

College of Natural and Applied Sciences

August 21, 2014

State of the College Address

Tammy Jahnke, Dean

follow your
PASSION
find your
PLACE

CNAS

- 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 – our commitment to public affairs. We are committed to excellence in teaching, research and scholarly activities, and community and professional service.

Bigger and Bolder

- Diversity
 - 30% of all associate and full professors in CNAS are from diverse populations! (Entire campus – 10.6% of all full-time faculty are from diverse populations.)
 - CNAS student population (2,184 majors, 380 are from diverse populations – 17%)
 - 16.88% of all associate and full professors in CNAS are women. 31% of all CNAS faculty (including instructors) are women.
 - CNAS student population (942 – 43% are women)
 - Can we do better?

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
 - continuous improvement.

We value our students and their successes –

“First Generation” Defined

At MSU, you are a first generation student (FGS) if neither parent earned a bachelor’s degree.

You will encounter many first gen students since:

- 35 to 40% of MSU degree-seeking undergraduates met this criteria in Fall 2013



Strangers in a strange land

Lacking college-related experience & information, **FGS arrive at MSU:**

- Feeling less academically prepared
- Torn between competing obligations to family, work & school
- Worried about financial aid
- Less knowledgeable about social and academic expectations
- Fearful of failing & feeling pressure to “prove their worth”
- Believing they need to study more, but
- 50% less likely to participate in co-curricular activities
- Seeing college as a narrow pathway to a career



Who Are our First Gen Students?

First Gen Students at MSU:

1. Come from economically disadvantaged families (65% Pell eligible)
2. Are older (*17% are twenty-five or older*)
3. Come from under-represented groups (*16%*)
4. Are academically challenged when they arrive (*39% are placed in developmental math*)

Nationally, first gen students are more likely to:

- attend college part-time
- live off-campus
- work more hours off-campus
- be less involved in co-curricular activities on campus

Big Picture:

First gen students are less engaged on campus.

Not surprisingly, first gen students at MSU have lower retention & graduation rates than NFGS:

- First-year freshmen retention rate of 71.3% is 9-10% lower
- FGS 6-Year graduation rate of 46.8% is 14% lower

This group of students is significant at MSU:

1. Over one third of degree-seeking undergrads are first gen students
2. Their retention and graduation rates are much lower

**** Across the US, 60% of FGS leave higher education without graduating**

3. FGS represent an “at risk group” that we can & should serve better



Why this matters

1. We value:

- “The College of Natural and Applied Sciences is dedicated to the success of our students.”

2. Finances:

- **Retention & graduation rates impact state support** above base appropriations
 - *key performance indicators (KPI's) that affect State of Missouri Performance Funding Formula*
- **Provost** provides additional operating income to colleges based upon headcount and credit hour production

1. Identify

- *First gen students now identified on the **Advising Notes/Releases page***

2. Advising – provide missing “cultural capital”

- **Connect:** Proactively reach out to FGS advisees
- **Inform:** Explain terminology and how to navigate the university
- **Teach:**
 - How to plan for graduation
 - How to be effective self-advocates
 - How to make good academic decisions
- **Inoculate:** Let FGS know all students experience success and failure

3. Provide resource info specifically related to first gen needs

- Bear Claw Writing Center, Student Career Center, etc.
- Work study & employment opportunities
- Scholarship and other financial info

4. Create intentional pathways to engage FGS

- Connect early to help them feel a part of department
- Enroll in appropriate major classes asap
- Encourage participation in co-curricular activities — explain importance

5. GEP 101 – FA14 experiment with sections populated by

- a. first gen students
- b. majoring in a specific college



One Caveat

As you work to help your students and advisees succeed :

- **Embrace FGS for what they bring to MSU** – not for perceived inadequacies
- Do not create any stigma associated with first gen status
- Help them become more fully engaged in our programs and college

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 - excellence in teaching, research and service;
 - ethical behavior;
 - our research endeavors;
 - our community, alumni and friends; and
 - continuous improvement.

Faculty Promotions - 2014

- Distinguished Professor
 - Eric Bosch - CHM
 - Paul Durham - BIO
- Professor
 - Bryan Breyfogle – CHM
- Associate Professor with Tenure
 - Stephanie Hein – HRA
 - Day Ligon – BIO
 - Matthew Wright – MTH
 - Songfeng Zheng - MTH
- Senior Instructor
 - Damon Bassett – GGP
 - Gary Stafford - MTH

- [Chris Barnhart](#), Biology, CNAS
- [Kanghui Guo](#), Mathematics, CNAS
- [John Havel](#), Biology, CNAS
- [Shouchuan Hu](#), Mathematics, CNAS
- [Paula Kemp](#), Mathematics, CNAS
- [Laszlo Kovacs](#), Biology, CNAS
- [Robert Mayanovic](#), Physics Astronomy and Materials Science, CNAS
- [Kevin Mickus](#), Geography Geology and Planning, CNAS
- [Robert Pavlowsky](#), Geography Geology and Planning, CNAS
- [Mark Richter](#), Chemistry, CNAS

