

Signs of Mathematics

The year 2012 was yet another productive year for the Department. We are excited to be part of the new UCA STEM Teach Program (more details elsewhere). We are very optimistic that this new program will improve the quality of mathematics teacher education. The department developed the Quantitative Literacy course with full transferability as an alternate general education mathematics course for those students whose curricula do not require College Algebra. This is a major milestone with respect to mathematics component of the general education courses. We are proud that our own Dr. Charles Watson led this effort for the state. One of the department's long-term goals was to convert our 5+5+3 credit calculus sequence to 4+4+4 to align with the other major universities in the state as well as in the region. This was accomplished in 2102. We are very proud that our own Dr. Weijiul Liu received the UCA's prestigious Research, Scholarship and Creativity Award for the AY 2011-12. Dr. Patrick Carmack and Dr. R.B. Lenin have continued their research collaborations with the University of Texas Southwestern Medical Center in Dallas and UMAS respectively. Dr. Arrigo and his undergraduate research student Brandon Ashely received 2103 SURF grant. We awarded a total 33 math degrees in 2012, which included 24 undergraduate degrees. For the AY2012-13 we have recruited 20 graduate students in our program, which is a record. Last but not least, Drs. Donna Foss and Lawrence Huff, who have contributed so much to UCA and in particular to Department, are retiring at the end of Spring'13. More on them in the Spotlight section of the newsletter. All the best. *Ramesh Garimella, Chair.*



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UCA STEM Teach

Responding to the need to increase the numbers of mathematics and science teachers in the state of Arkansas, UCA submitted a successful proposal to become a replication site of the UTeach model for teacher education. Implementation of this model began at UCA in the Fall 2012 semester through a collaboration between the College of Natural Sciences and Mathematics and the College of Education as UCA STEMTeach with the first course, Step 1: Inquiry Approaches to Teaching. This course, which is the first of two recruitment courses, introduces teacher candidates to inquiry-based lesson planning, implementation, and reflection through a series of observations and teaching experiences in an area elementary school. *(cont. on the next page)*

UCA STEM Teach (Cont.)



As an incentive to “try it out,” candidates receive tuition reimbursement for the course upon the first of two recruitment courses, introduces teacher candidates to inquiry-based lesson planning, implementation, and reflection through a series of observations and teaching experiences in an area elementary school. The UTeach model began at the University of Texas in Austin and is currently being replicated on 33 university campuses across the nation. Candidates in the STEMTeach program are mathematics and science majors who add the STEM education minor to their bachelor’s degrees, offering the additional opportunity of teaching upon graduation to the possibilities of graduate or professional school. As

such, teachers prepared through the STEMTeach program have content degree, which provides an increased depth of knowledge compared to those in the current program. This approach also differs from the current program with its early, integrated field experiences, the use of master teachers to mentor candidates, and the inquiry-focused teaching model. Candidates gain experience in the classroom during their first semester and most every class after it, leading to the semester-long apprentice teaching opportunity during the final semester. Throughout the program, the candidates are guided by master teachers who are former, well-respected secondary mathematics and science teacher and who work closely to guide and mentor candidates. The program also allows candidates engage in hands-on, inquiry-based lesson plans and demonstrations to promote the value of this approach in the classroom For more information, visit www.uca.edu/go/STEMteach. Dr. Gary Bunn of the College of Education contributed to this article.

