

Physics Department Activities Update Fall 2011:

Student Population and Student Research Projects

The department had five graduating seniors in the spring, all of whom worked very hard to complete their senior research projects by the time of graduation.

Tylar Murray has finished building and testing of a hydrogen fuel cell. Under the supervision of Dr. Renfro he has completed an honors thesis in which he has reviewed the research findings and experiential knowledge that would be of use for anybody looking to create or work with a fuel cell system. In this overview he has put a special emphasis on the functions of the individual parts of Proton Exchange Membrane (PEM) fuel cell. He has also described his own experimental findings specific to the testing platform constructed. Tylar graduated with honors and has been accepted to the graduate programs in electrical engineering at University of South Florida and at University of California in Santa Barbara. He has chosen to go to South Florida, where he is currently a graduate student and also works as TA.

Aaron Ward has completed building and testing of a UAV aircraft under the supervision of Dr. Renfro. This project included the design and construction of the airfoil, fuselage, and tail section. The airfoil was designed based on the NACA 2415 airfoil, and data was provided through a program called Winfoil 3.0. These data were used to predict the flight characteristics of the aircraft itself. The fuselage was designed to house a battery, small camera, receiver, and all of the servos needed. Final testing included hand launches and in-flight testing, and belly landings. Control surface testing included ailerons and elevator. After graduation Aaron has moved to Fort Worth, where he is applying for various technical jobs. He is planning on applying to graduate school in Meteorology for the next year.

Under the supervision of Dr. Renfro Austin Wegner has completed his project of designing and constructing of a small-scale wind tunnel (about eight feet in length). The wind tunnel is suitable for use in educational demonstrations as well as low speed wind research. It has already been used during this summer for a workshop with the McMurry 5th grade magnet class. The tunnel is now permanently housed in room S120 where it takes most of the back wall space. After graduation Austin has stayed at McMurry for the summer post back teaching certification program. He is currently doing student teaching and planning on becoming a high school physics teacher.

Also under the supervision of Dr. Renfro, Michael Herriage has finished assembling main parts of his table top size cyclotron. The objective of this project was to investigate the theories and concepts behind the cyclotron particle accelerator, make predictions on a cyclotron that accelerates alpha-particles around 100 keV, construct a cyclotron using the predictions, and test the constructed cyclotron to see if it agrees with the theoretical calculations. The construction of the cyclotron took more time than expected. The vacuum chamber and electron magnet were completed, however, the RF circuit which drives the electrode was not completed. Michael has graduated with double degree in physics and mathematics. After graduation Michael has stayed at McMurry through the summer to get his teaching certificate. Currently he is doing the student teaching at his hometown of Forney, TX. Michael's long term plan is to apply to physics graduate school for next year.

Jeanette Schofield has also graduated with double degree in physics and mathematics. As part of the requirements for her math degree, under the supervision of Dr. Cindy Martin, she has completed an honors thesis entitled "Quaternions and 3d Rotations". In this thesis she has considered the historical background, definition and properties of quaternions as well as their applications to various problems in mathematics and physics. Jeanette's physics project, which she completed under the supervision of Dr. Keith, was closely related to her math thesis. The final version of the project was entitled "Comparison of methods for rotating between two distinct coordinate frames". In this work Jeanette compared the traditional Euler's angles rotation

method to a method based on using quaternions. After graduation Jeanette's long term plan is to go to graduate school in Computer Science. Currently she is working as a tutor for "Sylvan Learning" and as an administrative assistant for Lauren Engineering Company in Abilene.

The department also has several juniors and seniors who either started working on their senior research proposals or continued working on their projects this year.

Under the supervision of Dr. Bykov, Alistair Adams has made significant progress on his project of "Backyard Conversion of Waste Biomass to Ethanol". He has finished building and testing of his gasifier to produce a syngas from biomass. Most of the components used in the building of the gasifier were acquired from local scrap yards. The body of the gasifier is made from an old water tank and some scrap metal. Alistair has also used an old electric motor from the physics department storage to run the gasifier's ventilation system. Being active military, Alistair has been recently transferred to a new service location. He is currently working on the final presentation of his project, which will be delivered online.

