

COLLEGE OF NATURAL SCIENCE and MATHEMATICS

Minutes of Council of Chairs Meeting – August 29, 2016

A meeting of the Council of Chairs of the College of Natural Sciences and Mathematics was held on Monday, August 29, 2016. Stephen Addison presided, members present: Ginny Adams, Jeff Allender, Bernard Chen, Pat Desrochers, Ramesh Garimella, Uma Garimella, Brent Hill, and Carl Frederickson. Guest: Michelle Buchanan, STEMteach Senior Master Teacher and Coordinator of Science Education Program.

Agenda Items:

- Michelle Buchanan led a discussion on the new Council for the Accreditation of Educator Preparation (CAEP) requirements and guidelines for accreditation of our STEMteach program. She is preparing the program report and asked that Chairs send their reports to her this week so she can submit the program report by the October 1st deadline.
- The minutes from the August 8, 2016 retreat were distributed. Dean Addison asked that any revisions be sent in by the end of the week.
- Dean Addison announced that preparations for the Spring 2017 Arkansas Academy of Science meeting are underway. UCA is hosting the meeting and he would like the names of faculty willing to serve on the organizing committee by the end of the week.
- Dean Addison distributed a list of recruiting events that have little or no coverage from our college. He asked that Chairs review the list and let Berdie Eubank know who would be willing to represent the CNSM at those events.
- Dean Addison led a discussion on student opportunities that are available and the need to find students interested in participating.
 - Louis Stokes Alliance – This is for minority STEM students who are U.S. citizens or permanent residents. Students are required to attend Chalk Talks, Seminars, and meet with a faculty member to discuss ways to be more successful. This scholarship pays \$1000 per semester for the first year.
 - Pat Desrochers announced that Posters at the Capitol would be held in February 2017.
 - Faith Yarberry is organizing Chalk Talks this year. Students can sign up for a talk through the Chalk Talk link found under CNSM Events on our homepage.

Other Items

- Carl Frederickson led a discussion on the Information Technology Department's rollout of new control software as reported by Chris Davis at the last Academic Council meeting. IT will be reimaging all computers on campus and moving all administrative access to the IT department. Concerns were raised about student workers having access to computers with sensitive data like evaluations, tests, and grades; losing the ability to test new research software or education programs; resolving issues with classroom technology; and the lack of communication with departments about these changes. Dean Addison asked Chairs to let their departments know about the planned changes and to get their faculty to email him and the Faculty Senate with their concerns. He will also invite Chris Davis to a future Council of Chairs meeting to discuss the issues

- Ginny Adams led a discussion on the need to create a new standing committee for student awards. This committee would be responsible for awarding the various college-level scholarships that are available to students as well as the Outstanding Student Award and will require an amendment to the by-laws to establish.
- Dean Addison announced that the Foundation is asking for the names of the major employers of our students to be used in fundraising efforts and promotions.
- There have been reports of the bookstore selling instructor copies of textbooks. This is a violation of their contract and Dean Addison asked Chairs write a letter of violation and forward it to him so he can have Kurt Boniecki address the issue.

Chair Reports

Biology

Dr. Hill reported:

- Over the summer, faculty took students (graduate & undergraduate) to national / international meetings:
 - Ginny and Reid Adams – American Society of Ichthyologists and Herpetologists
 - Ben Cash – American Society of Ichthyologists and Herpetologists
 - Sally Entrekin – Society of Freshwater Science
 - Ben Waggoner – Biology Laboratory Education
 - Arijit Mukherjee – Plant Biology; he was the Chair of the Biotic Interactions in Roots Concurrent Symposium
- Student mentored awards:
 - Sally Entrekin – AR Water Resources Student Poster – 1st Place (E. Coffelt & N. Weston)
 - Arijit Mukherjee – Advancement of Undergraduate Research in the Sciences (N. Ledger) and NSF EPSCoR Track II Industry Research Grant for the Plant Imaging Consortium (R. Singh).
 - Ginny Adams – Southeastern Fishes Council – 3rd Place student presentation (B. Furtado).

Chemistry

Dr. Desrochers reported:

- The Chemistry Department met with Provost Runge on April 14, 2016.
- The American Chemical Society Central Arkansas Section recognized Dr. Greg Naumiec as professor of the year on April 19, 2016.
- Amber Rolland won the 2016 Jerry Manion Outstanding Student Award. Enock plans to pursue a graduate degree in public health.
- Professor Karen Steelman and Claire Desrochers (BS 2013) each led breakout sessions on chemistry topics for the Girls of Power in STEM day, April 22, 2016. Dr. Steelman did an activity based on chemistry and art; Claire introduced the participants to paper chromatography.
- Departmental fluorimeter now equipped for polarized fluorescence, a significant tool for protein characterization.

- Department welcomed Dr. Nathan Meredith (Assistant Professor) and Dr. Marsha Massey (Lecturer I). Both will be teaching general chemistry in the fall and Dr. Meredith will be teaching instrumental methods in the spring.

