

2008 Annual Report - College of Natural and Applied Sciences
Submitted March 18, 2009
T. Jahnke, Dean

Departments within the College of Natural and Applied Sciences include:

| | | |
|--|--|--|
| <i>Agriculture</i> | <i>Biology</i> | <i>Chemistry</i> |
| <i>Computer Science</i> | <i>Fashion and Interior Design</i> | <i>Geography, Geology & Planning</i> |
| <i>Hospitality and Restaurant Administration</i> | <i>Mathematics</i> | <i>Physics, Astronomy & Material Science</i> |
| | <i>Collaborative Engineering Program</i> | |

Centers/Institutes within the college

Bull Shoals Field Station
OEWRI (Ozarks Environmental Water Resources Institute)
Center for Grapevine Biotechnology
Center for Resource Planning and Management
Center for Scientific Research and Education
William H. Darr Agricultural Center
MVEC (Midwest Viticulture and Enology Center)
Baker Observatory

Executive Summary

2008 Accomplishments included:

- ❖ Faculty in the college have brought in nearly \$3.5 million dollars in external funding so far this fiscal year. They submitted over \$21 million dollar for external funding. CNAS distributed over \$18,000 to faculty as incentives to submit large grant proposals.
- ❖ CNAS faculty/departments brought nearly 5000 high school students to the Missouri State University campus in 2008 to various events and competitions. Bringing high school students to campus is the first step in recruiting them to college
- ❖ Two CNAS programs received a full re-accreditation by their external boards in 2008 – Computer Science and Planning.
- ❖ In the fall of 2008 CNAS funded 71 graduate students with public funds and 31 with external funding. This remains a challenge as we attempt to increase graduate student enrollment but it appears to the we can do this and I continue to encourage that faculty write graduate students into their grants when possible.
- ❖ CNAS students have the opportunities to participate in a number of student organizations because faculty are willing to serve as faculty advisors. Student involvement is known to increase retention. It will be important as we move forward that we find appropriate workload balances for all faculty and departments.
- ❖ CNAS students were co-authors on over 120 published papers, presentations and juried works. This allows our students to be accepted to the best graduate programs and professional programs – such as Princeton, Yale, and many others. It also helps the students as they search for employment.
- ❖ CNAS rewrote our vision/mission statement and we have a strategic plan in place.
- ❖ A successful and smooth start to the cooperative engineering program with Missouri Science & Technology. As of spring 2009 there are 49 students in the civil and electrical engineering programs, we have a program director – Doug Carroll and an electrical engineer – Bob Egbert, and we are in the process of hiring a civil engineer to begin in the fall of 2009.

- ❖ Successful department head searches for Hospitality and Restaurant Administration – Melissa Dallas started in August, 2008 and Chemistry – Alan Shick will start in July, 2009.
- ❖ Our Mountain Grove Cellar's wines won international awards in 2008.
- ❖ The University's Public Affairs theme of sustainability has energized many within the college.
 - Carrie's Restaurant went green in 2008.
 - Several lectures in the college had a sustainability theme.
 - HRA is planning a sustainability research symposium for spring 2009.
 - Links to sustainability in the curriculum are becoming more evident.
 - Recycling is becoming easier in Temple Hall due to student/faculty involvement.

2008 Challenges that we continue to work on:

- ❖ An integration and better coordination of the college centers to determine if we can find a common theme of environmental issues. An advisory board will meet in late spring/early summer to help move this forward.
- ❖ Space Issues. We will finish all of the engineering renovations by summer of 2009. We have added a research lab for chemistry (Temple 449). We have renovated space for a SQUID magnetometer (Kemper 215), a new physics teaching lab (Kemper), a new physics instrumentation lab (Kemper), and a new physics research lab (Kemper). We have provided space for a core facility for GGP in Kemper. We have plans for an addition to the Darr Center and are raising funds for this addition. We have plans for the renovations to the winery in Mountain Grove and fundraising/external funding plans are playing out now. There remain challenges since the FREUP projects in Mountain Grove, Temple Hall, and Kings Street Annex were stopped. We also have needs for renovations of research and teaching lab space, additional research and teaching lab space, and storage space. Hospitality and Restaurant Administration is seeking funding for a facility that could be built downtown in the IDEA Commons area.

I. Academic Information

General Education –

CNAS courses in the general education program include:

Basic Required Courses

Computers for Learning - CSC101(2 credits) and CSC111 (3 credits)

Writing II – AGR320 and GLG358 (3 credits)

Contemporary Mathematics - MTH 130 (3 credits)

or

College Algebra - MTH135 (3 credits)

or a higher mathematics course (3-5 credits)

Natural World (laboratory courses indicated with *) – All students must complete two natural world courses and one must have a laboratory.

Survey of Astronomy – AST114 (4 credits)

*Basic Astronomy – AST115 (4 credits)

*Survey of Physics with Laboratory – PHY100 (4 credits)

*Physics by Inquiry for Educators – PHY101 (4 credits)

*Introduction to Physics I – PHY123 (4 credits)

*Foundation of Physics I – PHY203 (5 credits)

*Biological Science for Educators – BIO100 (4 credits)

Principles of Biological Science – BIO102 (4 credits)

- *General Biology I – BIO121 (4 credits)
- *Fundamentals of Chemistry – CHM105 (5 credits)
- Fundamentals of Chemistry – CHM106 (4 credits)
- *Chemistry for the Citizen – CHM107 (4 credits)
- General Chemistry I – CHM160 (4 credits)
- *Principles of Geology – GLG110 (4 credits)
- Environmental Geology – GLG171 (4 credits)
- *Atmospheric Science – GRY135 (4 credits)
- *Introductory Physical Geography – GRY142 (4 credits)

Culture and Society

- Technology's Impact on Society – AGR100 (3 credits)
- World Regional Geography – GRY100 (3 credits)
- Ecology and Society – GRY108 (3 credits)
- Understanding Cities – PLN100 (3 credits)