A new general education mathematics course

The UCA Department of Mathematics has taken the lead to design and implement a Quantitative Literacy course, which is intended to meet general education requirements for students who have majors other than in the STEM disciplines. Under a grant from the Arkansas Department of Higher Education known as the Complete College America Project, instructors from six departments of mathematics at various two and four year institutions came together to design a course in lieu of College Algebra that would meet the general education requirements for many students. Dr. Charles Watson, Associate Professor in mathematics from UCA, was chosen to lead the development work and to collaborate with the Department of Higher Education and the Arkansas Higher Education Coordinating Board. A course outline and draft syllabus for Quantitative Literacy was completed in the spring 2012. The course was piloted at UCA and four other colleges in the fall 2012. At the April 2012 meeting of the Arkansas Higher Education Coordinating Board, Dr. Watson was invited to present the course description and summarize the work of the CCA institution representatives toward implementation of the course. At that time the Board adopted a resolution that approved the Quantitative Literacy course as one meeting general education requirements as a pilot project and invited its fuller implementation across the state as a course that eventually will meet full course transfer authority. On January 8, 2013, the Department of Higher Education and the CCA grant sponsored a day-long workshop at UCA for advisors and new instructors from colleges and universities outside the implementation institutions. Fifty three faculty and student advisors attended. The session was led by Dr. Watson and professional development for instructors was provided by Dr. Dave Sobecki, Miami (Ohio) University. (Continued on page 14)

Faculty News

Liu wins UCA's Research Award

Dr. Weijiu Liu, Associate Professor of Mathematics, received UCA's prestigious Research, Scholarship and Creativity Award for the AY 2011-12.



Liu's research interests are in the area of Mathematical Biology and in Control Theory with a focus on Feedback Stabilization. He has developed models for blood glucose regulation and intercellular calcium homeostasis in living organisms. "It is a big recognition for my research work I have done at UCA," Liu said about the award. "It is also a big encouragement for me to continue to do my best to serve my university in teaching, research and services." Liu joined the department in August 2005 and received tenure in 2011. This is the second research award for the Math Department in the last five years. Dr. Danny Arrigo won a similar award in 2008.

Geometry Grant

Dr. Jean McGehee, Associate Professor of Mathematics, received a \$49,561 grant from the Arkansas Department of Higher Education for her proposal *Geometry and the Implementation of the Common Core State Standards*. The grant will provide ten days of professional development workshops for 25 high school teachers during summer, necessary software, geometry materials and texts, and stipend for participating teachers. Ms. Cheryl Winberry, a mathematics teacher at the Greenbrier High School, and Dr. McGehee will lead the summer workshops.



NIH Grant in Bio-Statistics

Dr. Patrick Carmack, Assistant Professor of Mathematics at UCA and his colleague Dr. Jeffery Spence of the University of Texas Southwestern Medical Center received a two-year R21 grant in the amount of \$275,000 from the *National Institute of Biomedical Imaging and Bioengineering*, which is a part of NIH. Drs. Carmack and Spence are planning to use multivariate methods such as Independent Component Analysis (ICA) to identify subtle cognitive impairment using a variety of brain imaging modalities. Since methods like ICA are sensitive to noisy input, they propose to use spatial modeling to smooth the data. Dr. Carmack joined the Department of Mathematics at UCA in August 2008.



Math Faculty presented a national webinar

Dr. Linda Griffith, Professor of Mathematics at UCA and Ms. Margaret Bambrick, a Mathematics Specialist at Volusia County Schools, Florida presented a national webinar on Pathways for Implementing TI-Nspire Technology January 24, 2012. In the webinar, the presenters shared tips for implementing TI-Nspire technology in classrooms. Beginning with teacher usage as a presentation tool, they shared pathways to promote student discovery on handheld TI-Nspire and implementation of the TI-Nspire Navigator system. The webinar is a part of a series to show educators in US and Canada how to effectively use TI technology to build student understanding.



Faculty News (Cont.)

Research Subcontract from UAMS

Dr. R.B Lenin received a \$19,000 subcontract from the UAMS to identify an optimal scheduling policy to achieve minimal waiting time while optimizing healthcare resources using MedModel software. He has been working with the OB/GYN Department at UAMS to model and develop computer



simulation models for flows of outpatients at the Freeway Clinic (FWY) and Financial Parkway Clinic (WLR), Little Rock, Arkansas, since Summer 2012. Now this work is in the validation process. A mathematics graduate student, Dana Crouch, is involved in this project. The results of this study will be a part of her thesis work.

Kudos to ...