Several students have also completed their proposals to perform projects during the current academic year. Under the supervision of Dr. Renfro, Sheharyar Khan is proposing to develop an engineering design to cover the McM football stadium or an available footprint. This design will be constructed and tested in Solidworks software. The department has purchased one copy of that software not only to be used for Sheharyar's project but we are also planning on introducing an engineering drafting course.

Under the supervision of Dr. Bykov Jared Land has proposed to build a table top model rail gun, which uses a strong magnetic field to drive a projectile. The objective of this research proposal is to design a functional electromagnetic accelerator (i.e. rail gun), with considerations for size, portability, modularity, and weight. The effects of various rail geometries/bore profiles, field augmentation, and projectile designs will also be studied.

Also under the supervision of Dr. Bykov, Jeremiah Land is planning on designing and building a small coaxial UAV helicopter that will fit in a backpack and be capable of streaming video from an onboard camera. Once completed, the applications of such a UAV will be explored.

Under the supervision of Dr. Keith, Daniel Zipprian is planning to design and build a micro-hydroelectric power generator, including building the electric generator from scratch. Various options to optimize the output of the generator will be explored.

Also under the supervision of Dr. Keith, Benjamin Sherwood would like to build a working model of a maglev train using a combination of permanent magnets and electromagnets, similar to how many real-world systems operate.

Our freshman class this year has a record high number of students. There are 16 students taking University Physics course now. Among these 16 students, 11 have declared physics as their major and 3 have undecided major so far. We hope that we will be able to keep these students, since it appears that many of them have very strong math background and are doing well in this class. Among them is this year's recipient of Ward-Bottom's scholarship Stephen J. Terry, a very promising student from the small town of Stratford in the Texas panhandle.

Departmental Activity

In the course of the last academic year the McM chapter of the Society of Physics Students worked on an aerial photography project designed to include participation by the McMagnets, 5th grade students who attend the science and math magnet school program on the McMurry campus. The SPS members planned to set up a tethered balloon with a small camera in order to take photos from approximately 1,000 feet. Physics students taught one of the 5th grade class sessions to explain to the 5th graders about the physics of buoyancy and how to build a container for housing the camera. The actual balloon launch took place on April 12th. You can see the numerous pictures of this event on the McMurry SPS Facebook page.

In March Dr. Bykov and two physics students, Aaron Ward and Michael Herriage attended National American Physical Society (APS) meeting in Dallas. It is not that often when our students have a chance to attend a meeting of a professional society at the national level. Even though both Aaron and Michael have been regularly coming to the Texas section APS meeting, it is the first time for them to attend the national event. The meeting brought about 7500 physicists from the United States and around the world to Texas. The meeting program extended throughout the entire week with talks, posters and exhibits being given in almost every sub area of physics and related scientific fields. During the meeting Michael Herriage had a chance to attend some of the exhibits and talk to the representatives from the company manufacturing vacuum chambers to get some assistance on his senior research project. Also Dr. Bykov presented a talk "Modular Curriculum Approach (MCA) for teaching of introductory physics: Tablet PCs and flexible instructional space to stimulate active learning" during the session devoted to the physics education research. In his talk Dr. Bykov discussed recent introductory physics curriculum reform and the renovation of the physics spaces in the McMurry Science Building.

In April four physics students including Tylar Murray, Doyle Dacus, Aaron Ward and Jeremiah Land and all physics faculty visited the campus of Baylor University to take a tour of the new Baylor Science Building and physics laboratories there. On the Baylor side the tour was organized by Dr. Walter Wilcox and former McMurry Physics student Tim Renner. We were happy to learn that Tim is graduating from Baylor with PhD in string theory physics. Tim gave us an excellent presentation highlighting the main aspects of his PhD research work as well as an overview of Baylor's graduate program in string theory physics. On the same day our group took a tour of the testing site for Space X Corporation in McGregor. This test facility is responsible for testing of rocket engine hardware from development stages through acceptance for flight, and from component level to complete stage testing.