General Educations Access -

Gen Ed Sections Offered 2007

| | AG | BI | CH | CS | GG | MA | PA |
|-------------|----|----|----|----|----|----|----|
| Day | | 84 | 64 | 31 | 94 | 88 | 50 |
| Telecourse | | | 2 | | | | 2 |
| Online | | | | 1 | | | |
| Evening | 2 | 12 | 10 | 2 | 10 | 13 | 13 |
| Dual Credit | | 19 | 49 | | 14 | 49 | 21 |
| Honors | | 1 | 1 | 2 | 2 | | |

Gen Ed Sections Offered 2008

| | AG | BI | CH | CS | GG | MA | PA |
|-------------|----|----|----|----|----|----|----|
| Day | 1 | 83 | 57 | 31 | 96 | 86 | 50 |
| Telecourse | | | 2 | | | | 2 |
| Online | | | | | | | |
| Evening | 2 | 12 | 6 | 3 | 13 | 15 | 12 |
| Dual Credit | | 13 | 36 | | 14 | 42 | 28 |
| Honors | | 1 | 1 | 2 | 2 | | 1 |

Undergraduate Programs -

We offer BS in secondary education (certifiable 9-12) in Agriculture, Technology (Agriculture Dept), Family and Consumer Sciences (FID Dept), Mathematics, Unified Science, Chemistry, Biology, Earth Science and Physics.

All departments offer at least one undergraduate degree program.

Curriculum (Modifications/Innovations)

HRA faculty have prepared and submitted curricular revisions based on industry feedback. These revisions will begin in fall of 2009.

CSC faculty made a significant textbook and topic change in CSC131 so that students would be better prepared for CSC450 as students had struggled with the design component of their project.

CHM faculty are working on a proposal to add a laboratory component to CHM160.

BIO faculty adopted a new textbook for BIO121 which led to a number of course revisions. In addition one laboratory exercise is devoted to the topic of evolution. A new edition of the BIO102 lab manual was published in fall of 2008.

Collaborative Engineering Program with Missouri University of Science & Technology – The first cohort of 40 students have started the program. Significant progress has been made related to curricular issues and the full curriculum will be posted on the website and in the Missouri State catalog.

Accreditation

We had our site visit and exit interview for our undergraduate planning program in GGP in fall of 2007. We received formal notice in spring 2008 of full accreditation.

HRA is accredited through ACPHA through 2011.

CSC is accredited through ABET through 2012.

HID is considering applying for CIDA accreditation in the future.

Assessment

All departments took a careful look at assessment data this year.

Access

Telecourses – Physics and chemistry. We have one in biology but it has not been offered recently.

Interactive CD – Biology

ITV – Agriculture (Pathways degree completion program with several community colleges.)

Online – Agriculture (Pathways and VESTA programs), individual courses in HRA, CS.

Off campus – Agriculture

Blended – Interest in this option and at least five courses will be offered in the blended format for fall of 2009.

Student Awards/Recognition

Citizen Scholars: Cat Shoults (biology major) and Ashley Egan (chemistry major)

Honors Thesis: K. Legg (biology with Lynn Robbins)

Springfield Designer Showcase (FID)

Megan Beebe – Best of Show

Anne Kofron – Most Creative

Fashion Group International (Kansas City, MO)

Lauren Ward – 1st Place – Juried Store Concept Board (\$1200 scholarship)

Leanna Yanes – 1st Place – Juried Personal Shopper Board (\$1200 scholarship)

Maureen Miller – 2nd Place – Juried Personal Shopper Board (\$600 scholarship)

Michelle Kelsay – 3rd Place – Juried Personal Shopper Board (\$300 scholarship)

International Foodservice Manufacturers Association – Gold and Silver Plate Society Scholarship

Jack Ferrell

Missouri State Restaurant Association Scholarships

Carolina Ramirez

Heather Regan
 Rachel Wever
 Josiah Wheat

Mathematics – Missouri State University Problem Solving Group – Five solutions were to selected and published in 2008. 2008 Group members include: Roger Cole, Loren Ellis, Brett Foster, Ralph, Lozano, Thomas Mangan, Immanuel McLaughlin, Ali Soliman, Jacob Swett, Blake Wallace and Micah Weiss.

Missouri Collegiate Math Competition 2008 – Missouri State sent three teams. One team (Immanuel McLaughlin, Andrew Swift, and Micah Weiss) placed 6th out of 36 total teams.

A graduate of the Agriculture Education Program was selected first runner-up July of 2008 as the Outstanding First Year Agriculture Educator. An MSU graduate has won this award eight out of the past ten years.

The Western Equestrian Team finished second in the region in 2008. Nine riders qualified for regional competition and four continued to semifinals.

Zsofia Toth, a summer internal from Szent Istvan University – Hungary, won third prize in a national undergraduate science competition in Hungary with the results she obtained at Mountain Grove during the summer of 2008.

Undergraduate Student Publications/Presentations

| Department | # of students involved in undergraduate research | # of faculty mentors |
|---|--|----------------------|
| Biology | 30 | 12 |
| Chemistry | 22 | not listed |
| Computer Science | 11 | 4 |
| GGP | 20 | 11 |
| PAMS | 7 | not listed |
| Other depts. did not list this information. | | |

| Department | # of Student Publications | # of Student Presentations or Juried Awards |
|---------------------------------|---------------------------|---|
| Agriculture | 0 | 0 |
| Biology | 2 | 7 |
| Chemistry | 5 | 7 |
| Computer science | 0 | 0 |
| Fashion & Interior Design | 0 | 4 |
| Geography, Geology & Planning | 3 | 1 |
| Hospitality & Restaurant Admin. | 0 | 0 |
| Mathematics | 0 | 4 |
| Physics, Astronomy & Mat. Sci. | 0 | 7 |

Undergraduate Research

MTH – NSF-REU program in summer of 2008 (second year of funding)

CHM – SURF undergraduate research program (funded by alumni donations)

These summer programs recruit students from other institutions to spend the summer at Missouri State University doing research with our faculty. They are outstanding programs for recruiting future graduate students to Missouri State.