Dr. Long Le on receiving tenure and promotion to Associate Professor in Fall 2012.

Math Ed paper wins national recognition

Dr. Jason Martin, Assistant Professor of Mathematics, was the lead author on a paper that received Honorable Mention (2nd Place) for the Best Paper Award for the *Fourteenth Annual Conference on Research in Undergraduate Mathematics Education* (RUME). The paper, entitled *Students' Reinvention of Definitions of Series and Pointwise Convergence*, documented a pair of students as they recreated these very formal mathematical definitions. This was a continuation of another paper that Dr. Martin co-authored, entitled *From Intuition to Rigor: Calculus Students' Reinvention of the Definition of Sequence Convergence*. With nominal facilitator involvement, in just a few sessions these students, who had received no prior instruction on these formal definitions, successfully engaged and resolved challenges that historically took mathematicians over a century to resolve. These papers can be found in the first two volumes of the conferences proceedings at <http://sigmaa.maa.org/rume/Site/Proceedings.html>. Overall, forty-seven papers were considered for the best paper award. All papers accepted for presentation were rated on a five-point scale. The top three papers were reviewed by a panel of two senior researchers in the field of RUME and a past recipient of the best paper award.



External Reviews

In fall 2011, Dr. Arrigo, professor of mathematics, was invited by the Department of Mathematics at Tennessee Technological University to review its masters' program in mathematics. During his on-site visit to TTU campus in Spring 2012, Dr. Arrigo met with the faculty and graduate students to examine various aspects of the program for his official report. TTU, a peer institution to UCA, is predominantly an engineering school with an enrollment of 11,750 students.



In summer 2012, Dr. Ramesh Garimella was invited by the Department of Engineering, Mathematics, and Physics at the Texas A and M International University to review its masters' program in mathematics. During his two-day visit to TAMIU campus in October 2012, Dr. Garimella met with faculty, students, administrators and submitted an official report highlighting the strengths and areas of improvement for the program.

Student News

2012 O.L. Hughes Award

Zachary Parham and Zachary Spallings, both applied mathematics majors, are the co-recipient of the 2012 O.L. Hughes Award. The award is presented every spring to a senior in mathematics who has an exemplary academic record. Both Parham and Spallings had a perfect 4.0 GPA. After graduation, Zachary Parham joined the MS program in applied mathematics at UCA. The award is given in the memory of late Professor O.L. Hughes, who was the Chair of the Math Department in late 70's to mid 80's.



Zach Spallings



Zach Parham

2012 Dorothy Long Award

Haley Lafoon and Lindsay Parker, junior mathematics education majors, are the 2012 co-recipient of the Dorothy Long Award, presented to an outstanding female junior mathematics major. The award is co-sponsored by the Delta Zeta Sorority and is given in the honor of late Dorothy Long, who was a mathematics faculty member and the Dean of Women at UCA in 60's.



Haley Lafoon



Lindsay Parker

2012 Outstanding Graduate Student Award

Crystal Spellman, a senior MS student in applied mathematics, is the recipient of this year's outstanding graduate student award. Crystal has 4.0 GPA. "She is excellent instructor who goes beyond her call of duty to help fellow students, faculty and the department," said Dr. Garimella, chair of the department. Crystal received her BS degree in engineering from LSU. This award carries a citation plaque and a check from the Mathematics Department. Currently, Crystal is working with Dr Arrigo on a masters' thesis and is expected to receive her MS degree in May 2013.

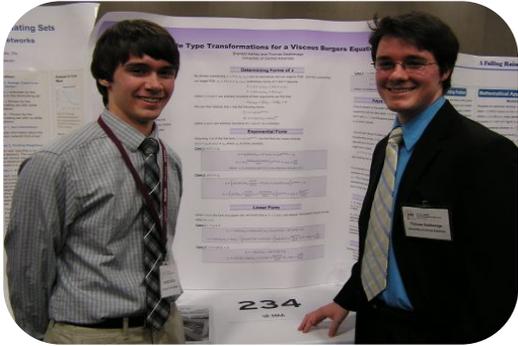


A Math Graduate Student wins second place for poster presentation

Aaron McMoran, a first year graduate in the Applied Mathematics, won second place for his presentation "Modeling Patient Flow in an Outpatient Clinic" in the graduate poster presentation session at the Arkansas Academy of Sciences Conference held in April on the campus of University of Arkansas at Magnolia. Dr. Lenin mentored Aaron on this project, which received funding from the University of

Student News (Cont.)