Points of Pride

- *Missouri State University Foundation Awards for Research 2014*
 - ***Nikolay Gerasimchuk - Chemistry***
 - ***Michael Reed - Physics, Astronomy and Materials Science***
- *Missouri State University Foundation Awards for Service 2014*
 - ***Alexander Wait - Biology***
- *Graduate College Awards - 2014*
 - ***Outstanding Thesis Advisor Award—Dan Beckman, Biology***
- *Provost Fellow for Public Affairs 2013-2014*
 - ***Kevin Evans – Geography, Geology and Planning***

CNAS New Faculty – tenure-track

- HRA - Albert Barreda (PhD University of Central Florida, MS University of South Carolina, MS University of Massachusetts, BS San Augustin State University, Arequipa, Peru) – Hospitality and Restaurant Administration – Assistant Professor
- GGP - Gary Michelfelder (PhD expected this fall from Montana State University, MS New Mexico State University, BS Eastern Michigan University) – Geology – Assistant Professor
- MTH - Patrick Sullivan (PhD Pennsylvania State University, MS University of Kansas, BS University of Kansas) – Mathematics Education – Assistant Professor
- CHM – Gautam Bhattacharyya (PhD Purdue University, BS Brown University) – Chemistry Education – Assistant Professor
- BIO – Ryan Udan (PhD Baylor College of Medicine, BS University of Maryland Baltimore County) – Developmental Biology – Assistant Professor
- GGP – Tim Brock (PhD University of Kentucky, MS University of Kansas, BA Georgia Southern University) – Planning/Geography – Assistant Professor

CNAS New Faculty – tenure-track

- BIO – Sean Maher (PhD University of Kansas, MS University of Michigan, BS Villanova University) – Wildlife Ecology/Biology – Assistant Professor
- MTH – Steve Senger (PhD, MA, BS University of Missouri – Columbia) – Mathematics – Assistant Professor
- PAMS – Peter Plavchan (PhD, MS UCLA, BS California Institute of Technology) – Astronomy – Assistant Professor
- PAMS – Ridwan Sikadja (PhD, BS University of Wisconsin – Madison) – Physics/Materials Science – Associate Professor (pending BOG approval)
- ENGINEERING – Jeff Thomas (PhD, MS, BS Missouri University of Science and Technology) – Associate Teaching Professor

CNAS New Faculty

- HRA – Jokima Hiller (MBA Keller Graduate School of Management, BS Purdue University) – Hospitality and Restaurant Administration – Instructor
- CHM – Helena De La Hoz De La Hoz (MS Missouri State, BS Missouri State) – Chemistry – Instructor
- BIO – Michael LaMontagne (PhD Boston University, BS University of Massachusetts) – Biology – Visiting Assistant Professor
- PAMS – Grant Saltzgaber (MS Oregon State University, BS University of Nebraska - Kearney) – Physics – Visiting Instructor

CNAS New Staff

- PAMS – Nandita Nag (MS University of Missouri – St. Louis, BS Visva Bharati University) – Laboratory Supervisor
- CHM – Jonathan Hardin (MS, BS Missouri State University) – Chemistry – Lab & Store Supervisor
- CHM/PAMS – Kristy Teague – Administrative Assistant
- CNAS – Brian Hayes – Distributed User Support
- BIO – Ben Dalton – (BS William Jewell College, MS Missouri State University) - Laboratory Supervisor and Director of Regional Science Olympiad and helper with Science Fair

Points of Pride

- [Great News! Faculty and Student!](#)
- [Mind's Eye](#)
- [CNAS Faculty and Staff Awards](#)
- [Undergraduate Research Day](#)
- [Graduate College Interdisciplinary Forum](#)

Student Research

Sixth Annual CNAS Undergraduate
Research Day – April 24, 2014

Graduate College IDF – April 25, 2014

CNAS Citizen Scholars

8/42 from CNAS

- 2014 – Nominations are due 9/18/2014
- 2013 ---
- 2012 – three (Bethany Forrester - EGR, Anthony Hendrix - BIO, Lauren Bansbach - BIO)
- 2011 ---
- 2010 – one (Jacob Swett - PAMS)
- 2009 – one (Matt Evans – HRA)
- 2008 – two (Ashley Egan - CHM and Catherine Shoults - BIO)
- 2007 – one (David Vinyard - CHM)

