

CNAS 2016 Annual Report  
Submitted in July 1, 2017  
Tammy Jahnke, Dean

The CNAS Strategic Plan and Goals document is updated each year (June-September) but is driven by our vision, mission and shared values. The 2016-2017 list of goals and accomplishments is attached as an appendix.

**Vision** - The College of Natural and Applied Sciences develops global citizen scholars who are prepared to increase understanding of the natural world and applied sciences within society and to be productive and successful in their careers.

**Mission** - The College of Natural and Applied Sciences at Missouri State University seeks excellence in teaching, scholarly productivity, and professional and community service.

**Shared Values** - We value

- ❖ our students and their success;
- ❖ active learning, academic rigor and critical thinking;
- ❖ excellence in teaching, research and service;
- ❖ inclusiveness, fairness and justice;
- ❖ faculty, staff and administrators;
- ❖ personal and academic integrity;
- ❖ safe learning environments;
- ❖ collaborations and partnerships; and
- ❖ continuous improvement.

The annual report is structured around a set of college goals which are tied to the university long range plan and annual goals. It is posted in full on our website - <http://science.missouristate.edu/College-Policies.htm>. All college annual reports are posted on the college website - <http://science.missouristate.edu/College-Annual-Reports.htm>. All department annual reports which include assessment reports are posted on a password protected website – Go to <http://science.missouristate.edu/restricted/assessment.htm> and click on assessment and reports.

CNAS - STEM Graduates and # of majors

Fiscal Year		FY2012	FY2013	FY2014	FY2015	FY2016
Department	Student Level	Headcount	Headcount	Headcount	Headcount	Headcount
Biology		111	140	132	134	150
	GR	17	18	20	20	39
	UG	94	122	112	114	111
Chemistry		39	26	36	41	34
	GR	9	9	7	12	13
	UG	30	17	29	29	21
Computer Science		25	19	24	37	43
	GR	4	1	3	1	2
	UG	21	18	21	36	41
Geography, Geology, & Planning		97	92	79	83	80
	GR	15	15	19	19	15
	UG	82	77	60	64	65
Hospitality Leadership	UG	55	65	58	92	73
Mathematics		38	42	39	41	58
	GR	8	10	8	13	22
	UG	30	32	31	28	36
Physics, Astronomy, & Materials Science		13	17	20	18	31
	GR	5	5	11	7	7
	UG	8	12	9	11	13

Academic Period		Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016
Department	Level	Headcount	Headcount	Headcount	Headcount	Headcount
Biology		724	727	720	696	747
	GR	48	45	51	43	42
	UG	676	682	669	653	705
Chemistry		213	256	232	231	228
	GR	17	23	22	24	23
	UG	196	233	210	207	205
Computer Science		207	256	298	310	360
	GR	6	3	3	5	3
	UG	201	253	295	305	357
Geography, Geology, & Planning		258	249	243	248	215
	GR	47	40	25	33	34
	UG	211	209	218	215	181
Hospitality Leadership	UG	264	300	281	246	241
Mathematics		199	200	206	216	184
	GR	25	34	37	38	26
	UG	174	166	169	178	158
Natural & App Sci/Engineering	UG	168	190	228	210	195
Physics, Astronomy, & Materials Science		102	89	92	99	98
	GR	19	20	17	18	21
	UG	83	69	75	81	77

\*\*All UG majors listed within "Natural & App Sci/Engineering" are the cooperative engineering program students.

Number Tenured/tenure-track Faculty BY CNAS DEPARTMENT

2017 (SP)	Tenured/tenure-track Faculty	Instructors/Lab supervisors
BIO	19.0 FTE 18 FT + Head +AD	1/5
CHM	16 FTE 15.5 FT + Head	3/
CSC	7 FTE 7 FT + Head	
GGP	19 FTE 18 FT + Head + AD	3/
HL	5 FTE 4.5 + Head	2/
MTH	23 FTE 22 + Head + Interim Head	13/
PAMS	11 FTE 10.5 + Head	1/1
EGR	6 FTE (2 FTE MSU, 4 MO S&T) 5.5 + Director (S&T)	/2 (MSU)

Although number of majors and number of graduates are important, it is also important to note credit hour production. The new general education program has definitely affecting SCH production in CNAS and we are definitely in growth mode.