Graduate Programs

The following programs offer MS degrees – Biology, Chemistry, Mathematics, Material Science, and Geospatial Sciences. In addition computer science and agriculture participate with other graduate programs in the college to offer the interdisciplinary Master of Natural and Applied Sciences (MNAS). Biology, Chemistry and Agriculture work together to offer the Plant Science MS degree program.

\$696,077 allocated to CNAS assistantships during the 2008-2009 academic year

| Year | Teaching Assistants | Research Assistants |
|-------|---------------------|---------------------|
| 2001 | 61 | 6 |
| 2002 | 66 | 3 |
| 2003 | 62 | 5 |
| 2004 | 63 | 14 |
| 2005 | 54 | 11 |
| 2006 | 59 | 33 |
| 2007 | 52 | 23 |
| 2008 | 57 | 26 |
| 2008* | 79 | 31 |

Curriculum – GGP made some minor curricular changes and some major clarifications in their graduate program to make it more accessible to students in the department. Eight of the graduate courses in this department are traditionally offered in the evening.

Assessment – Most graduate students write a thesis that is defended. A few write a seminar paper. All units have assessment plans.

Access – Because nearly all of the graduate programs require significant laboratory work there are currently no online components to the programs.

Plans for Future Growth

One of the biggest challenges for growth is that in math and science students assume that there is an assistantship. The faculty continue to fund larger and larger numbers of research assistantships that allow for us to have a larger number of graduate students.

MNAS – This program could be used by more students and marketed to them. The MNAS committee has submitted changes to graduate council to broaden the options available to students (using courses from other colleges).

This will allow for several “packaged programs”. The committee has been charged with having the brochures and website complete by early summer 2009. It is assumed that these students will be parttime/online/evening so that accessibility will be a prime issue. It is also assumed that these will be tuition paying students and that they will not require assistantships.

Science with a business minor (almost the professional science degree).

Mathematics/education degree – especially for middle school math teachers.

Environmental Science Interdisciplinary Option

Computer Science – The computer science department is nearly ready to submit their new degree program. As envisioned currently they would like for this to enhance their overall research productivity in the department. This would require funded assistantships. I have required that a

funding plan for at least 4-5 students for 3-5 years be in place before we submit the plan so that we know that we can fund this program.

Hospitality and Restaurant Administration – I expect that we will be submitting a graduate program in HRA within two years. We have just submitted a major revision to the undergraduate program and we need to get that started before we commit to a graduate program.

Student Awards/Recognitions

Andrea Crownhart (biology) - Boritzki Scholarship

Beth Dalrymple (biology) – Best Graduate Student Platform Presentation – Mississippi River Research Consortium – Dubuque, IA

Anthony Saitta (biology)– 1st Place Graduate Student Competition (oral and poster presentations) – Joint Meeting of the Missouri Valley and Missouri Branches of the American Society of Microbiology

Matt Cossatt (geology) Graduate Student Research Award from Geophysics Division of the Geological Society of America – Houston, TX October 2008

Gwenda Schlomer (geography) – 1st Place Geomorphology Specialty Group MS Student Oral Paper Competition – Annual meeting of American Association of Geographers.

Graduate Interdisciplinary Forum – five awards in biology – Ben Anders, Kelli Dickerson, Mike Pillow, Jen Duzan, Rebecca Gehringer ; two awards in geography, geology and planning – Kathryn Barnard and Patrick Womble; one award in chemistry – David Vinyard; and one award in materials science – Naga Ganti (CNAS won nine of fifteen possible awards.)

Graduate Student Publications/Presentations

| Department | # of Student Co-authored Publications | # of Student Presentations |
|---------------------------------|---------------------------------------|----------------------------|
| Agriculture | None listed | None listed |
| Biology | 10 | 35 |
| Chemistry | 5 | 10 |
| Computer science | 0 | 1 |
| Fashion & Interior Design | No graduate program | No graduate program |
| Geography, Geology & Planning | 3 | 14 |
| Hospitality & Restaurant Admin. | No graduate program | No graduate program |
| Mathematics | 0 | 2 |
| Physics, Astronomy & Mat. Sci. | 0 | 17 |

College Enrollment Data Summary

| Department | 2008 Majors UG/Grad | 2007 Majors UG/Grad | 2006 Majors UG/Grad | 2008 Credit Hour Production | 2007 Credit Hour Production | 2006 Credit Hour Production | 2008 S/F Ratio |
|------------|----------------------------------|---------------------------|---------------------------|---|--------------------------------------|--------------------------------------|-----------------------------|
| AG | 373/23 | 383/23 | 358/26 | 3777 | 3607 | 3399 | 13.0 |
| BIO | 560/45 | 463/55 | 450/45 | 7040 | 6639 | 6491 | 16.1 |
| CHM | 134/17 | 153/18 | 130/14 | 8380 | 8053 | 8092 | 22.1 |
| CS | 156/2 | 152/1 | 152/4 | 2067 | 2211 | 2169 | 12.8 |
| FID | 389/1 | 415/0 | 438/3 | 2894 | 3531 | 3592 | 17.2 |
| GGP | 153/32 | 148/28 | 130/29 | 6913 | 6636 | 6119 | 16.0 |
| HRA | 248/0 | 273/0 | 318/0 | 2481 | 2386 | 2566 | 18.4 |
| MTH | 142/20 | 143/21 | 149/22 | 12138 | 12450 | 11900 | 19.1 |
| PAMS | 76/14 | 68/15 | 66/14 | 4683 | 4524 | 4191 | 16.5 |
| CNAS | 2265/154 | 2198/162 | 2191/158 | 50535 | 50180 | 48699 | 17.3 |

Credit hour production in from 2006 to 2008 increased in all departments except CS, FID, and HRA. Overall the college credit hour production increased from 2006-2008. I would attribute the slight decreases in FID and HRA to the department split. I am confident that our new leadership will allow for great things to happen in these two departments in the future. Next year we will add engineering to our data summary.