In May we welcomed back our old friend David Upshaw. David has graduated from Texas Tech University Department of Mechanical Engineering with his Master's degree in May. He visited us to give a presentation on the subject of his Master's thesis work. His talk was entitled "Influence of Drilling Parameters on the Accuracy of Hole-drilling Residual Stress Measurements". According to David, the objective of this research was to define drill speeds that produce acceptable results when using the hole-drilling technique for measuring residual stress. This was achieved by performing ESPI/hole-drilling stress measurement of a known applied stress in discrete rpm intervals. The talk took place in front of a full audience of physics students and faculty and received a very warm welcome.

In June Dr. Keith and Tylar Murray made astronomical observations at Lowell Observatory in Arizona. The observations were focused on measuring the positions of new and poorly observed asteroids, but also included targets of opportunity such as a supernova in M51, the Whirlpool Galaxy. On the return trip, they visited McMurry graduate and New Mexico Tech grad student Tylar McCracken and toured the Magdalena Ridge Observatory near Socorro, NM.

BIOLOGY DEPARTMENT SMAB Report – Fall 2011

Dr. Joel Brant

This year Dr. Brant focused on student research opportunities. He directed 5 students in conducting a survey of small mammals in Callahan County, Texas. These students have demonstrated how landscape management practices altered the small mammal community in Callahan County. Specifically, conversion of oak woodland to pastureland for livestock has changed the community from one dominated by the arboreal Texas mouse (*Peromyscus attwateri*) to one where the Texas mouse is essentially absent. Erika Mitchell conducted an honors project surveying the large-medium sized mammals on the Southern Rolling Plains. Using camera traps, Erika was able to document the activity patterns of several large mammals and demonstrated that omnivorous species (e.g. feral pigs) are more numerous (or at least move around more) during the fall months. Erika presented her results at the Texas Society of Mammalogists and the Texas Tech Annual Biological Sciences Symposium (where she was awarded the Outstanding Oral Presentation by an Undergraduate). She also presented for the McMurry Biology Club.

Personally Dr. Brant focused on research as well. He was awarded a Sam Taylor Grant & a KIVA Grant to continue his studies of the mammals of the Southern Rolling Plains. His current projects focus on the population biology of the Eastern Mole (*Scalopus aquaticus*), recently discovered in the area, and on the effect of wind farms on bat populations. He was elected President-Elect for the Texas Society of Mammalogists for the 2011-2012 year and will serve as President for the 2012-2013 year.

Dr. Anna Saghatelyan

In the spring semester Dr. Saghatelyan developed and taught a new course for upper level Biology majors “Paleobotany”, as well as supervised a student in his senior research project that was summarized in a poster presentation.

Dr. Saghatelian and Dr. Brant organized three field trips for the students involved in the Advanced Botany, Ecology, and Paleobotany courses. We hiked the Colorado Bend State Park, Big Bend National Park, as well as visited several collections and participated in fun activities in the Dallas Museum of Natural History.

Dr. Saghatelian organized regular meetings of the McMurry University Biology Club. We had guest speakers that gave presentations on hummingbirds, dinosaurs of Big Bend Region, and on HIV Mediated CD4+ Cell Depletion. We also had a senior student to present on her research project on mammalian fauna of southern TX Rolling Plains.

Personally Dr. Saghatelian is working on an ongoing research project dealing with the biogeography of the Edwards Plateau flora in south central Texas, and its connections to the flora of south-western Texas.

In June-July 2011 she was involved in the field ecological and floristic studies in Santa Fe National Forest and Bandelier National Monument, NM. A number of herbarium specimens for McMurry University Herbarium were collected during these hiking trips in the vicinity of Santa Fe, NM.

In July 2011 Dr. Saghatelian participated in the annual meeting of the Botanical Society of America "Botany 2011" in Saint Louis, MO. In August she submitted an application for a Sam Taylor Fellowship grant.

Dr. Gary Wilson -- BIMS

Biomedical Science continues to attract excellent students to McMurry. This fall there are many new freshmen BIMS majors and a total of at least 40 majors (actual numbers haven't been reported yet), making the program one of the largest majors on campus and in SNCS. Six of the 51 Honors students at McMurry are BIMS majors, more than the combined total for the School of Education and School of Nursing, and one shy of the number for the entire School of Business. This number is nearly half of all School of Natural and Computational Sciences Honors students. Excellence in the students majoring in BIMS is also seen in the governance of McMurry Student Government, where the top two positions are held by BIMS majors.