Calendar Year (SP/SU/FA)	2011	2012	2013	2014	2015	2016
College	Credit Hours	Credit Hours	Credit Hours	Credit Hours	Credit Hours	Credit Hours
	Value	Value	Value	Value	Value	Value
Agriculture	5,071	10,269	11,712	12,991	14,156	16,245
Arts & Letters	94,767	94,568	95,427	94,977	97,399	102,112
Business	102,843	99,138	100,350	100,030	106,171	108,149
Education	34,558	34,186	34,350	35,250	37,001	39,031
Health & Human Services	78,038	80,602	84,133	86,817	87,506	90,905
Humanities & Public Affairs	77,050	79,140	78,205	79,473	82,330	84,578
Library Science, Dept of	292	272	253	237	118	104
Natural & Applied Sciences	92,866	88,306	87,441	87,435	89,271	95,135
Undergraduate College/Provost	7,028	7,041	7,800	8,046	9,175	9,697
<b>Total by COLUMNS</b>	<b>492,513</b>	<b>493,522</b>	<b>499,671</b>	<b>505,256</b>	<b>523,127</b>	<b>545,956</b>

Credit hours production (total) for each department in FY2016

Biology	17651
Chemistry	17932
Computer Science	4207
GGP	15230
Hospitality Leadership	4250
Mathematics	23741
PAMS	8176

### Program Review/Accreditation Update

Biology – Action Plan accepted March of 2016. Changes to Wildlife Conservation Management program will be going through the curricular process this fall. Biology faculty (3) participated in online boot camp. The vivarium space is being fully utilized. Department needs more greenhouse space and a plan is being worked out.

Chemistry – Self-study written. External review in fall of 2017.

Computer Science – Accredited through 2019. Next accreditation report due June of 2018 with site visit in 2018-2019 academic year.

GGP – Planning Accreditation teach out program is approved. Last graduates by December 2021.

Action plan accepted Spring of 2017.

HL – Accreditation through summer of 2018. Accreditation report due in summer of 2017 with site visit in spring of 2018.

Cooperative Engineering Program – ABET Accredited through Missouri S&T.

Mathematics – Self-study written. External review in fall of 2017.

Physics, Astronomy and Materials Science – Action plan accepted in summer of 2017.

### *Scholarship Dollars awarded to CNAS students in 2016!*

Committee Name	Scholarships Awarded	Total Award Amount
Biology	15	\$ 6,750.00
Chemistry	20	\$ 20,200.00
CNAS - Bio/Chm Joint	2	\$ 2,000.00
College of Natural and Applied Science	18	\$ 23,200.00
Computer Science	21	\$ 9,400.00
Geography, Geology, and Planning	15	\$ 11,950.00
Mathematics	30	\$ 29,470.00
Hospitality Leadership	17	\$ 22,800.00
Physics, Astronomy, and Materials Science	15	\$ 11,500.00
<b>TOTALS:</b>	<b>150</b>	<b>\$ 137,270.00</b>

\*\* The scholarship spreadsheet does not reflect the scholarships that we give to students for study away trips. Last year Study Away reported \$6500 in scholarships to seven students. These awards were funded by contributions from CNAS and the president's office. GGP has donor funded scholarships specifically for field trips to include study away but the MSU Foundation is not able to document those scholarships at this time.

Student Scholarship Winners – Chemistry (April), Mathematics (September), Biology (September) and Hospitality Leadership (September) hold annual picnics/banquets/receptions to recognize scholarship recipients and donors. CNAS held an event for all other scholarship recipients in fall of 2016. The next all-college scholarship reception will be held on October 26, 2017 during Homecoming Week. This will recognize scholarship recipients from CNAS, CSC, PAMS and GGP.

