

# COLLEGE OF NATURAL SCIENCE and MATHEMATICS

## Minutes of Council of Chairs Meeting - November 6, 2017

A meeting of the Council of Chairs of the College of Natural Sciences and Mathematics was held on Monday, November 6, 2017. Stephen Addison presided, members present: Emre Celebi, Pat Desrochers, Carl Frederickson, Ramesh Garimella, Uma Garimella, Brent Hill.

### Agenda Items:

1. Minutes from October 2, 2017 meeting approved with minor revisions.
2. Dean Addison updated council on new Louis Stokes Alliance partnership with UA-Fort Smith. A grant proposal was submitted last Friday and if approved will create a 5-year program that will target underrepresented students especially those of Hispanic and Native American origin. The required summer camp would be held at UCA two of the five years and should be more productive than our current partnership with UA-Pine Bluff. Discussion followed regarding issues with the grant submission process especially with delays in Cayuse and Sponsored Programs.
3. Dean Addison updated council on the recent INBRE Steering Committee meeting. The CNSM has 5 proposals moving forward but there were some concerns with intellectual property issues that we need to address. It is important that we keep sending our students to these conferences, as we won 2 awards at the last meeting. There are funds available to host speakers and support sabbaticals.
4. Pat Desrochers announced that Posters at the Capital would be held on February 14, 2018 in the capital rotunda. There will be two poster sessions: 11-12 and 12-1 so there will not be a luncheon. We need a volunteer to help capture names of the senators and representatives that attend. Posters should avoid highly technical jargon, show how the work impacts the State, and indicate sources of funding.
5. Pat Desrochers led a discussion on the upcoming meeting regarding AP Score standards. There is concern that students who receive AP credit for courses with a lab component at other institutions will not get credit for those courses if they transfer to UCA. There is also concern that students taking AP exams are only learning how to take the exam and are not learning the concepts they need for the courses they take once they come to UCA. It is important to participate in this review process so we can establish acceptable standards across the State.
6. Dean Addison reported that several rooms in Lewis Science Center would be taken offline due to an increase in theft in the building.
7. Dean Addison reported that the CNSM Homecoming event was not as successful as it could be and asked council to become more involved in alumni relations by personally inviting alumni to events on campus. This will not only increase external knowledge of our events but will build alumni relationships that lead to future fund raising. Discussion followed.
8. The current intellectual property process is unworkable and the Dean would like ideas from the council for ways to improve it. He plans on asking the new provost to make this a priority goal once hired.

9. Dean Addison asked council to keep him advised of all on-going registration issues in Banner so they can be addressed quickly as there are limited funds available to add additional sections. Discussion followed regarding students on contract and the possibility of moving away from the Banner system.
10. Dean Addison advised council that the mid-tenure application deadline has been announced and guidelines are available on the Institutional Research website – [www.uca.edu/ir/digital-measure/guides](http://www.uca.edu/ir/digital-measure/guides). Training is also available.

## Other Items/Announcements

- The next INBRE grant workshop is December 8, 2017.
- INBRE summer research proposals are due January 15, 2018.
- INBRE pilot grant proposals are due March 1, 2018.
- Abstracts for Posters at the Capital are due December 3, 2017.
- Mid-tenure applications due January 7, 2018.
- Our ETS/MFT subscription expires in 90 days. Discussion followed usefulness of reports and need for a different assessment tool.
- GIS Day is Wednesday, November 15<sup>th</sup> in Student Center 225 from 12-4:30pm.

## Chair Reports:

### Biology

Dr. Hill reported:

- Several faculty members and students attended the recent INBRE Undergraduate Symposium:
  - M. Farris: 3 students
  - T. Haselkorn: 2 students
  - A. Mukherjee: 7 students
  - C. Marian: 3 students
  - K. Naylor: 3 students; Ethan Chernivec won 2<sup>nd</sup> place oral presentation
  - A. Puri: 1 student received honorable mention presentation
- S. Entekin and P. Bailey submitted a Metlife Foundation Study Abroad Innovation Grant through the 100,000 Strong in the Americas program in partnership with Instituto Tecnológico y de Estudios Superiores de Occidente (ITESO), the Jesuit University of Guadalajara, a prestigious private university in Western Mexico. UCA and ITESO signed a five-year Exchange Agreement in July 2017 that will permit exchange scholars to pay tuitions and fees at their home institution while studying for a semester at the partner campus.
  - Summer Course 2018: Summer Language and Culture Immersion through Ecological Sustainability.