BIMS is entering its fourth year and has graduated just a handful of students so far. All are currently enrolled in or are pursuing graduate or professional degrees. First BIMS graduate Amanda Miller is a student in the MS in Biotechnology program at Texas Tech Graduate School of Biomedical Science in Lubbock. She has joined the US Army and plans to put her biotech skills to work defending our nation. Heather Chalifour was accepted into two Physician Assistant programs and has begun the semester at UNT-TCOM. Lauren Bump has also decided to pursue PA training and is in the application process.

Courses taught this semester are BIMS 1101 Unicellular Organisms (21 students), BIOL 2401 Human Anatomy & Physiology I (65), BIOL 3410 Microbiology (14), BIOL 3460 Genetics (28), BIMS 4320 Molecular Cell Biology (12), BIMS 4120 MCB Lab (12), BIMS 4491 Advanced Microbiology (3), and BIMS 4201 Senior Capstone (3). We are pleased to have McM alum Sheena Banks back to teach molecular and immunology classes for us.

The program is centered on the idea of “learning by doing”, and so lab work is largely project-based. The students in BIMS 1101 Unicellular Organisms lab created artificial ponds as the central project for the semester. Students will log, identify, and photograph unicellular organisms and changes they see over the course of many weeks. In BIOL 3410 Microbiology class, the students are engaging in research projects to learn skills and knowledge in working with bacteria. The first project involves a survey of the microbial quality of ground water around Abilene, beginning with a statistical measure of microbiological purity – the Most Probable Number analysis – and continuing with purification and identification of enteric bacteria found in some water samples. Future projects for the semester are to do a comparative study of microbes recovered from shared surfaces in public places, and creation of an ideal medium for maximizing the growth of microbes commonly found in milk. Advanced students in BIMS 4491 Advanced Microbiology and BIMS 4201 Senior Capstone research are continuing work conducted by Drs. Benoit and Wilson to study the ecology and physiology of *Bacillus thuringiensis* spores. Advanced Micro students are looking into the impact of variation in nutrients of a growth medium alter the properties of spores, while Capstone students are conducting germination studies on previously unstudied strains.

Also noteworthy is the conversation ongoing with TTU to establish a 3+2 BS/MS degree opportunity that would allow up to six of our BIMS majors to enter the local MS in Biotechnology

program. The program is very innovative and seeks to develop biotech entrepreneurs through special training and internships with major figures in biotech startups.

Teaching in the BIMS courses are Dr. Larry Sharp (A&P I and the PREP seminar for pre-health professionals), Dr. Tom Benoit (Intro to Unicellular Organisms and labs), Dr. Gary Wilson (Microbiology and Advanced Micro), and McM alumna Sheena Banks (MS in Immunology from UTMB, teaching Molecular Cell Biology, Biological Literature, and a freshman lab). Dr. Sharp has been busy securing articulation agreements with various professional and graduate programs. He continues his excellent work as pre-health professions advisor. Dr. Benoit serves as department chair and also as the University's Director of Institutional Effectiveness. His involvement in research of *Bacillus thuringiensis* has drawn several students to work in his lab. Dr. Wilson is knee-deep in software development for teaching microbiology and has new lab manuals completed to support the software. He is serving as Faculty Chair this year. Ms. Banks is adjusting to life on the faculty and in the lab after many years as a student and research associate.

New this year are social activities planned for BIMS students and any others who would like to attend. The first event was a BIMS Mixer during the first week of school at which students watched the football game with SFA. Plans are underway for a presentation by Dr. Wilson entitled "There's Germs in My Movie!", a review of the use of microbes and diseases to entertain and scare us in movies past and present. The hope is that close ties with one another and our faculty will help recruit and retain BIMS majors.

Department of Chemistry and Biochemistry
Report to SMAB
September 05, 2011

The department is happy to introduce two new graduates, both of them Honors students! They are Erica Rawls (B.S. in Biochemistry) and Heather Whitehead (B.S. in Chemistry). Erica Rawls and Heather Whitehead shared the W. Norton Jones Scholarship as juniors and the Outstanding Senior Award this year. Both completed honors theses on potential chemotherapy compounds working with Dr. Shin, both are planning to get married this summer, and both were accepted into the Texas Tech University Health and Science Center School of Pharmacy. Erica was a significant performer on the women's basketball team, while Heather won the Don Allen Memorial Award for the outstanding non-traditional graduating student.