The university chose two focus areas in 2016-2017. CNAS action items related to these to focus areas are tagged as noted. **Those items that will continue in 2017-2018 are highlighted.**

## Increase the number of graduates while maintaining academic rigor and quality.

### Enhance campus diversity and inclusion

### Academic Profile

- Strategies to increase CNAS Graduates (##)
  - **Contact all advisees with more than 95 credit hours to ensure a path to graduation**
    - *BIO, GGP and HL started in the fall. Everyone else plans to contact students in spring.*
  - **Contact all graduate students annually to ensure all have a path to graduation.**
    - *Biology, Materials Science, GGP, MNAS, Chemistry and Mathematics are proactively doing this. Computer Science will do this as they begin their program.*
  - **Provide a more proactive/intrusive student retention/success approach, especially to students at risk. ###**
    - *Associate Dean Rebaza is doing intrusive advising for all students on probation. This intrusive advising is a coordinated effort between associate dean, department head and advisors.*
  - BS in CSC – now two options
    - *Data on two options and split of current students will be clearer in the spring/fall of 2017. The number of undergraduate majors in CSC continues to grow. (200 in 2012 to nearly 400 in fall of 2017)*
  - HL – undergraduate and graduate programs
    - *HL has added online sections of all core undergraduate courses to allow flexibility for working students. All HL graduate courses are available online to accommodate working students.*
  - **Facilitate study groups in CNAS for interested students ### -**
    - *Associate Dean Rebaza coordinated 20 study groups in the fall of 2016 and nearly 30 in the spring of 2017. CNAS has met with Associate Provost Darabi and Bear Claw director Michael Frizzell to develop a stronger plan for fall 2017.*
  - **Engagement in student organizations ### -**



## Certificate completions -

Catalog	Certificate Program	Department	FY2014	FY2015	FY2016
<a href="#">Undergraduate Certificates</a>	<a href="#">Computational Science</a>	PAMS	-	-	-
	<a href="#">Geographic Information Sciences</a>	GGP	13	13	12
	<a href="#">Planning and Development</a>	GGP	-	-	-
	<a href="#">Food and Beverage Operations</a>	HL	-	-	-
<a href="#">Graduate Certificates</a>	<a href="#">Geospatial Information Sciences</a>	GGP	7	3	1
	<a href="#">Environmental Monitoring and Sampling</a>	GGP	-	-	-
	<a href="#">Hospitality Administration</a>	HL	-	-	-
	<a href="#">Planning and Development</a>	GGP	-	-	-
<a href="#">Interdisciplinary Programs</a>	<a href="#">Environmental Education</a>	BIO and GGP	-	-	-
	<a href="#">Conservation Law Enforcement</a>	CRM and BIO	-	-	-

- Start new MS program in computer science. ## - *Proposal approved by all entities. Applications being accepted as of June 9, 2017. Start in fall of 2017.*
- Provide evening, online and/or summer pathways for MNAS program – particularly for teachers who are interested in MS program. ## and ### - *A new MNAS publication is available and scheduling is available via the catalog and website.*
- Provide internships and advising for PSM program within MNAS – goal to graduate 6/year by 2018. Action Plan due after Career Day and PSM Conference in November. – *Have no specific action plan yet. Will send a team to PSM conference in November.*
- Continue to assess all degree programs to provide continuous improvement. ## - *Everyone is doing outstanding work.*
- Revise planning curriculum for the future (GGP) ## - *New curriculum is fully approved.*
- Curricular revision for BSED in science along with transition plan will be finalized in fall of 2017. ## - *New science degree programs have been approved. Working with COE on graduate certificate program.*
- HL continues to provide multiple pathways to degree completion (BS and BAS, on-campus and online). Their goal is to seek more CC partners for the completion program. ## and ### - *Much in progress and will continue.*
- Program Review – See summary above. ##
- MTH will begin a co-requisite class for MTH130 for all students with an ACT score of 20-21 by fall of 2017. ## - *MTH130/107 for all students with a math ACT of 20-21 starts in fall of 2017. Pilot for MTH135 co-requisite with MTH103 (in blocks) will be offered in spring 2018.*
- MTH Implement a statistically reliable mathematics placement exam to guide curriculum in co-requisite/prerequisite coursework.
- MTH will work with COB on an alternative algebra course that will be piloted in fall of 2018 with full implementation in fall of 2019. ## - *COB did not provide materials in 2017 for initial pilot but plan to do so soon. Economics is very interested in this project and will submit materials in summer of 2017 for a pilot to be developed as soon as possible.*
- CNAS will increase the number of graduate teaching assistantships in the college in 2017.
  - *Dollars were reallocated for more assistantships. Since FY14 \$204,985 has been added to TA funding in CNAS (reallocations within CNAS and allocations from provost). See the second table for FY18 allocations.*