Assessment Updates

A new student evaluation tool was developed by a college faculty committee. The tool was used for the first time in fall 2008.

Program Evaluation

Computer Science wrote a self-study and had an external evaluation in fall of 2007. The department's action plan was submitted in 2008 and a progress report has been submitted. FID wrote two self-studies in 2007 for CTM and HID. External reviewers will come in during 2008 – CTM in the spring and HID in the fall. The department combined action plans and a draft was submitted in March 2009. PAMS, GGP, and MTH are working on their self-studies at the current time. A draft is due to the dean's office on March 31, 2009.

The process is becoming more familiar to all and I think we are getting better at thinking about and choosing good external reviewers. The departments are taking this very seriously and I see changes evident.

II. FACULTY RESEARCH AND SCHOLARSHIP

Faculty – Outstanding!!!!

Awards

- David Ashley (MTH) – Leroy Sachs Service 2008 Award from the Missouri Council of Teachers of Mathematics
- Paula Kemp (MTH) - MSU Foundation Award for Service 2008

| Department | Number of Faculty (ranked & instructors) | 2008 Faculty Publications | 2008 Faculty Presentations | 2008 Faculty Juried Products | 2008 Faculty Published textbooks |
|------------|--|---------------------------|----------------------------|------------------------------|----------------------------------|
| AG | 17 | 28 | 25 | | |
| BIO | 17 | 28 | 73 | | |
| CHM | 18 | 11 | 22 | | |
| CS | 10 | 6 | 3 | | |
| FID | 10 | 0 | 3 | 1 | 2 |
| GGP | 24 | 21 | 62 | | |
| HRA | 7 | 1 | 3 | | |
| MTH | 37 | 20 | 22 | | |
| PAMS | 15 | 29 | 30 | | |
| CNAS | 155 | 146 | 243 | 1 | 1 |

External Grant Funding

Currently Funded Awards (7/01/08-3/06/09)

| | | |
|--|-----------|------------------|
| Agriculture (AGR) | 2 | 584,770 |
| Biology (BIO) | 17 | 317,296 |
| Bull Shoals Field Station (BSFS) | 2 | 29,877 |
| Center for Grapevine Biotechnology (CGB) | 1 | 26,165 |
| CGB/CBLS | 2 | 238,414 |
| Center of Resource Planning and Management (CRPM) | 6 | 1,071,514 |
| Geography, Geology and Planning (GGP) | 4 | 251,909 |
| Mathematics (MTH) | 3 | 116,441 |
| MGMT/CHM/ACCT | 1 | 95,305 |
| Ozarks Environmental Water Resources Institute (OEWRI) | 11 | 377,109 |
| Physics, Astronomy and Materials Science (PAMS) | 2 | 49,978 |
| PAMS/AGR | 1 | 321,986 |
| | 52 | 3,480,764 |

Funding Requested FY 2009 (7/01/08-2/17/09)

| | | |
|--|-----------|-------------------|
| Agriculture (AGR) | 5 | 1,645,660 |
| AGR/OEWRI | 1 | 519,671 |
| Biology (BIO) | 21 | 575,331 |
| BIO/PAMS | 1 | 248,350 |
| BMS/CHM | 1 | 202,382 |
| BMS/PAMS/CHM | 2 | 716,714 |
| Bull Shoals Field Station (BSFS) | 4 | 55,733 |
| Center for Grapevine Biotechnology (CGB) | 4 | 284,431 |
| Chemistry (CHM) | 5 | 469,873 |
| CHEM/PAMS | 1 | 190,899 |
| College of Natural and Applied Sciences (CNAS) | 1 | 10,000,000 |
| Center of Resource Planning and Management (CRPM) | 5 | 1,024,664 |
| Geography, Geology and Planning (GGP) | 11 | 1,121,956 |
| Mathematics (MTH) | 5 | 1,304,256 |
| Ozarks Environmental Water Resources Institute (OEWRI) | 14 | 432,052 |
| Physics, Astronomy and Materials Science (PAMS) | 12 | 1,697,889 |
| PAMS/BMS | 1 | 334,573 |
| PAMS/CHM/BMS | 1 | 381,990 |
| PAMS/CHM/RFT | 1 | 201,628 |
| | 96 | 21,408,052 |

CNAS faculty and staff requested over \$21,000,000 in external funds during the first 9 months of the current fiscal year. This is an outstanding tribute to the faculty and staff in the college.

Efforts to Support and Promote Research

CNAS has funded \$400 incentive grants for faculty to submit significant external grant proposals.

GRANT INCENTIVE TRANSFERS BY DEPARTMENT SPRING/FALL 2008

| | <u>\$ SPRING 08</u> | <u>\$ FALL 08</u> |
|-----------------|---------------------|-------------------|
| AGR | 400 | 800 |
| AGR – MTN GROVE | 1,200 | 400 |
| BIO | 1,600 | 2,000 |
| CHM | 2,000 | 1,600 |
| CSC | 400 | 400 |
| GGP | 1,600 | 1,200 |
| MTH | 800 | -0- |
| PAMS | 1,200 | 2,400 |
| CRPM | 400 | -0- |