The two graduates from December 2010 were accepted into professional schools for this fall. Jennifer Revell was accepted into the Rosenberg School of Optometry at the University of the Incarnate Word in San Antonio. Malaney Lopez will start a PhD program in cancer biology at the University of Texas-Medical Branch in Galveston.

The department completed the yearly report for the Welch Foundation and was informed that the grant was renewed for 2012-2013 without needing to re-apply. The Welch Departmental Grant for \$25,000 supports students and faculty doing research. Work done under the grant this summer is described below.

The Finch-Grey Science Building underwent a partial renovation as a result of money raised during the capital campaign. The Biology and Physics departments saw a complete renovation of some space last summer. Because the renovation came in under budget, there were some funds to allow for a facelift of some of the chemistry labs this summer. The work benches and fume hoods were sanded, painted, and coated as needed in the main teaching laboratories. Any leaking faucets and drains were fixed. Most of the classrooms and laboratories were painted. The science reading room was turned into the Dean's (School of Natural and Computational Science) office.

Dr. Hyunshun Shin accompanied Jonathan Urbanczyk to the national American Chemical Society (ACS) meeting in Denver on August 28th where he presented his poster titled "Synthesis of Analogues with Phenanthroline Functionality Targeting Biosynthesis of Lipid A in Various Gram-Negative Bacteria". This summer Dr. Shin also attended a POGIL workshop at the University of Minnesota and gave an invited talk at the 40th US-Korea Conference in Salt Lake City, Utah sponsored by the Korean-American Scientists and Engineers Association. Dr. Donnay attended the local ACS Meeting-in-Miniature at Tarleton State University on April 16th and was a judge for the undergraduate presentations. Mr. Steve Davis attended an Independent Colleges & Universities of Texas (ICUT) Environmental Peer Audit at Stephen F. Austin University in April.

This summer the department had five undergraduate students conducting research on the Welch Foundation Departmental Grant, including two from last summer continuing their work. Dr. Hyunshun Shin had two students working on her projects targeting the biosynthetic pathway for polyamines. Amanda Genzling worked on designing and synthesizing inhibitors of an enzyme called ornithine decarboxylase and Tara Williams synthesized polyamine analogues. Dr. Edward Donnay supervised two students. Nathan Worley continued his work on the synthesis and physical characterization of chromium complexes containing polypyridyl ligands with acidic or basic functional groups. Oluwatoyosi Adewunmi attempted to analyze and separate

chromium complexes by High Performance Liquid Chromatography (HPLC). The last recipient of Welch funds was Jonathan Urbanczyk who continued working on a collaborative project between Drs. Donnay, Shin, and Sung-Kun Kim (from Baylor University) on improving the solubility of a new antibiotic compound. McMurry University students gathered with their peers from ACU at the end of July to present and discuss the wide array of research being funded by the Welch Foundation here in Abilene.

Dr. Edward Donnay received a Kiva Research Fellow Award for his project, "Metal Complexes Attached to a Gold Surface." The project involves fabrication of Self-Assembled Monolayers or SAMs, containing a modified phenanthroline ligand. The ligand was synthesized by Tim Fliegel ('08, deceased), but full characterization and fabrication of SAM's is beyond the capabilities at McMurry. The goal of the project will be achieved through collaboration with Dr. T. Randall Lee at the University of Houston. The award provides an opportunity to travel to Houston and work with advanced instrumentation in materials science. The ultimate result of this project will hopefully be a publication in a peer reviewed journal and/or a presentation at an ACS meeting.

Dr. Paul Pyenta taught General Chemistry I and II this summer for approximately 20 students. This was the first time in many years that the department taught courses over the summer and it was a larger enrollment than was expected. A lot of effort was required to work around the facelift given to the teaching laboratories. Mr. Steve Davis helped by setting up the experiments, supervising the laboratory classes, and grading the lab reports.