Outstanding Student Poster

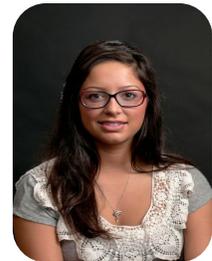


A poster presented by mathematics majors. Thomas Deatherage and Brandon Ashley, mentored by Dr. Danny Arrigo, titled "Hopf-Cycle Type Transformations for a Viscous Burger Equation" received honorable mention as an outstanding poster at the Joint Mathematics Meetings held in San Diego during the second week of January 2013. JMM is the premiere mathematical meetings in the country attended by well over 6000 mathematicians. There were a total of 304 posters presented at the meetings including some by undergraduates from Princeton, Harvard, MIT, Rice,

University of Chicago, University of Michigan. Only 15% were recognized as outstanding and the above poster by UCA math students is one of them. Both Thomas and Brandon conducted their research for the project during summer 2012. Brandon was awarded a 2013 SURF Award to continue

A Math major participated in a summer program

Ms. Rebecca Smith, as a senior mathematics major at UCA, participated in 2012 Summer Institute for Training in Biostatistics (SIBS) at the Washington University in St. Louis. The SIBS is a 6-week all expense paid training program sponsored by the National Institute of Health (NIH) to introduce and encourage students to pursue careers in the field of biostatistics. Biostatistics is a highly sought after career and the demand for biostatisticians is ever on the increase. This summer program has concentration in Biostatistics Research in Genetics and Epidemiology and was held between June 4-July 13, 2012. Rebecca graduated in Spring 2012 and is currently a graduate students in our MS program in applied mathematics working on her masters thesis in biostatistics with Dr. Patrick Carmack.



Math alumni received research assistantship

Mr. Jonathan Taylor, who received his MS Applied Mathematics from UCA in spring 2012 joined the doctoral program in the Marine Sciences Department at the University of Georgia in fall 2012. Jonathan was offered a research assistantship with an annual stipend of \$23,000 plus tuition wavier. Jonathan masters' thesis at UCA, directed by Dr. Long Le, was on modeling the submarine mass flow



Alumni - Corner

SCOTT SCHLUTERMAN, MATHEMATICS GRADUATE, CLASS OF '93, LANDS POSITION AS FINANCIAL SYSTEMS MANAGER

After completing a degree in Mathematics from UCA in 1993, Scott Schluterman pursued graduate studies and completed two Masters degrees in both Mathematics and Statistics at U of A in 1996 and 1997. With this knowledge base, he began his career as a business analyst for ALLTEL Information Services. In this role, he used his analytical background to assist the company in the development of several intranet projects. He also served as technical lead on the Year 2000 project as well as the project lead in the conversion of the company's legacy accounting system to the JDEdwards software.



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In 2000, Scott moved to Denver, CO and continued his analytical career with a fiber optic company, 360networks. His primary roles included data analysis and program development. He led a project for the Operating Support Staff. In this role, he worked directly with the Chief Operating Officer. After a year with the company, the economy faltered and one of the casualties was 360networks. At that point, Scott decided to follow a career path in a different industry. He applied for an instructor position at the collegiate level and also applied for an analyst position at a local law firm. He was offered both positions.