Department	Fall 2010 Majors Undergraduate/ Graduate	Fall 2011 Majors Undergraduate/ Graduate	Fall 2012 Majors Undergraduate/ Graduate	Fall 2013 Majors Undergraduate/ Graduate	Fall 2014 estimates
Biology	616/46	602/60	670/46	680/45	647/45
Chemistry	191/18	199/25	188/16	233/23	205/21
Computer Science	145/7	172/7	196/1	253/3	269/2
Engineering	140	163	160	190	206
Geography, Geology & Planning	207/31	231/45	219/36	191/36	181/21
Hospitality and Restaurant Administration	254	246	229	240	221
Mathematics	140/21	148/30	145/27	140/30	144/30
Physics, Astronomy & Materials Science	58/8	81/13	78/12	68/18	65/13



of students in majors vs. # of graduates

Department	Fall 2013 Majors Undergraduate/ Graduate	Fall 2014 Majors Undergraduate/ Graduate	3-year rolling averages of BA/BS Graduates/year for past three years	3-year rolling averages of MS Graduates/year from 2010-2012
Biology	680/45	647/45	110	13.7
Chemistry	233/23	205/21	22	6
Computer Science	253/3	269/2	18	---
Engineering	190	206	33	---
Geography, Geology & Planning	191/36	181/21	37 16.3 8.7	15.3
Hospitality and Restaurant Administration	240	221	70.3	---
Mathematics	140/30	144/30	27.6	7.6
Physics, Astronomy & Materials Science	68/18	65/13	8	4



A few budget notes -

- CNAS has allocated \$748,436 for teaching assistants in the college. That is enough to fund 74-90 full-time assistantships in CNAS!!! Many faculty write research assistantship funds in grants so even more graduate students are funded each year!
- Faculty and staff salaries are \$10,434,388.
- We allocate \$4,000 for part-time help and \$82,500 for student help.
- We have an allocation of \$834,956 for per course and summer school.
- Total personnel budget in CNAS - \$15,692,868
- Total operating budget in CNAS - \$852,261

One time dollars

- July of 2013 – CNAS had just over \$1 million in carry-forward. \$210,000 was distributed to departments and centers to cover planned needs for those carry-forward funds. \$200,000 was placed in the equipment repair budget to cover the instrumentation repair needs of the college.
- Here's how we spent another \$347,154
 - Smithsonian Exhibit – Green Revolution \$5000
 - Additional per course needs \$83,046
 - Cheek 209 renovations \$15,000
 - Major equipment matches \$14,450
 - BSFS repairs (weather) \$4,000
 - CNT research \$12,500
 - Trip to UMBC \$7,000
 - Searches \$30,624
 - Faculty start up committed prior to 2014 \$175,634

One time dollars, continued

- Promises made in early 2014

- Start up for new faculty starting in 2014 \$685,500
- Summer Fellowships for 2015 \$66,000
- Other construction/renovations \$20,000
- EMS (money from provost) \$20,000
- Misc. (travel, special projects) \$5,000
- Pummill Hall Renovations \$500,000

- Much of the Pummill Hall Renovations is being collected through in-kind donations and other donations to the foundation but CNAS will need to contribute to the project this year.

- Clearly this is more than the balance from the previous page but I expect that we will have a carry-forward this year that will cover these needs (especially considering that not all start up is used in year one).

Outreach – 2014-2015

- PhysBIZ – Many trips out to SPS Elementary Schools!
 - Visited Springfield Greene County Libraries over the summer
- Boy Scout “Merit Badge University”
- Constellation Club
- Expanding Your Horizons
- February 21, 2015 – Regional Science Olympiad (on Missouri State campus)
- Regional Missouri Junior Academy of Science
- March 31-April 2, 2015 - Ozarks Science and Engineering Fair
- Pummill Relays – Mathematics
- GLADE Academy – Bull Shoals Field Station
- Girl Scout Science Badge Event
- NASA Public Observing Night at Baker Observatory – Watch for dates!
- - And much more!!!!

Points of Pride

- MSU through Bull Shoals Field Station is the state-wide coordinator for Project WET, Project Leopold, and Project Flying Wild!
 - The goal of Project WET is to facilitate and promote awareness, appreciation, knowledge, and stewardship of water resources through the development and dissemination of classroom-ready teaching aids and through the establishment of state and internationally sponsored Project WET programs.
 - The Leopold Education Project (LEP) is an innovative, interdisciplinary conservation and environmental education curriculum.
 - *Flying WILD* offers a whole-school approach to environmental education using birds as the focus.
- We are also active participants in Project WILD and Learning Tree.
 - Project WILD is a wildlife-focused conservation education program for K-12 educators and their students.
 - Project Learning Tree is an award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from preschool through grade 12.