Computer Science Activity Report

SMAB – September, 2011

Dr. Robert Watson

Dr. Robert Watson has completed his research collaboration with the Empirical Software Engineering Laboratory (ESEL) at the University of Texas at Austin. He is working with ESEL to pursue new funding opportunities with NASA. He is currently teaching a new course titled "Information Security". This course is part of the curriculum for the new Information Technology degree offered by the department of Computer Science. Over the summer Dr. Watson created a proof-of-concept implementation of a website that may someday eliminate the need for special software to be installed on student computers. Students would be able to work on programming projects from any web browser. A collateral project was the implementation of a WebSocket server needed to support the concept website. This server implements the WebSockets portion of the upcoming HTML 5 standard. An open source release of this server is planned.

Mr. Rich Brozovic

Mr. Rich Brozovic continues to serve as the Faculty Advisor for the AITP Student Chapter and will be working to rebuild membership since all student members graduated last year. He usually takes interested students to the regional AITP conference (Sam Houston State Univ, Huntsville, TX, in late Oct) and the national AITP conference (San Antonio, TX, in late Mar) where they participate in computer-related contests and attend job fairs. He will be looking for guest speakers for chapter meetings and will continue to offer programming challenges to encourage student participation and give them the opportunity to refine their skills. Problems target either first-semester students, lower-level students, or upper-level students and prizes typically include computer accessories like flash drives, wireless mice, gift cards, etc. The programming challenges are also offered to area high schools with AP Computer Science courses. Last year, three schools (AISD ATEMS, Hawley HS, and Clyde HS) showed interest and used the problems to practice for UIL programming contests. Mr. Brozovic will also serve as Contest Director and judge for several UIL Computer Science Contests in the Spring including an invitational at Cooper HS, District 3-5A at Abilene HS, and Region 2A at ACU.

Dr. Alicia Wyatt

Dr. Alicia Wyatt attended the Oklahoma Moodle Moot in Oklahoma City, June 7, 2011. She presented a session on using a CSV file to upload grades to the Moodle gradebook. Drs. Watson and Wyatt attended the 2011 Connected Mobile Learning Summit at ACU at the end of February, 2011.

She has been working with Mrs. Sharlyn Bammel each spring to coordinate a pre-service teacher activity with the McMagnets, 5th grade students enrolled in the Science and Math magnet school on the McMurry campus. This year, McMurry students assisted the McMagnets in learning how to create video with Windows Movie Maker. The 5th graders produced video in conjunction with a Biomes project, and it was hosted on YouTube. QR codes were constructed and printed, and the 5th graders used these codes to create interactive hall posters and journal entries.

This activity was presented at the Abilene ISD Student Technology Showcase last May, and served as the basis for a teacher workshop hosted on the McMurry campus on June 1. In addition, Dr. Wyatt and Mrs. Bammel successfully submitted it as a presentation for TCEA 2012, scheduled for this February. Over

13,000 people attended the Texas Computer Education Association conference last year. It is one of the larger technology conferences in the nation. The presentation selection process is extremely competitive. The two instructors will present “Snap, listen, and learn with QR codes”, an overview of two different instructional activities combining pre-service teachers, 5th graders, and QR codes.

Dr. Wyatt is engaged in a number of other projects, such as ebook publication and distribution (with Dr. Robert Watson and Mr. Scott Fritz), social media and marketing on behalf of SNCS, and creating modular course material that can be packaged and distributed in multiple formats.

Department Initiatives

The new Information Technology major has begun this Fall and is drawing interest from students who see it as a more precise match to their academic and career goals. CS C 1322, Introduction to Computer Science, is now our CS0 course offering and continues to satisfy the Critical Reasoning requirements of General Education. In addition, the course is being offered to local high school students for dual credit. There are currently three high school students enrolled.



Department of Mathematics SMAB Update September, 15, 2011

This year Dr. Cindy Martin is participating in a grant received from the Texas Higher Education Coordinating Board. The grant provides for incorporating and integrating technology across the K-12 and college curriculum (i.e vertical alignment). The grant promotes college and career readiness as a cross-disciplinary need. This regional grant in the disciplines of English and Mathematics has participants from Cisco College, Hardin Simmons, and McMurry University.