Today, Scott is the Financial Systems Manager for Holland & Hart LLP, the largest law firm in the Rocky Mountain West with approximately 450 attorneys. As Financial Systems Manager, he is responsible for overseeing the accounting and billing system software, payroll system, and the business intelligence reporting for the firm. Two Financial Analysts report to him. The focus is to compile, analyze, and report on the profitability and productivity of the firm. They also oversee the yearly budgeting process and produce yearly metrics for national publications such as Hoffman Alvary and AMLAW. Scott also still teaches evening classes for Devry University Graduate School. Scott says, "Mathematics provides so many opportunities in all industries and disciplines. I feel privileged to have had such wonderful mathematics professors and advisors at UCA who helped me develop the skills that have allowed me to be successful in my career." Dr. Donna Foss contributed to this article.

2012 Summer Graduates



December 2012 Graduates



2012 Alumni

BA/BS Math

Derek Anderson
 Merri Beall
 Hannah Fitzmaurice
 Alex Looney
 Vinh Lu
 Matthew Mason
 Aaron McMoran
 Brandon McVay
 Zach Parham
 Vanessa Paz
 Joshua Schoolcraft
 Rebecca Smith
 Zachary Stalling
 Matthew Tubs
 Taylor Vance
 Brandy Walsh

BSE Math Education

Carlene Crumby
 Blake Driscoll
 Jeremy Elsinger
 Laura Fisher
 Andrea' Mack
 Lauren Messer
 James Morgan
 Rachel Tyler

MA Math Education

Kasey Ballard
 Christy Boteler
 Felicia Doss
 Sarah LeMaster
 Rodney Warren
 Martha Watkins
 Jennifer Wilcox

MS Applied Mathematics

Andrew Muse
 Jonathan Taylor

2012 Spring Graduates



Spotlight

After many years of distinguished service to UCA, Dr. Donna Foss and Dr. Lawrence Huff are retiring at the end of this spring semester. To express our sincere thanks, in the following we present the answers given by both Drs. Huff and Foss for the questions collectively asked by the faculty members and staff in the department.

An interview with Dr. Lawrence Huff

About the Past....

SM: Where is your hometown and what brought you to UCA?

LH: My hometown is Akron, Iowa. I learned of an opening for a position in the mathematics department at UCA from Dr. Gary Bogar, a Montana State University mathematics faculty member, who attended graduate school with Dr. James Dombeck, a UCA mathematics faculty member. I sent my first application to UCA. I was invited for an interview at UCA. Soon, I was offered the position, and I accepted the position.

SM: What were you like as a mathematics student in school and college?

LH: I was a good mathematics student in school and in college. Mathematics was always my favorite subject. I even enjoyed word problems when I was in grade school.

SM: Why did you select mathematics and teaching as a career?

LH: The first year that I was a graduate teaching assistant at the University of South Dakota, I really enjoyed teaching at the university level. It was fun to work with students and I thought it was great to have an office on campus.

SM: Who inspired you in your early career?

LH: At the University of South Dakota, I was inspired by Dr. Wayne Gutzman, my calculus teacher, Dr. Charles Frick, my undergraduate advisor, and Dr. Wallace Raab my master's thesis advisor. Dr. Myron Henry, my Ph.D. thesis advisor at Montana State University, was also an inspiration. During my career at UCA, Dr. David Peterson was always encouraging.

SM: What other fields are you interested in outside of mathematics?

LH: I have interests in the fields of physics, computer science, and pharmacokinetics.

Present...

SM: What are your hobbies?

LH: My hobby is to maintain the family farmstead in South Dakota. *(cont. on the next page)*



Interview with Dr. Huff (Cont.)

SM: What changes have you seen in your 35 year career at UCA?

LH: When I started at UCA, teaching was emphasized. Research was valued but not expected. The teaching load for new assistant professors was fifteen hours. Currently, teaching is important, research is necessary and new assistant professors typically have a nine hour teaching load. When I started most of the mathematics faculty had hometowns in Arkansas. Now we have faculty members from all over the world.

SM: What advice do you have for future math students?

LH: If you love mathematics, spend the time and give your best in every mathematics course that you take. Take more mathematics courses than just those that are required. Try to relate topics from different mathematics courses to each other. Be willing to study math on your own during the summer break.