2016-2017	TOTAL GAs with assistant ship	State Funded	Grant Funded	MNAS	Startup Funds
Biology	28	24	1	3	0
Bull Shoals Field Station	0.5	0.5	0	0	0
Chemistry	14	14	0	0	0
Computer Science	1	1	0	0	0
Geography, Geology & Planning	30.5	18.5	12	0	0
Hospitality Leadership	0.5	0	0.5	0	0
Mathematics	13	12	0	1	0
OEWRI (all GGP students)	4	0	4	0	0
Physics, Astronomy & Materials Science	18.5	15	1	1	1.5
<b>TOTAL AWARDED</b>	110	85	18.5	5	1.5

Department	FY18 TA Allocations	
BIO	\$267,589	Funds 25-30 TA's
CHM	\$156,921	Funds 14.5-17.5 TA's
CSC	\$40,000	Funds 4-4.5 TA's
GGP	\$162,810	Funds 15-18.5 TA's
HL	\$18,000	Funds 2 TA's
MTH	\$128,027	Funds 12-14.5 TA's
PAMS	\$137,418	Funds 12-15.5 TA's
MNAS	\$48,000	Funds 4.5-5.5 TA's

- **CNAS will work with Missouri S&T to start the mechanical engineering degree program pending approval of funding by the governor (year 1 students/classes only).**
- Connections with STEM Teachers in K-12 Education
  - While math teachers are here for Pummill Relays they receive professional development.
  - We reviewed the credentials for all dual credit teachers and we are working with them to ensure their eligibility to teach dual credit for Missouri State.
  - We stay connected with area STEM teachers through professional organizations and other communications.
  - Missouri State is the state-wide coordinator for Leopold Project and Project WET. We also help with Project Wild and Learning Tree. These are environmental education programs for K-12 teachers.
  - Patrick Sullivan (MTH) has external funding to work with area math teachers – using technology in the classrooms.
  - Jill Black (GGP) has external funding to do professional development for elementary teachers who want to know more science.
  - Donors helped to fund a scholarship for education students to help cover the costs of all of the new requirements from DESE for certification.



**Student Experience**

- Grow student organizations in CNAS by increasing student participation in current student organizations. HL added a student organization in fall 2016 and has increased participation by finding strategic gaps of time during the day to hold meetings and events. ### CNAS has helped to coordinate recruitment activities for student organizations.
- Provide opportunities for all CNAS students to experience a high impact academic experience. ## and ### Internships, service learning, study away, field trips and undergraduate research!
- Provide study groups for all students interested. ## and ### 20 active groups in fall of 2016. Need resources to continue to grow.

**Diversity and Inclusion**

- Continue to support the CNAS Diversity Committee ###
- All departments will include diverse seminar speakers each year. ###
- College leadership will participate in one professional development activity and then this opportunity will be offered to all faculty and staff in CNAS. ###
- Departments will be reviewing specific student diversity data in their programs to set goals for the future – recruitment and retention. ###
- Support student organizations in science with an emphasis on diversity. ###
- Continue to seek external funding to support recruitment and retention. ###

**Globalization**

- CNAS faculty will continue to offer short term study away programs. ### New trip to Chile in summer of 2017.