Future's Funding Update

1. X-Ray Characterization and Analysis Facility

- a. All equipment was purchased and installed by Fall 2007. The total cost was \$314,000 (\$125,000 from Futures, \$100,000 from CASE, and \$89,000 from CNAS, PAMS, and CHM.)
- b. So far two graduate student theses have included data from this facility and we expect many more into the future. Several faculty publications and presentations have included data from the facility.
2. Real-time PCR
 - a. Equipment was purchased in Spring 2007 (\$46,000)
 - b. The Pearson's Creek Project was successfully completed with OEWR and led to three presentations. The instrumentation is available for future water projects.
 - c. Paul Durham's research group also occasionally uses the instrumentation.
3. Material Science and Biotechnology
 - a. Chemistry Department hired Bhaskar Datta in the summer of 2008. Equipment has been purchased as part of this grant. Bhaskar is attending a grant-writing workshop this spring and is currently working on a grant proposal.
4. Aquatic Research
 - a. This project originated from the Biology Department and Bull Shoals Field Station. The project was funded and approved but the implementation was not.
5. Solid State NMR
 - a. The equipment was purchased in 2008. The primary faculty in charge of this instrument is Gary Meints. He has had external funding from Research Corporation and received a three year NIH AREA grant (which I believe was great helped by having the solid state NMR on campus). Several publications are ready to be submitted this spring. I expect a number of projects in chemistry, materials science and biology will make use of this NMR capability.
6. Water Quality in Animal Grazing Systems
 - a. This project originated from the Agriculture Department in an attempt to jump start research in this area. Two faculty were hired to begin working on water quality projects and the economic impact of the projects – Michael Burton and Ben Onyango. These two faculty arrived in the Fall of 2008. During the fall semester Ben completed an article (based on work prior to his arrival) which will be published in 2009. Both Michael and Ben have been encouraged by their department to seek external funding, to include students in their research, and to continue their excellent publishing record that they established prior to their arrival at Missouri State.
7. Importation of New Varieties from International Grape Breeding Programs
 - a. The greenhouse and growth chambers were purchased and installed in 2008. A survey by Dr. Rimal is in progress.

Journal Editors

Shouchuan Hu, Alicia Mathis serve as editors of journals in their discipline. Faculty in each department serve as reviewers for journals in their disciplines.

Sabbaticals – 2008

CNAS funded six sabbaticals during the 2007-2008 academic year. One was delayed until after a short-term administrative appointment is complete. The other five resulted in over 16 peer reviewed publications as well as the beginnings of many more.

CNAS funded seven sabbaticals during the 2008-2009 academic year. One was a full year sabbatical, one was in the fall semester and the remainder are in progress now.

CNAS funded eight of ten proposals for sabbaticals for the 2009-2010 academic year. Four of the proposals were for the full year and four were for one semester. The overall cost was \$0 which was important in the current economy.

Changes for the future – The sabbatical committee, heads and I are going to more clearly articulate sabbatical expectations as I believe we will need to have higher expectations for what happens during and after each sabbatical.

Centers/Institutes in CNAS

CRPM (Center for Resource Planning and Management) – Director – Diane May (Diane is on a leave for early 2009) and Jane Hood is serving as Acting Director.

This center received over \$1 million dollars in external funding in the first nine months of the current fiscal year. Three staff (assistant director, budget officer, and transportation person) at the center are funded on soft money. Only Diane's salary and Derek Wu's salary are funded by CNAS. Derek is a cartographer and he does work for GGP and for CRPM. The center also is the coordinator for SMCOG.

Bull Shoals Field Station – Director – Janice Greene

The education building at the station was completed in 2007. The station hosted one public event, one national conference, three Missouri State classes, and other field trips in 2008. The use statistics for 2008 were 991 person-days. The station is a research site for several faculty/student research projects. Plans for the future include a dormitory facility. The director regularly submits grants for external funding – both for research and for new/upgraded facilities.

William H. Darr Agriculture Center – Director – Ben Fuqua

Grand opening of the Pinegar Arena was held in 2007 and the lead gift for the next phase at the Darr center was received the same evening. More than 15 classes use the facilities each year and many student organizations use the center. There are many, many public events at the center. The Darr center needs a manager and custodial help. Currently Agriculture faculty are doing this work. In addition the center needs a usage/business plan so that they might become self-sufficient and part of Anson's transition plan will include taking care of this facility. Federal funds were obtained in 2008 for a de-acceleration lane near the entrance and this work will be done in early 2009. Federal funds were also obtained for new equipment in the newest facility.

Center for Grapevine Biotechnology – Directors – Laszlo Kovacs and Wenping Qiu

The center has partnerships with University of Missouri-Columbia, Donald Danforth Plant Science Center in St. Louis and University of California. They have funding from USDA, Missouri Wine and Grape Board, and the Missouri Grape Growers Association. The center remains productive and needs to continue to publish and always seek external funds.

OEWR (Ozarks Environmental Water Resources Institute) – Director – Bob Pavlowsky

The center involves several students in the various research projects. The institute keeps their website up to date. Bob has used direct appropriation moneys to build the infrastructure and now he needs to seek major external research grants to fund the lab. Bob has built a great lab that can serve southwest Missouri in a number of ways.

Baker Observatory – Directors – Bob Patterson, George Wolf and Mike Reed

There are two large telescopes at the observatory which is NE of Springfield. The observatory holds at least two public viewing sessions each year and it is used frequently by students. Discussions were started to plan for an improved facility. As Design and Construction can put this in their priority list we will get definite plans so that we can raise donor dollars for this facility.

III. Public Affairs – Community Engagement, Cultural Competence and Ethical Leadership

Ethical Leadership – The departments highlighted this in their annual reports and in the reports in 2008 about public affairs in the major.

Cultural Competence - The departments highlighted this in their annual reports and in the reports in 2008 about public affairs in the major.

Study Away

| Dept/Course# | Faculty | Students | Where | When | |
|--------------|-----------------|----------|-----------|-------------|--|
| AGR399 | Onwueme | 10 | Belize | Winter 2008 | |
| BIO527 | Beckman | 11 | Belize | Summer 2008 | |
| CTM302 | Patton | 12 | China | Spring 2008 | |
| CTM302 | Ireland/Roberts | 9 | France | Summer 2008 | |
| HID302 | Patton/Bailey | 16 | Italy | Summer 2008 | |
| GRY470 | Evans | 16 | Canada | Summer 2008 | |
| HRA400 | Grand/Sanders | 15 | Caribbean | Spring 2008 | |

Community Engagement - The following departments participate in service learning – MTH, BIO, CHM, CS, HRA, AG, and GGP. The departments highlighted this in their annual reports and in the reports in 2008 about public affairs in the major.

