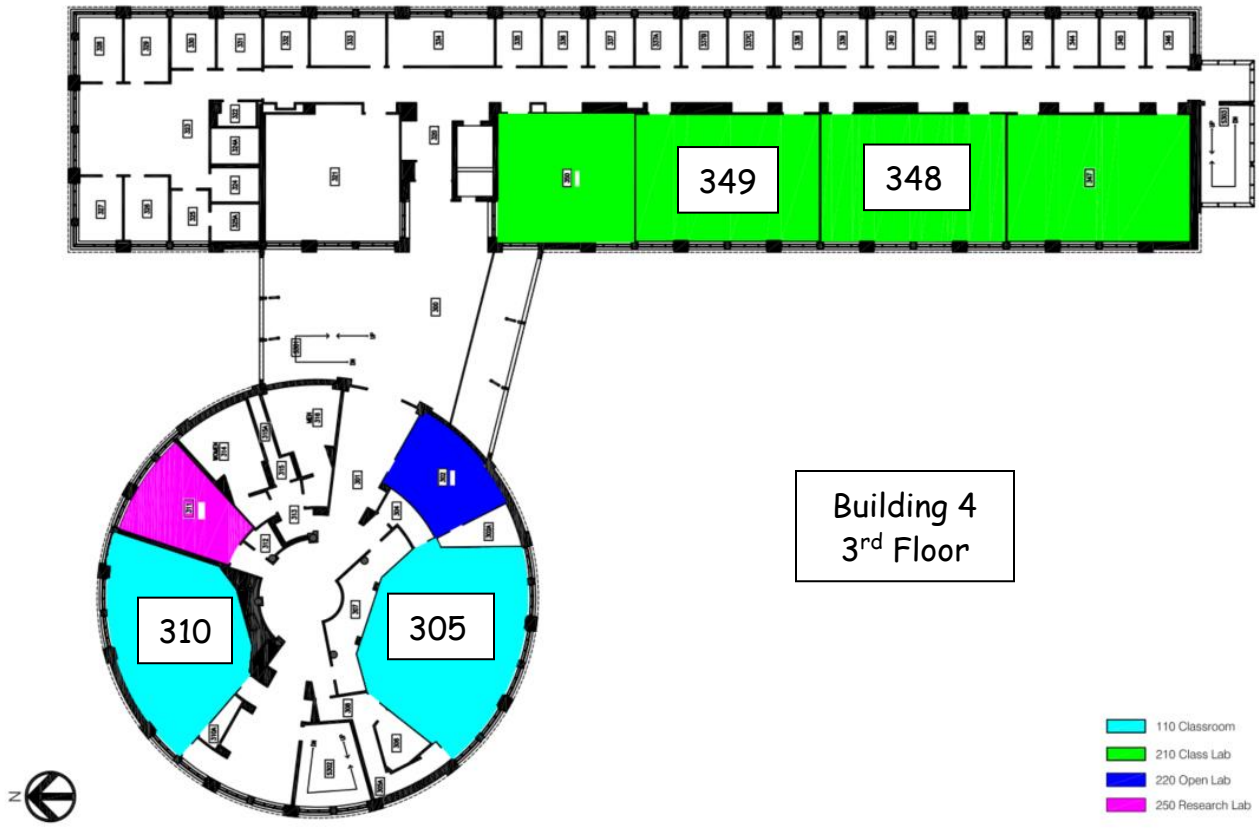
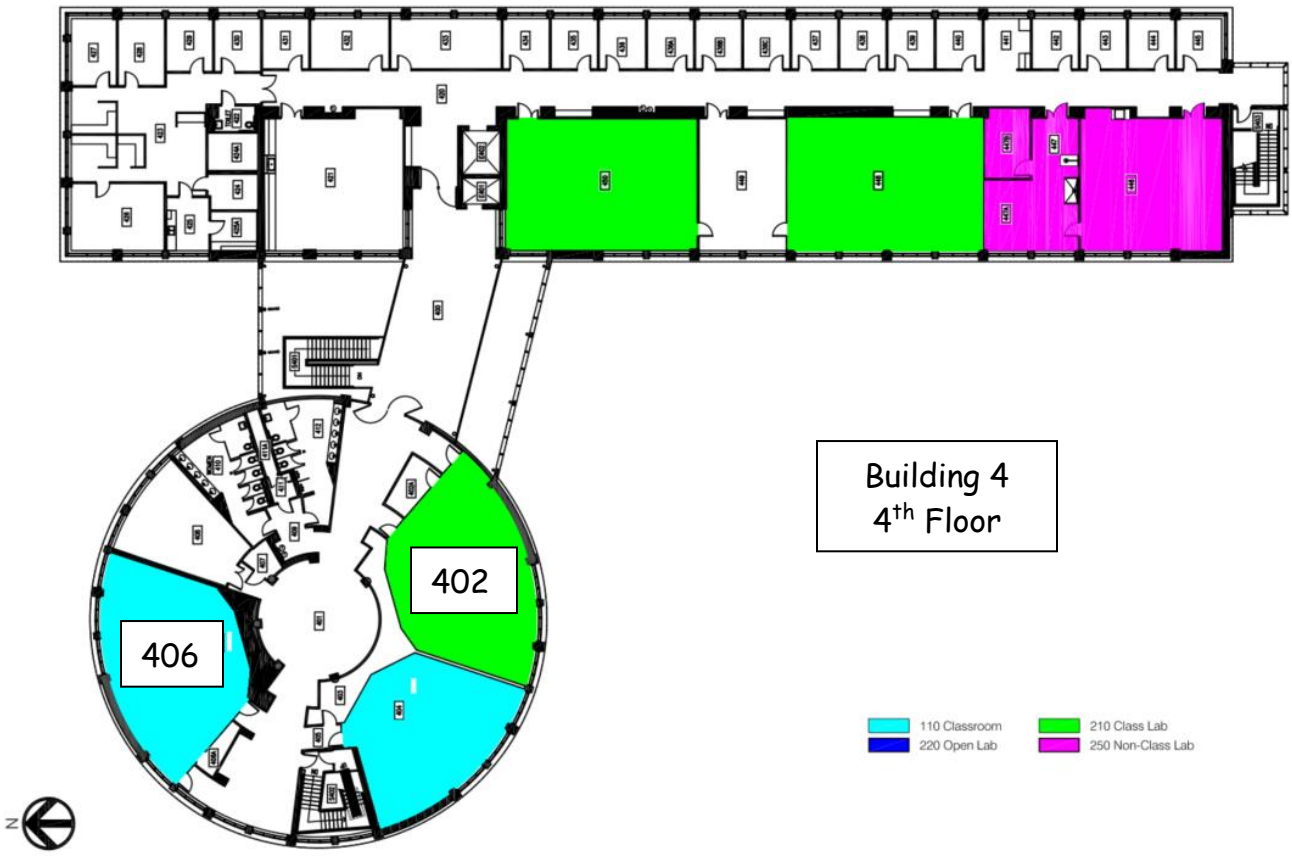
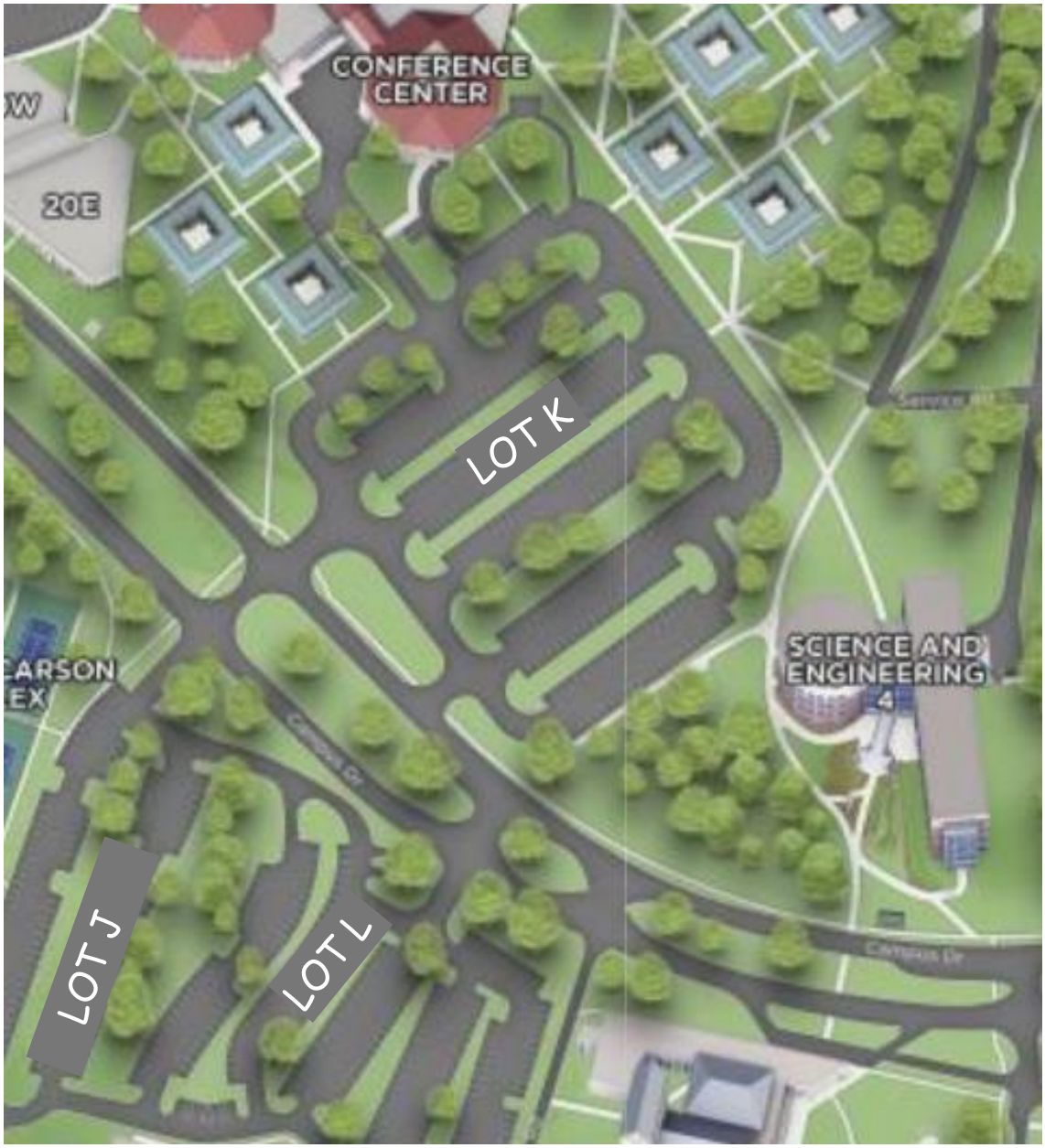


Building 4
3rd Floor



Building 4
4th Floor

Conference Center and Building 4 (Science and Engineering)
Parking in lots J, K, & L (shown)
(See also https://map.uwf.edu/)



Parking permit required. Complete the form via the link below for a digital parking permit:
https://uwf.edu/finance-and-administration/departments/business-and-auxiliary-services/parking-and-transportation/event-parking-permit/

NOTE: Googling "Building 4, University of West Florida, Pensacola, FL" gets you to the correct address, but may take you via a service road. Therefore, once on campus, be sure to get on "Campus Drive" and look for signs for parking lots J, K, & L.