## Chemistry

Dr. Pat Desrochers reported:

- Tori Dunlap presented a research poster at the Gibbs Conference on Biothermodynamics, September 23-26, 2017.
- Mason Hart attended two workshops at the SW Regional ACS meeting in Lubbock, TX, toward his training to become a certified chemical hygiene officer. The one-day workshops were entitled: "Process Safety Management for Research and Small-Scale Chemical Processes," and "Effective Chemical Safety Management." October 31-November 1, 2017.
- Invited Research Talks:
  - Patrick Desrochers, U of Kansas, September 20, 2017.
  - Greg Naumiec, Hendrix College, November 6, 2017.
- Alumni Joe and Laura Allison (Hollenbeck) gave a presentation on advice regarding working as an industrial scientist. This was based on their extensive industrial career experience with ConocoPhillips.
- Student ACS group presented a very active National Chemistry Week program during the week of October 23, 2017.

## Computer Science

Dr. Emre Celebi reported:

- Governor Hutchinson announced a \$500,000 grant in support of the pending BS in Cybersecurity degree program.
- The proposal for Computer Science Data Science track has recently been submitted. We expect this track in Fall 2018.
- Karen Thessing attended the Women in STEM conference at the University of Arkansas Pulaski Technical College and the 2017 Arkansas Computer Science Education Leadership Summit 4.0 at Arkansas Tech University.
- Tansel Halic and Sinan Kockara submitted a grant proposal entitled, "ViRCAS: Virtual Rotator Cuff Arthroscopic Skill Trainer," to the NIH AREA program. (\$369,376)
- Bernard Chen and Uma Garimella submitted a grant proposal entitled, "RET Site: The Big MAC (Manipulating, Analyzing, and Communicating) of Data Science," to the NSF RET program. (\$559,269)
- Emre Celebi was a guest editor for the Journal of Electronic Imaging special issue entitled, "Superpixels for Image Processing and Computer Vision."

## Geography

Dr. Stephen O'Connell reported:

- Matt Connolly attended the West Lakes Regional meeting of the American Association of Geographers in West Lakes, MO, from October 19-21, 2017.
- The department is hosting a GIS Day event from 12-4:30 in Student Center 225 on Wednesday, November 15<sup>th</sup>. Demonstrations of ArcGIS Online, student and faculty research posters, and an alumni panel discussion will be part of the activities.

## Mathematics

Dr. Ramesh Garimella reported:

- Conference Presentations:
  - Last week at the Arkansas Curriculum Conference, the following five presentations were made by math faculty and math majors:
    - Delving into Fibonacci: Formulas, Fascinations, and Fun – Dr. Jimmy Fetterly with STEMteach math major Lucas McEntire.
    - Thinking Algebraically: From Patterns to Polynomials – Dr. Jimmy Fetterly with STEMteach math major Bryan Jones.
    - Exploring Problem Posing: A Mathematical Project – Dr. Jimmy Fetterly with STEMteach math major Grace Delph.
    - (Mis)Understanding Fractions: Taking a Closer Look – Drs. Sahin and Fetterly.
    - Modeling Mathematics: Driven By Activities – Drs. Le and Fetterly.
  - Math majors Andie Weaver and Madison Martin, mentored by Dr. Danny Arrigo, have had their posters accepted for presentation at the Joint Mathematics Meeting in San Diego, CA in January 2018. Dr. Danny Arrigo's presentation, "Nonclassical symmetries of the  $K(m,n)$  equation" has been accepted as well.
  - A paper, "Shape Thinking and the Transfer of Graphical Derivative Images," by Dr. Jason Martin and his former student Katie Burden has been accepted for presentation at the 2018 Research in Undergraduate Mathematics Education (RUME) Conference. The review process for RUME Conference is very rigorous.
  - A paper, "LES Study on Structure Characteristics of Shock/Vortex Ring Interaction," by Dr. Yinlin Dong has been accepted for presentation at the 2018 AIAA Science and Technology Forum and Exposition.
- The third annual Calculus Tournament, organized by Dr. Jeff Beyerl, is scheduled for November 16, 2017 from 4-5:30pm. The winners will represent UCA at the Math Jeopardy Contest to be held during 2018 OK-AR MAA Sectional Meetings.
- Grant Proposals Submitted:
  - A proposal, "GenCyber Grant," was submitted to the National Security Agency. Dr. Todd Abel is the PI. Other involved are Drs. Kansas Conrady and Jeff Beyerl, and a graduate Jason Yingling.
  - A proposal, "Math and Science Summer Camp at UCA," was submitted to ADE. Dr. Ramesh Garimella is the PI. Others involved are Drs. Todd Abel, Mark Doderer (CS), and Krista Peppers (Biology).
  - A proposal, "Preschoolers' Sense of Wonder and Enthusiasm for STEM," by Drs. Carolyn Pinchback and Elson Bihm (Psychology) was submitted to the Spencer Foundation.

## Physics

Dr. Carl Frederickson reported:

- Dr. William Slaton presented at the Computer Science Education Leadership Summit on October 12 at Arkansas Tech, Russellville, AR. His presentation was titled, "Physical Computing with the Raspberry Pi."