One of the most important things that we do is host a variety of events on this campus for area K-12 students. These events bring K-12 students to Missouri State University for a variety of events and competitions. Faculty are involved in these events but they always mentor undergraduate and graduate students to play a variety of roles in these events. Some of the events for 2008 include:

- Pummill Relays (April) – MTH (900 students)
- Pummill Relays computer Programming (April) – CSC (10 students)
- Missouri Elementary Math Contest Final (April) – MTH (475 students)
- Missouri Middle School Math Contest Final (April) – MTH (225 students)
- FFA Contests (Spring) – AG (2500 students)
- Block and Bridle Show Clinic – AG (150 students)
- FFA Greenhand Motivational Conference (2500 students)
- Food for America/Collegiate FFA (50 students)
- Fall FFA Speaking Contest (60 students)

FFA Leadership Conference (300 students)
Science Olympiad (February/March) – CNAS (600 students)
Junior Academy of Science (March/April) – CNAS (15 students)
Ozarks Science and Engineering Fair (April) – CNAS (200 students)
Expanding Your Horizons (October/November) – CNAS (150 students)
Missouri Innovation Academy (June) – CNAS (30 students)
JETS TEAMS Competition – PHY (7 teams in 2009, 45 students)
 Hosted for the first time in March 2009
Sonia Kovalsky Day (MTH) – 50 students
 Hosted for the first time in March 2009
Tours of Chemistry and Physics and Biology Labs (various times) - CNAS

IV. Program Resources

Faculty Hiring - Faculty hiring in CNAS was successful in 2008. Everyone is still getting used to cost centers and prioritizing open positions as a college.

Departmental/College Policies - Compensations plans were reviewed and rewritten by every department in 2007. RPT plans were revised in 2008 with respect to senior instructors. The approved plans are posted on the college website. There are still four that need to be finalized and these will be done by August 2009. We began work on workload policies in 2007 and wrote a general college policy. Specific departmental policies (along with budget implications) are being reviewed and an April 2009 retreat will focus on these policies with the goal of having approved policies by September 1, 2009.

Budget Allocation and Management – The CNAS Budget Officer is providing quarterly reports to all departments. All departments/units were allocated funding for 2008-2009 based on spending patterns, specific amounts of travel dollars/faculty member, and the dollars available. If indeed we have reasonable data from the new Banner system this year we will attempt to make revised budget allocations for 2009-2010.

Benchmarking and Delaware Data – Delaware data is being reviewed and studied in detail. We are separating units (at least the data) to get to the core of issues in two departments where the data doesn't look so great on the surface. We are looking into data related to graduate student credit hour production. The complete data was summarized and reported to the provost to approve hiring for spring 2009. This summary data will be posted on the college website. We will review this data, along with benchmark data, as we prioritize future hires and allocate budgets.

Equipment – Our equipment budgets in CNAS do not match the needs. For example in the previous fiscal year we spent \$350,000 on equipment (items over \$5000). Future equipment needs and important replacements would cost the college \$600,000/year. A development plan to begin raising funds for a equipment will be announced in 2009.

Space – I have reallocated some space. The core storage facility for GGP was allocated space in Kemper Hall that was previously used by PAMS as storage.

Kemper Hall – All engineering renovations will be complete by June, 2009. It will be necessary to find more space for engineering labs when within the next two years as we offer the full program.

Temple, Kemper, Kings Street – FREUP Planning. This was stopped when the funding was pulled.

Temple Hall 449 – Renovation to a research lab was complete in April 2009.

Mountain Grove

Winery – We have drawings. Anson is seeking funding to make this happen.

Shepard Hall – Part of FREUP dollars that was pulled.

Bakers Acres – Needs a plan for the future.

Professional Building – Conversion of hotel room (room 434) to office space – We have this project on hold until we are more certain of the budget.

Working with Staff – CNAS is blessed to have outstanding staff to support us.

Fundraising and Alumni Relations

Departmental/Program Advisory Boards – All departmental advisory boards met at least once this year. Over the past two years dean has attended each meeting at least one time except for mathematics. An engineering advisory board was formed and has met once. The only department without an advisory board at this time is biology and we are working to form one.

| Department | Scholarship dollars awarded in 07-08 | Scholarship dollars awarded in 08-09 |
|--------------------|--------------------------------------|--------------------------------------|
| Agriculture | \$56,850 | \$51,550 |
| Biology | \$6,000 | \$2,400 |
| Chemistry | \$21,450 | \$25,744 |
| CNAS | \$15,600 | \$20,800 |
| Computer Sci. | \$5,000 | \$5,625 |
| Fashion/Interior D | \$2,800 | \$4,810 |
| GGP | \$2,625 | \$3,875 |
| HRA | \$2,750 | \$2,250 |
| Mathematics | \$23,000 | \$34,500 |
| PAMS | \$3,075 | -0- |
| TOTAL | \$139,150 | \$151,554 |

| Designation of Gifts to the Missouri State University Foundation | | | | | | |
|---|------------------|------------------|------------------|------------------|------------------|--------------------|
| | FY 06 | FY 07 | FY 08 | FY 06 | FY 07 | FY 08 |
| Agriculture | 304 | 370 | 366 | \$97,886 | \$252,472 | \$173,624 |
| Applied Consumer Sciences | 157 | 75 | 1 | \$21,676 | \$2,330 | \$75 |
| Biology | 198 | 207 | 189 | \$18,243 | \$17,583 | \$20,040 |
| Chemistry | 144 | 150 | 184 | \$25,818 | \$79,780 | \$34,918 |
| Computer Science | 41 | 36 | 44 | \$9,310 | \$6,403 | \$7,572 |
| Geology, Geography and Planning | 107 | 90 | 126 | \$9,125 | \$8,070 | \$18,918 |
| Mathematics | 176 | 181 | 157 | \$17,480 | \$17,734 | \$15,081 |
| Physics and Astronomy | 67 | 49 | 45 | \$5,342 | \$12,024 | \$11,302 |
| Hospitality and Restaurant Administration | NA | 119 | 189 | NA | \$34,950 | \$55,295 |
| Fashion and Interior Design | NA | 30 | 86 | NA | \$2,758 | \$11,531 |
| Mountain Grove Fruit Experiment Station | 0 | 5 | 23 | \$0 | \$5,500 | \$6,109 |
| General | 114 | 140 | 138 | \$68,612 | \$38,095 | \$134,374 |
| William H. Darr Agricultural Center | 3 | 3 | 3 | \$336,981 | \$250,001 | \$684,000 |
| | | | | | | |
| Natural and Applied Sciences | 1,311 | 1,455 | 1,551 | \$610,473 | \$727,700 | \$1,172,839 |