May 2016	Costa Rica BIO	Ana Estrella (WP)
May/June 2016	Russia GGP	Paul Rollinson
July/August 2016	Snake River, Idaho BIO	Dan Beckman
January 2017	Cuba BIO	Alexander Wait
March 2017	Jamaica GGP	Bob Pavlowsky
May 2017	Jamaica GGP	Bob Pavlowsky
July 2017	Chile GGP	Gary Michelfelder

- CNAS will support an exploratory trip to Peru in 2016-2017. ### Trip is complete. Participants working on trip plans.
- CNAS departments will provide activities to better integrate students from all nations. ###
  - CNAS will be hosting a 2017 activity for all students – picnic in May.

**Infrastructure**

- CNAS departments will use space efficiently and will not fill the hallways and closets with unnecessary items. – *Storage unit will be available in fall (major delay) which will help with this and the next one.*
- The college will provide off-site storage for some key materials that must be saved.
- CNAS will continue to advocate for additional research space for STEM faculty and students.
- Provide training for better use of Digital Measures *Two open computer lab sessions are scheduled for January and DM is now required as part of annual report. A report was developed to highlight student research with faculty.*

## Funding

- *60% all of CNAS faculty will seek external funding or have external funding in 2016-2017 – in FY2017 CNAS 57 CNAS Faculty/Staff submitted 165 proposals for external funding. Goal for 2017-2018 continues to be 60% of CNAS faculty will seek (or have) external funding and that we will submit more than 160 proposals.*

Grant and contract activity for FY 2017, through May:

### Missouri State University FY 17 Grant/Contract Activity by Unit

Unit	# Applying		# Awarded		Credit Share*			Actual**		
	Staff	Faculty	Staff	Faculty	Grants / Contracts		Award \$	Grants / Contracts		Award \$
					Submit	Awards		Submit	Awards	
Administrative Services	1	0	1	0	1	1	\$ 8,027	1	1	\$ 8,027
College of Agriculture	2	8	0	9	17	16	\$ 558,578	12	11	\$ 558,578
Center for Grapevine Biotechnology	0	1	0	1	3	2	\$ 66,080	3	2	\$ 66,080
Mid-America Viticulture & Enology Center	1	1	1	0	4	3	\$ 129,066	4	3	\$ 129,066
College of Arts & Letters	1	3	1	4	6	7	\$ 787,353	4	4	\$ 783,322
Center for Dispute Resolution	0	1	0	1	4	4	\$ 83,816	4	4	\$ 83,816
Center for Writing in College, Career, & Community	3	2	2	1	22	11	\$ 175,893	12	7	\$ 179,704
College of Business	0	1	0	1	5	5	\$ 1,798,619	6	5	\$ 1,798,619
Center for Project Innovation & Management	0	1	0	0	1	0	\$ -	1	0	\$ -
College of Education	3	12	3	9	25	21	\$ 1,244,223	18	20	\$ 1,212,052
Institute for Play Therapy	1	0	1	0	1	1	\$ 400	1	1	\$ 400
Institute for School Improvement	0	0	0	0	0	0	\$ -	0	0	\$ -
Southwest Regional Professional Development Center	3	1	2	1	9	8	\$ 1,289,954	8	7	\$ 1,289,954
College of Health & Human Services	7	16	2	17	40	34	\$ 1,486,057	29	27	\$ 1,489,824
Center for Research & Service	0	1	1	0	1	1	\$ 6,680	1	1	\$ 6,680
College of Humanities & Public Affairs	1	8	1	3	11	5	\$ 24,988	7	3	\$ 37,511
Center for Archaeological Research	2	1	2	1	8	8	\$ 88,028	6	6	\$ 88,027
Center for Community Engagement	0	0	0	0	0	0	\$ -	0	0	\$ -
Center for Economic Research	0	0	0	0	0	0	\$ -	0	0	\$ -
Center for Social Science & Public Policy Research	0	0	0	0	0	0	\$ -	0	0	\$ -
College of Natural & Applied Sciences	2	46	1	17	105	32	\$ 837,157	76	27	\$ 851,200
Bull Shoals Field Station	0	1	1	1	3	5	\$ 46,066	3	4	\$ 46,066
Center for Resource Planning & Management	5	0	3	1	24	15	\$ 717,790	15	10	\$ 817,790
Ozark Environmental Water Research Institute	1	1	1	1	14	12	\$ 364,280	8	6	\$ 270,106
Diversity & Inclusion	0	0	0	0	0	0	\$ -	0	0	\$ -
Graduate College	0	0	0	0	0	0	\$ -	0	0	\$ -
Information Services	2	0	0	0	3	0	\$ -	1	0	\$ -
Library	2	1	1	0	3	1	\$ 2,500	3	1	\$ 2,500
President	1	0	3	0	2	3	\$ 75,156	2	2	\$ 75,156
Provost	2	3	1	1	8	2	\$ 578,164	5	2	\$ 578,164
Ozarks Public Health Institute	0	1	0	1	11	11	\$ 317,416	9	9	\$ 313,649
Southwest Missouri Area Health Education Center	1	0	1	0	7	6	\$ 292,935	7	6	\$ 292,935
Research & Economic Development	5	0	4	0	21	21	\$ 2,019,861	17	17	\$ 2,019,861
Center for Applied Science & Engineering	3	0	4	0	12	13	\$ 1,177,860	6	7	\$ 1,177,860
Center for Biomedical & Life Sciences	0	1	0	1	19	16	\$ 414,685	19	16	\$ 414,685
International Leadership & Training Center	1	0	1	0	5	5	\$ 1,654,900	5	5	\$ 1,654,900
Jordan Valley Innovation Center	1	0	1	0	7	7	\$ 715,270	7	7	\$ 715,270
Small Business Development & Technology Center	1	0	1	0	7	6	\$ 236,257	7	6	\$ 236,257
Student Affairs	3	0	2	0	4	3	\$ 571,317	3	3	\$ 571,317
West Plains	5	4	2	2	11	5	\$ 262,827	11	5	\$ 262,827
<b>TOTAL</b>	<b>60</b>	<b>115</b>	<b>44</b>	<b>73</b>	<b>424</b>	<b>290</b>	<b>\$18,032,202</b>	<b>321</b>	<b>235</b>	<b>\$18,032,202</b>