SM: What advice do you give to new and future faculty members?

LH: First organize your time to spend a great deal of effort to developing and advancing your research agenda. Be willing to spend more time on developing good teaching practices in a few courses. Expand to teaching more courses as time goes on. Get to know and work with UCA students. UCA students respond well to encouragement.

SM: You were one of the leaders in the establishment of our applied math track at the undergraduate level and subsequently the graduate level. Did you envision the programs as they are today? Did you ever think that the department would have a Masters in Applied mathematics?

LH: The undergraduate applied mathematics program has developed about the way I expected it to. The program has been enhanced by the addition of a few more courses. I expected the Masters in Applied mathematics program to do well but I did not expect it to be as popular as it is today.

future

SM: What do you plan to do after you retire from UCA?

LH: I plan to travel with my wife Jaynette. We will divide our time between staying here in Conway and at our family farm in South Dakota. I plan to continue maintaining the family farmstead. I plan to read mathematics and work mathematics problems.

SM: What are you going to miss most about working at UCA?

LH: I will miss the students, especially the ones that stop by after class or come to my office for help. I will miss my colleagues in the mathematics department and I will miss my office on campus.

On behalf of the students, faculty and staff, we want to thank Dr. Huff for his outstanding contributions to the Department of Math and UCA Community. All the best to Dr. and Mrs. Huff.

Kudos to

Dr. Clarence Burg for receiving tenure and promotion to Associate Professor.

Important Dates for 2013

March 2	Regional ACTM Math Contest
April 27	State ACTM Math Contest
May 4	Spring Commencement
June 3	Start of Summer Sessions
August 22	Start of Fall Semester

Spotlight- An interview with Dr. Donna Foss

Past...

SM: Where is your hometown and what brought you to UCA?

DF: I was raised in Little Rock and attended grades 1-12 there, including Hall High School. After two years at Ouachita Baptist University, I graduated with B.S. in mathematics from UALR. After eight years of teaching at Little Rock Central High School, Fort Walton Beach High School, and Pulaski Academy, I returned to school at UCA and graduated with M.S. in mathematics. Dr. James Dombek hired me as adjunct instructor for two years and then full-time in 1980.



SM: What were you like as a mathematics student in school and college? DF: I was a fairly conscientious high school student (5th in graduating class) and graduated from college in three years.

SM: Why did you select mathematics and teaching as a career?

DF: I have always enjoyed mathematics and teaching my fellow classmates. My interests in science led me to briefly select other majors (biology, nutrition, medical technology, bacteriology), but each time I investigated some other career, I returned to mathematics as my first and most enduring interest. Tutoring others throughout my education confirmed my desire to make teaching mathematics my career.

SM: Who inspired you in your early career?

DF: Inspiration usually came from parents, teachers, and colleagues in the department. When I returned to school at the University of Memphis, Dr. Robert Kleinsasser made me believe that I could contribute to educational research (ATE Dissertation of the Year). However, I shall never forget the encouragement that Dr. Buchanan, Dr. Griffith, Dr. Peterson, and Dr. Seifert provided during my return to school to pursue a doctorate. They always made me feel that I could be successful and supported me when I was chair of the Department for eight years. I could not have accomplished anything without the support of my UCA colleagues and my husband, Jim. No matter the circumstances, he always provided faith and encouragement.

Present..

SM: What changes have you seen over your 35-year career at UCA?

DF: UCA has grown from 3400 students to about 11,000! This change in itself has brought with it new faculty and friends, new buildings, new goals, and new administration. Throughout the years, the faculty has not lost the desire to place the education of our students at the top of the priority list. Admirably, I believe the majority of the UCA faculty will go the "extra mile" to help students achieve their educational goals.

SM: What advice do you give to future math students?