- Physics major Justin Blake Bryant attended the 2017 Fall Meeting of the APS Division of Nuclear Physics on October 25-28, 2017, in Pittsburgh, Pennsylvania. He presented research from his summer REU at the Cyclotron Institute, Texas A&M University. His poster was titled, "Precise Measurement of  $\alpha_K$  for the 39.76-keV E3 transition in 103Rh: Further Test of Internal Conversion Theory," **Justin Bryant**, Hyo In Park, Ninel Nica, Victor Iacob, John Hardy.
- Physics major Russell Jeffery attended the Academic High Altitude Conference, October 26-29, 2017 at the University of Minneapolis, Minneapolis, MN. He presented a poster, "Cooperative Student-Built Multi-Payload Balloon-Satellite Eclipse Measurement, coauthored with Dr. William Slaton.
- Drs. Stephen Addison, Rahul Mehta, and Azida Walker along with undergraduates Sidney Freyaldenhoven, Paul Niyonkuri, Seth Barr, and Maria Neal, and graduate student Jordan Barajas, attended the annual INBRE meeting in Fayetteville, Arkansas on October 27-28, 2017. In all, five posters were presented with UCA Physics majors as coauthors. UCA student authors are underlined, physic majors are in bold, and student authors who have graduated are in italics.
  - *Identification of CDH18-interacting proteins in human embryonic kidney cells.* Andrew Baker, **Scotty McKay**, Calin Marian.
  - *Regulation of symbiotic gene expression in rice.* Ha Ram Kim, Grant Wiggins, **QinQing Yang**, Jacklyn Thomas, Arijit Mukherjee.
  - *Stefan Problem for Radially Symmetric Systems.* **Paul Niyonkuru**, Stephen Addison.
  - *Effect of Cosmic Radiation on Cell Function.* **Seth Barr**, Maria Neal, Azida Walker.
  - *Effect of Hind-Limb Suspension and X-Ray Irradiation on the Mechanical and Chemical Properties of Rat Femur and Tibia Bones.* **S.G. Freyaldenhoven**, B. Hill, R. Mehta, **J.S. Barajas**, H.N. Heacox, M. Dobretsov, P. Chowdhury. This poster took second place in the physics category.
- Visiting Lecturer Jeremy Lusk has attended the New Physics Faculty workshop presented by the American Association of Physics Teachers and the American Institute of Physics in College Park, Maryland, November 2-5, 2017.
- Dr. Debra Burris' University Physics and College Physics 3 classes presented the Super Science Saturday 3 on Saturday, November 4, 2017. Many of her former students came out to help along with the UCA Baseball team. The event is in partnership with Community Connections, a non-profit organization in central Arkansas providing extra-curricular activities for children with special needs and support for their families. This is part of the Service Learning component of these two courses; focusing on public scholarship.

## STEM Institute

Dr. Uma Garimella reported:

- Submitted NSF RET proposal. It is collaboration between UCA and several private companies, STEM Coalition and ADE.
- Hired New Science Specialist: Nicole Martin from Mayflower School District. Will start on Nov. 15
- Presenting at the College of Education – departmental meetings. This increased the visibility and usage of the STEM Institute resources. We have several students and faculty using our resources.
- Attended Uteach conference in Dallas. Discussed the status of the program and future funding sources and collaborations.
- Integral part of Arkansan Curriculum Conference: Cara Cates conducted a 3 hour session \ on making connections between base ten and algebra using manipulatives (base ten blocks and algebra tiles).
- Face to Face Book Study on Visible Learning in Mathematics with 2 UCA education majors (secondary math and elementary): we have met two times, and we will continue the rest of the

semester. The conversation is awesome, and they are thinking about strategies and influences they will have use to have the greatest effect on student learning depending on the desired level of learning (surface, deep, transfer)

- Cara Cates Presentation at the National Council of supervisors of Mathematics conference in April on Mathematics Teaching and Learning utilizing the standards Progressions.
- No Child Left Behind Observations in Clinton, Little Rock, Conway, Guy-Perkins, Mayflower, Bradford, and Glen Rose. Teachers are doing a great job blending math and science, one teacher even bringing it into the family and consumer science class, in their classrooms as a result of the NCLB grant.
- Vilonia Geometry Work: Continuing work with the Vilonia Geometry teachers to build their curriculum and assessments based on the standards and aimed at increasing rigor and depth of knowledge. The work will continue until the end of the year, and I am a part of their PLC (professional learning community) work they do on Wednesday afternoons.
- Greenbrier Curriculum Day: Worked with middle and high school math teachers on how to implement the district vision from the work the math leadership team did last year. We also worked on assessments and depth of knowledge..

Development Officer

Aimee Poynter reported:

- No report.