Computer Science

Dr. Bernard Chen reported:

- Computer Science graduate student, Valentin Velchev, and faculty mentor, Benard Chen, were given travel awards for Velchev's oral presentation at the 2016 Industrial Conference on Data Mining (ICDM 2016).
- Two papers in Wineinformatics, involving Bernard Chen and four graduate students, Hai Le, Christopher Rhodes, Valentin Velchev, and Alexander Yu, were published.
- Bernard Chen joined the program committee for ICDM 2017.
- Bernard Chen published two co-authored papers in the 18th International Conference on Artificial Intelligence (ICAI 2016) and the 17th International Conference on Bioinformatics and Computational Biology (BIOCOMP 2016).

Geography

Dr. Allender reported:

- Steve O'Connell, Ellen Hostetter, and Jeff Allender all attended the AP Human Geography Reading in Cincinnati on June 1-8, 2016.
- MGIS student Scott Wood and Brooks Pearson just accepted the proof pages for their upcoming article: "*Data Collection in Field-Based Environments with Alternative Mobile Devices Using Mobile Geographic Information Systems and Services for Quality Flexible Platforms*" to be published in the *International Journal of Services and Standards*.
- Michael Yoder had an article published in the online journal, *Urbana*, titled: "*Cargo Transport Infrastructure and Urban Regional Development: The Fort Smith Metropolitan Area*"
- Will Flatley and Fulé, P. Z. has an article in press titled: "*Are historical fire regimes compatible with future climate? Implications for forest restoration*", to be published in the online journal, *Ecosphere*.
- Waring, K.M., Johnson, K.A., Flatley, W.T. have an article in press titled: "*Prescribed fire effectiveness in meeting management objectives at Zion National Park, USA*" to be published in the fall issue of the journal, *Fire Ecology*.
- Matt Connolly attended a weeklong ArcGIS workshop at ESRI headquarters in Redlands, California. A CTE Faculty Development Grant funded workshop.
- Jeff Allender hosted an invited panel: *Using University Science Majors and High School Seniors to Entice Younger students into the Sciences Through BioBlitz Activities*, at the National Conference on Geographic Education in Tampa, FL on July 30th.
- The Arkansas Geographic Alliance housed in our Department ran a 3-½ day teacher workshop in July. 12 High School teachers and 27 Middle School teachers attended. Steve O'Connell and Jeff Allender organized and ran the workshop, and Steve O'Connell gave three, half-day workshops on ArcGIS, Story Maps, and SnapToMap applications.
- Jeff Allender organized and assisted in running a two day BioBlitz with 17 Russellville High School students and 6 Russellville teachers conducting water testing on the middle tributaries of the Buffalo National River on April 1-2, 2016.

- Jeff Allender helped organize and run four moth capture and identification nights in conjunction with the Arkansas Lepidoptera Society and with the Russellville High School ecology teachers on March 31st, April 7th, 14th, and 21st. It involved 215 high school students and 39 teachers over the four nights. We captured 56 species of moth, 49 of which have been identified, 7 of which entomologists from Arkansas Tech are still trying to identify, and two of which were previously never officially registered in Arkansas, the Sawtoothed Crocidophora, and the Lobelia Dagger Moth.

Mathematics

Dr. Ramesh Garimella reported:

- Dr. Long Le and Dr. James Fetterly conducted professional development workshops for twenty middle and secondary school teachers in central Arkansas between July 11-15, and July 25-29, 2016. The workshops were primarily focused on concept and skill development lessons for several topics within Algebra and they were part of a \$60,699 No Child Left Behind Grant project, *Algebra-Connecting Concepts*, funded by the ADHE. Dr. Umadevi Garimella is the PI and Dr. Ramesh Garimella is the co-PI.
- The UCA STEM Institute along with the Departments of Mathematics and Computer Science offered professional development workshops titled *Essentials of Computer Programming: Teacher Training and Support* this summer. Attending were six middle and high school teachers planning to teach essentials of computer science this upcoming academic year. The workshops were conducted during the week of July 25-29, 2016, by Dr. R.B. Lenin and supported by Mrs. Karen Thessing.
- Dr. Nesrin Sahin, Assistant Professor of Mathematics Education, conducted Connecting Core Instructions (CCI) PD workshops for 25 elementary and middle school teachers in Arkansas on the UCA campus May 14th, June 20-22, and July 19-21, 2016. This was part of a \$146,866 MSP grant titled *Connecting Core Instructions for Mathematicians and Scientists*. Dr. U. Garimella is the PI for the project.
- Dr. James Fetterly, Assistant Professor of Mathematics Education, conducted PD workshops on June 20-23 and July 21, 2016 for 20 elementary teachers in Arkansas to enhance their content knowledge and teaching skills through development of a vertical team to integrate science, mathematics, literacy, technology, and embrace project-based learning. The workshops were part of a \$146,866 grant titled, *Excellence in Elementary School Science* (ESSS), funded by the ADHE. Dr. U. Garimella and Dr. Haihong Hu, Assistant Professor of Leadership Studies, are the co-PI's for the project.
- A paper co-authored by Ms. Kaiyi Chen (a former masters' student at UCA in Applied Mathematics), Dr. Ling He (Carmichael Professor of Finance), and Dr. R.B. Lenin has been accepted for publication in the *Journal of Risk Finance*. The paper is based on Chen's thesis, "Time Variation Paths of Risk Sensitivities of Bank Stocks in Past Two Decades." Dr. Lenin was the principle thesis advisor.
- The Department of Mathematics in conjunction with the UCA STEM Institute and the Department of Computer Science offered the 2016 Math and Science Summer Programs @ UCA during the month of June 2016. The summer activities were for elementary, middle and high school students from central Arkansas. Thirty-seven students from Conway, Greenbrier, Little Rock, North Little Rock, Nashville, and Wooster participated in the program. There were activities in Algebra for Beginners, Advanced Algebra, Exploring Physics and three sessions on Computer Coding for Beginners, Intermediate, and Advanced. Ms. Haley Lafoon, a former math graduate of UCA, taught algebra for Beginners. Mr. Brandon Ashley, a math GTA, taught