As part of the grant Dr. Martin,

- received an iPad2,
- attended TCEA training for iPad use in Education as a horizontal and vertical alignment tool to ensure college and career readiness,
- will conduct three professional development sessions (formal and informal) with colleagues in her discipline using the knowledge and skills gained in the iPad training,
- will participate in a minimum of nine face-to-face forums using the Face Time video calling application exclusive to iPad2 (The forums are offered once a month and will be facilitated by a representative from the C.O.R.E. program at Cisco College.),
- will participate in a minimum of three “Tweaking Sessions” where she will work collectively to create/enhance a discipline-specific assignment to ensure students will attain college and career readiness skills (The sessions will be facilitated by a representative from the C.O.R.E. program at Cisco College and conducted during the 2011-2012 academic year.



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- submit a final report (by June 15, 2012) detailing her use of the device and how it assisted her in the promotion of college and career readiness within her specific discipline and across other disciplines.
- Submit a final report, by June 15, 2012 detailing your use of the device and how it assisted you in the promotion of college and career readiness within your specific discipline as well as cross-disciplinary.

The Spring 2010 KME initiation banquet was held at Towne Crier Restaurant. The invited speaker was Dr. Mark Thornburg. Dr. Thornburg talked about his trip to China in the fall.

Twelve McMurry students, Lauren Alexander, Gerri Boggs, Kimberly Cline, Rance Cook, Drew Dutcher, Amanda Gillett, Jonathan Langford, Darrick Matthews, Danni McMahan, Arnett McClure, Shalisa Sites, and Danielle St. Jean were inducted into KME mathematics honor society. The 2011 KME officers were: president, Michael Herriage; vice president, Matt Montross; Secretary, Stormye Diller; and Treasurer, Aaron Ward.

Dr. Mark Thornburg and Dr. Cindy Martin attended the sectional meeting of the Mathematical Association of America (MAA).

Ms. Roxana Dita, Dr. Mark Thornburg, and Dr. Kathryn Flores attended T3 regional conference, sponsored by Texas Instruments, September 24, 2011 in Denton.

Dr. McCoun attended the Panhandle Math Science Conference held September 24, 2011 at West Texas A&M, Canyon, TX. Dr. McCoun also

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participated in the iSpring presenter workshop held on McMurry campus, Fall 2011.

Dr. Thornburg will be attending the TAAMS conference this fall and he participated in the Facebook workshop held on McMurry campus, Fall 2011.

Dr. Cindy Martin directed the following Honor student theses:
Finished May 2011

- Jeanette Schofield – Quaternions and 3D Rotations
- Kaitlyn Barnhill – Changes in Mathematics Education during the Twentieth Century

Dr. Martin is currently working with Shalisa Sites on developing her Honor's Thesis Proposal (estimated completion December 2012).

Dr. Mark Thornburg is directing Dana Alvarez in her honor thesis regarding the history of zero.



Three McMurry students (above) participated in the annual Calculus Bowl at the MAA spring meeting. The students were Jessica Iwanski, Dana Alvarez, and Kyle Consemiu. The 2012 Texas Sectional Meeting will be held in Dallas, TX this year. Several math faculty plan to attend.

The Spring 2011 graduates in the mathematics were:

Justin Eddy, Magna Cum Laude, B.S. Mathematics 8-12

Adrian Gaona, B.S. Mathematics 4-8

Timothy Parks, B.S. Mathematics 4-8

Every member of the mathematics department is a representative or sponsor of one or more academic or social clubs (Kappa Mu Epsilon, Math Club, Theta Chi Lambda, Gamma Sigma, McMurry Women's Club).



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Dr. Cindy Martin directed Expeditions for the 2010-2011 academic year. Dr. Thornburg and Dr. Flores also taught Expeditions groups. This is now a two hour course that is required for all new first year students. The course is centered about a common reading. The common reading for this year is a book written by Warren St. John called Outcasts United: A Refugee Team, an American Town. There are 17 different sections offered last fall. Each section, in addition to the regular academic work, participated in one of three service projects in coordination with the International Rescue Committee (IRC).

Respectfully Submitted,

Dr. Kelly L. McCoun