DF: Never let an unpleasant experience in one's personal life, a failing grade in a class, or a conflict with an instructor stand in the way of pursuing your educational goal. I have known many students who have changed their major or their career goal because of one obstacle. Yes, after many obstacles, one may change goals because the circumstances seem insurmountable. My philosophy has been to encourage students to stay focused on their goals. I think of times when pushing forward led me to a brighter future. If I had let the professor (not at UCA) who told me I was too old at 35 to return to school, I would not have had this wonderful career at UCA. (Continued on the next page)

Interview with Dr. Foss (Cont.)

SM: What is the best or worst thing you have ever heard from a student?

DF: The best thing I have ever heard from students is "Thank you."

SM: What advice do you give to new and future faculty members?

DF: Balance your life with family, teaching, and research, but never just focus on one of these.

SM: What trends/changes do you anticipate in the mathematics teacher-training program?

DF: The increase in content emphasis and hours of field experience in real classrooms during teacher training will go a long way toward improving the quality of our teacher candidates and will eventually impact the performance of students in our schools.

Future:

SM: What do you plan to do after you retire from UCA?

DF: The most immediate plans are to spend more time with my husband Jim, train our new Golden Retriever puppy if she arrives as scheduled in March, visit my brother and his family in Las Cruces, New Mexico, visit Jim's relatives in Florida and Maine, and increase time with friends.

SM: What are you going to miss the most about working at UCA?

DF: I shall miss the people....students and colleagues, and the fulfillment that teaching and advising bring.

On behalf of the students, faculty and staff, we want to thank Dr. Foss for her outstanding contributions and exemplary service to the Department of Mathematics and UCA Community at large. We wish Dr. Foss and her family well.

Kudos to....

Dr. Long Le for
receiving tenure and
promotion to Associate
Professor in 2012

Silent Contributors

A large organization like the Math Department is successful because of many silent contributors who go beyond their all of duty to make things work. Such people are Drs. George Bratton, Steve Butcher, Fred Hickling, Mrs. Brenda Graham, Ms. Lauren Pinkerton, and Mrs. Jennie Welter.

Math Outreach Activities

2012 MSIT Academy @ UCA

The fifth annual Mathematics Science and Information Technology Academy, known as MSIT Academy at the University of Central Arkansas, was held during the week of July 2012 in the UCA Mathematics and Computer Science Building. The Academy was partially supported by a grant from the Arkansas Science and Technology Authority and organized by Dr. Ramesh Garimella, Chair of Mathematics Department and Dr. Umadevi Garimella, Director of the UCA STEM Institute. Twenty five high school students



from Bella Vista, Conway, Fayetteville, Jonesboro, Little Rock, Vilonia, Benton, Morrilton, and Highland (Illinois) participated in 2012 MSIT Academy @ UCA. This year, MSIT had two activities – Cryptology and Computer Applications. Sixteen students took part in Cryptology and others in Computer Applications. The Cryptology activity was presented Drs. Ramesh Garimella and R.B. Lenin. Undergraduate UCA students *Thomas Deathridge* and *Brandon Ashley* provided support for the activity. A great deal of cryptography depends on number theory, especially clever manipulations of large integers, modular arithmetic, and use of software such as Excel, Maple and Mathematica. In this program, students were introduced to the essentials of number theory and cryptography. Participants learnt several types of encryptions and decryptions methods such as Caesar cipher, affine cipher, multiplicative cipher and RSA Encryption. The second activity, the Computer Applications, was presented by Dr. Mark Smith (UCA Computer Science Department) and assisted by Dr. Clarence Burg (UCA Mathematics Department) and graduate students *Brandon McVay* and *Vinh Lu*. The participants implemented a fully functional iPhone App pertaining to a graphical game. The students were first introduced to the Mac OS and the XCode Objective-C development tool before developing the App. The students next implemented the game App by utilizing the iPhone's Core Graphics and Touch Screen capabilities. Applied Mathematical theory, Software Engineering principles, and iPhone programming techniques were blended together in completing the fully functional AAP. Information about future MSIT @ UCA programs may be obtained from 501-450-3147 or rameshg@uca.edu