Partnerships

- JVIC
 - CBLS – Paul Durham, Director
 - CASE – Kartik Ghosh – Faculty Research Liaison
 - 4th Floor Laboratory
 - Nanotechnology workgroup meeting
- National Park Service
- James River Basin Partnership
- Watershed Committee of the Ozarks
- Public Schools throughout SW Missouri

External Funding

- FY2014
 - CNAS - \$1,819,876
 - CRPM - \$496,339
 - OEWRI - \$326,362
 - BSFS - \$43,905
 - CBLS - \$940,706
- FY2013
 - CNAS - \$2,149,407
 - CRPM - \$367,911
 - OEWRI - \$140,480
 - BSFS - \$46,261
 - CBLS - \$287,848
- 34 faculty involved in over 100 grant submissions

CNAS Grant Incentive Program

All faculty submitting grants in excess of \$30,000 receive \$400 for travel or research supplies. Last year CNAS distributed \$7,200. Please help me distribute \$10,000 this year.

	Fall 2011	Spring 2012	Fall 2012	Spring 2013	Fall 2013	Spring 2014
Biology	\$1600	\$800	\$800	\$2000	\$1200	\$400
Chemistry	\$1200	\$400	\$1600	\$400	\$400	\$400
Computer Science	-	-	-	-		
Engineering	-	-	\$400	-	\$400	
Geography, Geology and Planning	\$2000	\$800	\$1600	\$400	\$1600	\$400
Mathematics	\$1200	-	\$800	\$400		
Physics, Astronomy and Materials Science	\$2000	\$400	\$1600	\$400	\$2000	\$400



- **Access to Success**
 - Continue working with community colleges in MO in significant ways. Encourage faculty to faculty meetings.
 - Continue to seek ways to increase graduation rates.
- **Public Affairs Integration**
 - Continue outreach activities and participation with university signature events.
- **Engaged Inquiry**
 - Continue to seek external funding
 - Continue undergraduate research day
 - Continue support of student/faculty research throughout CNAS

- **Valuing and Supporting People**
 - CNAS will continue to make every effort to hire outstanding, diverse faculty.
 - CNAS will continue to make every effort to recruit and retain diverse students.
 - CNAS will support our current faculty/staff in their careers.
- **Partners for Progress**
 - We continue to work with partners.

- Responsible Stewardship
 - Pummill Hall
 - Temple Hall
 - Cheek Hall
 - JVIC lab space
 - Kemper Hall

SAFETY – NRC Recommendations

Think bigger and bolder!

- Institutional leaders must actively demonstrate that safety is a core value.
- Leaders should include fostering a positive safety culture in criteria for faculty promotion, tenure and salary decisions.
- Leaders should consider what research can be done safely, given resources available.
- Institutions should have comprehensive risk-management plans for lab safety.

- Department chairs and PIs should use engagement strategies and institutional support to promote a strong safety culture.
- Department chairs should promote robust safety collaborations among PIs, researchers and safety professionals.
- ACS and other organizations should establish and maintain an incident and near-miss reporting system.
- Research should incorporate hazard analysis into lab notebooks and research processes.
- Department chairs and PIs should develop lab-centric activities to complement other safety training.

Bigger and Bolder

- The importance of research at Missouri State University.

CNAS Public Lecture Series Bigger and Bolder!

- September 16 CNAS Public Lecture series, Jorge Rebaza, 7:30 pm, Temple 002
- October 7 CNAS Public Lecture series, Melissa Dallas, 7:30 pm, Temple 002
- November 11 CNAS Public Lecture series, Katy Fichter, 7:30 pm, Temple 002

PARKING WILL BE AVAILABLE IN LOT 4, SOUTH OF TEMPLE HALL

- Armchair University Science Series
- Wednesdays, 7 p.m. in the auditorium.
- September 17: **Mining Baseball Data: Predicting the Hall of Fame Elections.** Each year, the Baseball Writers' Association of America elects new members of the Baseball Hall of Fame. Dr. Lloyd Smith from Missouri State University's Department of Computer Science will discuss the use of data mining to predict which players are most likely to be added to the Baseball Hall of Fame, and make predictions for some active and recently retired major league players.
- October 15: **World of Weeds: Invasive Species and the Homogenization of Nature.** Travelers to faraway places are delighted to encounter flowers, butterflies and birds that they have never seen before. The beauty and function of natural communities can be threatened by the movement of plants and animals around the globe. Dr. Chris Barnhart from Missouri State University's Department of Biology will discuss the problem of invasive animal and plant species from around the world and what this may mean for global, regional and local biodiversity.
- November 19: **Nature and the Human Condition.** How does nature affect people? Dr. Janice Greene from Missouri State University's Department of Biology will discuss the positive impact of nature and the outdoors on individuals' physical and psychological health, and the many benefits of nature to individuals and society.

Have a wonderful semester!

- Free portrait days – Monday and Tuesday, August 25 and 26 from 9 AM -4 PM in PSU312!