V. Partnerships

- **City Utilities.** Provides three internships each year for GGP undergraduate geospatial science majors. Carbon sequestration project with GGP faculty.
- **City of Springfield.** Provides three internships each year for GGP undergraduate geospatial science majors.
- **Greene County, Planning and Zoning Department.** Provides two graduate assistantships each year for GGP graduate students.
- **James River Basin Partnership.** Some federal (US-EPA) and state (MO-DNR) funding for OEWRI projects is administered through this partnership.
- **Missouri Department of Natural Resources.** Provided two internships for calendar year 2007 for GGP undergraduate geology science majors.
- **Missouri University of Science and Technology.** Partner institution for joint Graduate Certificate in Geographic Information Systems.
- **Missouri University of Science and Technology.** Collaborative program for electrical and civil engineering.
- Biology Departmental association with **National Park Service, Heartland Network**
- Biology Department is a member of consortium that supports the **Gulf Coast Research Laboratory (University of Southern Mississippi)**
- Biology Department is a member of consortium that supports **Reis Biological Station (Washington University)**
- Written agreement with the **Council of Churches of the Ozarks** for providing the Therapeutic Riding Program of the Ozarks program.
- PAMS reviewed 21 White Papers and 8 full proposals for the **Leonard Wood Institute** with the goal of them soliciting proposals. Started review of a Full Proposal for the Leonard Wood Institute.

CNAS Strategic Plan and Process March 18, 2009

- **Timeline – These are goals for 2009 although some will take longer to implement. All progress will be reported in August and at the end of the year.**
 - This plan is a living document.

Vision

The College of Natural and Applied Sciences at Missouri State University seeks to be recognized regionally and nationally for our outstanding students/graduates, teaching, scholarly productivity, and community service.

Mission

The College of Natural and Applied Sciences develops educated persons who, upon graduation, are prepared to make sound decisions relative to the natural and applied sciences and society and to be productive and successful in their careers. We are committed to excellence in teaching, research and scholarly activities, and community and professional service. Ethical leadership, cultural competence and community engagement are the cornerstones of our commitment to public affairs.

Shared Values/Guiding Principles

We value

- ❖ our students and their success;
- ❖ hands-on learning (applied and practical);
- ❖ academic rigor and critical thinking;
- ❖ faculty, staff and administrators;
- ❖ excellence in teaching, research and service;
- ❖ ethical behavior;
- ❖ our research endeavors;
- ❖ our community, alumni and friends; and c
- ❖ continuous improvement.

All data collection noted below will be reported out at least annually. These are specifically goals for 2009 although some may take longer than the year to implement.

GOAL #1 – Provide Opportunities for student success while maintaining academic rigor. (Democratizing Society, Imagining and Making Missouri’s Future, Foster our students’ success, strengthen our competitiveness)

Strategies (measurable outcome/person responsible for data collection)

- Recruitment of the best/brightest students along with retention of those we do recruit are essential to program success. CNAS faculty will continue to support university recruitment/retention efforts. In addition we will use all competitions and events that bring K-12 students to campus as recruitment events. (Dean/Associate Dean/Heads/Faculty)
- Math Tutoring has expanded to evening hours. Several section of math are using supplemental instruction during spring 2009. (increase learning – test scores and pass rates – passing grades and student retention – first year to second year/math department and CNAS staff)
- HRA has proposed a complete curricular revision in spring 2009 based on industry input. (student learning outcomes redefined – evidence of improved student learning and success/HRA department)
- CNAS Departments are working on supplemental instruction opportunities. Departments will collect data and report to dean. (Math – Spring 2009, Math, FID, CHM, and others – Fall 2009)
- FID is reviewing curriculum and revisions will be proposed by May 2009 based on program review, advisory board input and industry input. (Revisions on college council agenda/FID department, student learning outcomes defined – evidence of improved student learning and success/FID department)
- CNAS is scheduling face-to-face meetings with all CNAS students on probation or warning during spring 2009. These meetings are to check in to see if they are attending class or to see if they need help. If they need academic advising help they will be sent to their academic advisor. (records of meetings are being logged so we can learn from this experience/CNAS staff)
- Increase Study Away Opportunities in CNAS – (log of trips/# of students/student learning outcomes – faculty and CNAS staff)
- Program reviews are looking at student success – GGP, MTH and PAMS currently working on self-studies. (Departments, external reviewers/Dean)
- Departmental Assessment Plans are current and reviewed annually. (Annual reports/Dean)
- Support the submission of SPA reports, DESE reports, and NCATE reports in support of secondary education accreditation for all units in CNAS.