ACTM State Math Contest

Last April, the Department of Mathematics was sponsored by the Arkansas Council of Teachers of Mathematics (ACTM). Approximately 350 students from private and public secondary schools throughout Arkansas were selected to participate in the State Contest as a result of their performance in one of the 16 regional contests. The contest includes exams in Algebra I, Algebra II, Geometry, Trig/PreCalculus, Calculus, and Statistics. Dr. Charles Watson, UCA associate professor of mathematics, is the state contest director. He is responsible for organization of the contest and assuring that the exams are appropriate and based on the Curriculum Frameworks adopted by the Arkansas Department of Education. Dr. Carolyn Pinchback, Loi Booher and Jon Sumner of the UCA mathematics department faculty assisted Dr. Watson. UCA also hosted one of the regional competitions last March. Dr. Pinchback, Ms. Booher and Mr. Sumner coordinated the regional event. The Department of Mathematics is pleased to be able to bring outstanding students from across Arkansas to the UCA campus to engage in an academic contest. For more information e-mail: math@uca.edu.



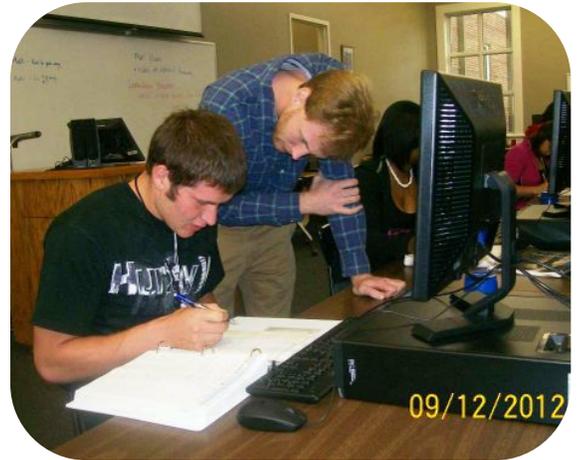
CCA Grant to Excel Students' Complete College Level Math

In Spring 2012, mathematics faculty members at the University College Mrs. Lisa Christman and Mrs. Jo Karen Hudson, and Dr. Charles Watson, Associate Professor of Mathematics, were chosen as team members for the Complete College America Grant project, funded by Gates Foundation. The grant required changing the traditional Beginning and Intermediate Algebra courses into one modular course. One of the purposes of the Grant was to have students complete their remedial and general education math classes early in their academic careers. According to the grant requirements, the modular course needed to be individualized, self-paced, technology driven and non-lecture. Half of the developmental math students on campus participated in the redesigned classes in Fall of 2012. Christman and Hudson spent the spring and summer writing a workbook, creating 63 video lectures, and preparing homework assignments, quizzes, pretests and posttests for the modules. UC College mathematics faculty members Mr. Keith Pachlhofer, Mrs. Debbie Bratton and Mrs. Rita Fielder also taught classes using the new modular course design in the fall 2012. Math Graduate Teaching Assistants provided help to individual students during the lab sessions. The modular courses for Spring 2013 have been renamed "Progressive Mathematics." UC offered one section of the modular course during the first half of the semester paired with College Algebra the second half of the semester. *(Cont. on the following page)*



CCA Grant (Cont.)

All of the students who completed the modular course in the first half of the semester successfully completed the College Algebra class that same semester. UC will be offering more half-semester classes in Spring 2013. Mrs. Jo Karen Hudson, mathematics faculty in the University College contributed to this article.



General Education Mathematics Course (Cont. from page 2)

The session was attended by Mr. Shane Broadway, Interim Director, ADHE, and Ms. Cynthia Moten, Director for Academic Affairs at ADHE. During the fall semester Dr. Watson collaborated with Dr. Sobecki and McGraw Hill Publishing Company to modify a text to meet the course goals and objectives as adopted for Quantitative Literacy. Those materials are being piloted tested at UCA during the spring 2013 semester.