Advanced Algebra. Mr. Sudheer Kavi, Senior Solution Developer for Acxiom and Adjunct Professor of Computer Science was the instructor for all coding classes and Ms. Katie Burden, a graduate student in mathematics, provided support for coding activities. Dr. Debra Burris, Associate Professor of Physics and Astronomy, conducted the Exploring Physics workshops. Dr. Ramesh Garimella and Dr. Uma Garimella planned and organized the event.

Physics

Dr. Frederickson reported:

- AAPT Posters, July 16-20, Sacramento, CA
 - “Learning Orientations Towards Physics Problem Solving: Additional Potential Variables,” Andrew Mason, Charles A. Bertram, University of Central Arkansas.
 - “Can Classical Mechanics Tutorials Help Approach Other Upper-Level Courses?” Andrew J. Mason.
 - “Attitudes, Approaches to Physics Problem Solving: Turkish and American Students,” Andrew J. Mason, University of Central Arkansas, Nuri Balta, Canik Basari University, Turkey, Chandralekha Singh, University of Pittsburgh.
 - “Surveying Introductory Physics Students’ Attitudes and Approaches to Problem Solving,” Andrew J. Mason, University of Central Arkansas, Chandralekha Singh, University of Pittsburgh.
 - “Explicit Incentives to Correct Mistakes in Quantum Mechanics Can Substantially Improve Performance on the Same Problems Repeated a Second Time,” Chandralekha Singh, Ben Brown, University of Pittsburgh, Andrew Mason, University of Central Arkansas.
 - Physical Review Special Edition Article, Nuri Balta, Andrew J Mason, and Chandralekha Singh, “Surveying Turkish high school and university student attitudes and approaches to physics problem solving,” Phys. Rev. Phys. Educ. Res. 12(1), 2016
- Noyce Summit Poster Presentation, July 19-22, Washington D.C.
 - “Summer Internships for Rising Sophomores and Juniors as a Recruitment Tool for Secondary Science and Math Education,” Carl Frederickson, Audra Alumbaugh, Mark Bland, Faith Yarberr, Jason Martin, Andrew Mason

STEM Institute

Dr. Uma Garimella reported:

- UCA STEM Institute offered 71 days (426 hours) of professional development trainings during the 2016 summer and impacted approximately 642 teachers and 146 schools in the state of Arkansas.
- Grant funded projects of \$360,000: STEM Institute had three federal grants of \$360,000. Seventy teachers received 2-week summer professional development sessions in math and science topics. Faculty from various colleges and departments collaborated on the grants.
 - CNSM Faculty and Staff – Umadevi Garimella, Cara Cates, Sharon McKinney, Ramesh Garimella, Carolyn Pinchback, Linda Griffith, James Fetterly, Nasir Sahin, Long Le, and Jerry Mimms.
 - COE Faculty and Staff – Shoudong Feng, Helen Hu, Michelle Buchanan, Audra Alumbaugh, and Debbie Dailey.

- State sponsored programs: The two specialist, Cara Cates (Math) and Sharon McKinney (Science), in collaboration with several Educational Cooperatives offered six state sponsored programs to support teachers to implement new science standards and improve math content/pedagogy.
- School Support: The STEM Institute worked with nine school districts to offer in school support and training to teachers in specific requested areas.
- AP and Pre-AP Trainings: Umadevi Garimella, a College Board Consultant, conducted several Pre-AP Science and AP Biology Summer Institutes.
- NSF-PAEMST National Committee Member: Umadevi Garimella served as a Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) National Selection Committee (NSC) member and reviewed applications for the 2016n PAEMST.
- Special Projects: In support of state focus on increasing computer science in K-12 schools, the STEM Institute collaborated with Dr. Rathinaswamy (R.B. Lenin) in the mathematics department and Karen Thessing in the computer science department to offer a year long training and support to teachers to teach JAVA programming. We also offered a computer coding workshop for K-5 teachers.