Goal #2 – Develop facilities that will support our pursuit of excellence. (Imagining and Making Missouri’s Future, Transform our campus)

- 2008-2009 major equipment purchases aid in meeting this goal. Lists for 2009 are being developed. (departments/dean)
- Allocate budgets to units appropriately and with justification. Monitor these budgets at least quarterly. (Budget officer/dean/heads)
- Monitor course/program enrollments in order to make the best use of resources. In particular enrollment minimums will be monitored by the associate dean/dean/provost.
- Space Reallocations in 2007-2009 – Core lab for Kevin Evans in Kemper, Research Lab for Durham in JVIC which opens spaces in Temple, Computer lab to research lab – Temple Hall 449, CASE/JVIC space in Kemper to engineering and physics/materials science, Kemper 215 office to instrumentation (SQUID) lab, Kemper 213 from storage to electrical engineering lab and advanced physics lab. Others are being discussed. (Dean)
- Space renovations planned for 2009 – Kemper, Temple, Karls Hall 225, Professional Building 434. (Sampson, Kahol, Bosch, Elliott, Dallas/Dean)

- Animal facilities in CNAS require some renovations. A plan will be submitted by May 1, 2009 for all required work. (Dean and Head)
- Research/teaching laboratory space needs are great for all departments, institutes and centers. It imperative that we do a complete analysis in preparation for renovations and added space in 2009. Space utilization preliminary work was complete in preparation for FREUP planning. This project is currently on hold until the funding is made available (\$250,000). (Dean will obtain funding and then Sampson/McClure have committed to the project.)
- Space plans for Mountain Grove have been reviewed and updated. Many donor and grant projects are being worked on to enhance the facilities in Mountain Grove. (Elliott, Trussell/Dean/Sampson)
- A request has been made to combine Cheek 170 and 172 to make a better classroom for mathematics department. (Cheng/Dean)
- Space plans for the Bull Shoals Field Station have been reviewed and updated. Many donor and grant projects are being worked on to enhance the facilities. (Greene, Trussell/Dean)
- Research space needs are great for all departments, institutes and centers. A revised grant will be submitted for the Temple hall addition. (Dean)
- Provide strong staff support for all college/departmental programs. (Dean and Heads)
- Help HRA Department with their vision for a new facility. (Dean and Head)

Goal #3 – Continue to develop a diverse and strong faculty. (Imagining and Making Missouri’s Future, Strengthen our competitiveness)

- Prioritize requests for new faculty each year. This includes a look at Delaware data, program review recommendations/action plans, and data from benchmark peers. (Dean and Heads)
- We have shortened the timeline for searches and will continue to try to improve processes. (Dean, Heads, Search Chairs)
- Encourage professional development for faculty. (HRA faculty are reviewing research design methods.)
- Provide summer fellowships to new hires with research plans. (Dean)
- Support international travel as funds are available. (Dean)
- Continue grant writing incentive program as funds remain available. (Dean)

Goal #4 – Continue to build our national and international reputation through innovative scholarly research/creative activities and high quality students. (Incubating new ideas, Foster our students’ success, advance our understanding, strengthen our competitiveness)

- Plan an undergraduate research symposium for CNAS in fall 2009. (Alicia and Dean)
- Nominate Missouri State faculty and students for awards (heads and Dean)
- Encourage faculty to include students as co-authors on publications and presentations (Heads and Dean)
- Continue to work toward funding more undergraduate summer research stipends for all CNAS students. (Dean, DOD, Heads)
- Continue to support the various centers/institutes/stations. In addition need a common goal/purpose for these centers/institutes/stations so that we can work together more fully. (Dean and new environmental advisory committee – Spring/Summer 2009)
 - Center for Resource Planning and Management
 - Provide appropriate resources so that this could become entirely self-sustaining.

- Bull Shoals Field Station
 - Additional housing needed.
 - A land purchase would sustain this station into the future.
- Ozarks Environmental and Water Resources Institute
 - Needs a fee structure for samples
 - Needs a sustainability plan to fund staff/projects into the future
- Baker Observatory
 - Needs a long-range plan for the future (2009 project)
- Darr Agriculture Center
 - The next phase needs to be funded so that we can start building (2009 project) (Head and Dean and DOD)
- Fruit Experiment Station
 - Continue projects (winery constructed in 2009 with external funding) (Head and Dean and DOD)
- Center for Grapevine Biotechnology
 - Continue to seek external funding for this center (directors)
- Missouri Innovation Academy
 - Develop a plan to sustain this academy (associate dean)
- Continue to support grant incentive program as funds remain available. (Dean)
- Outstanding students must be part of this endeavor.
 - Involvement of faculty/staff in recruitment of undergraduate students (Dean, associate dean, heads, recruitment committee)
 - Continue to work with transfer students and community colleges (all)
 - Involvement of faculty in recruitment of graduate students (Dean, Heads, Graduate coordinators)
 - Involvement of faculty in retention efforts. (All)

Goal #5 – Increase the visibility of the College of Natural and Applied Sciences. (Democratizing Society, Modeling ethical and effective institutional behavior, enrich our public affairs mission, engage our communities)

- Started Public Lecture Series in Spring 2009 and will continue. (Dean and volunteers)
- Maintain or enhance our involvement in service learning. (Heads)
- Engineering program plans many outreach activities involving bridge building. (Carroll)
- HRA is hosting a sustainability conference in April 2009. (Dallas)
- Efforts will be made to enhance the college newsletter (additional pages, articles and pictures). Comments will be solicited from an external advisory group in April. (Dean, executive assistant)
- Efforts will be made to enhance the college website (Dean, staff)

Goal #6 – Enrich the university’s public affairs mission. (Democratizing Society, Making Missouri’s future, Modeling Ethical and effective institutional behavior, enrich our public affairs mission, engage our communities)

- Each department has articulated how public affairs is incorporated into the major. We will work with the Provost’s office to collect the data to show that our goals have been met.

- We will continue to keep sustainability and the environment as part of the university conversation in curriculum development and research projects.

Goal #7 – Continue to communicate and live our shared values and guiding principles (Democratizing Society, Modeling Ethical and Effective Institutional Behavior, engage our community, advance our understanding)

- Put out an effective newsletter twice each year. (Dean, staff)
- Review and update website regularly. (Dean, staff)
- Visit departments and faculty at least once each year. (Dean, Associate Dean)
- Communicate via blog, email and other methods with faculty/staff. (Dean)
- Continue with College Student Advisory Group. (Dean, Associate Dean)
- Update and improve faculty workload policies. (faculty, heads, dean)
- Update as needed RPT and Compensation Plans with input from faculty committees (faculty, heads, dean)
- In all ways use our resources wisely, share how we use resources, and be willing to change. (Dean and staff)