\* Credit Share - divides the proposals/awards between the PI's, therefore proposals/awards may be reflected in the totals more than once.

\*\* Actual - proposals/awards will only be shown in the originating unit.

- Provide information to faculty about Sponsored Research and PIVOT on a regular basis. – Associate Dean Beckman and I regularly send information to department heads and faculty. Associate Dean Kim is working with Erin Parrish to set us up with the new grant funding database.
- Support interdisciplinary research. 3 workshops in summer of 2016 with seven presenters. We will continue to bring groups together during the year.
- Be informed of state/national/international funding programs so that CNAS faculty are positioned to submit outstanding grant proposals.

Peer reviewed publication totals by college -

Calendar Year	2012	2013	2014	2015	2016
College	#Contributions	#Contributions	#Contributions	#Contributions	#Contributions
	Value	Value	Value	Value	Value
Agriculture	10	2	5	7	4
Arts & Letters	60	108	115	81	87
Business	56	49	67	58	39
Education	27	38	20	18	27
Health & Human Services	52	50	49	48	30
Humanities & Public Affairs	105	69	87	64	69
Library Science, Dept of	2	7	3	2	3

Peer reviewed publications by CNAS department with CNAS totals-

Calendar Year	2012	2013	2014	2015	2016
Department	#Contributions	#Contributions	#Contributions	#Contributions	#Contributions
	Value	Value	Value	Value	Value
BIO	19	18	33	24	29
CHM	16	19	10	15	9
CSC	0	3	1	1	2
EGR	0	1	0	1	0
GGP	12	23	22	20	15
HL	2	2	2	4	5
MTH	8	15	5	8	8
PAMS	17	23	24	20	26
Total by COLUMNS	74	104	107	93	94

- ✓ It is clear from the data (grants submitted/received and publications) that CNAS has the strongest culture of research/scholarly activity at Missouri State University.

For the first time we were able to collect information about student co-authors on presentations and publications. The report (Digital Measures) from 2016 is shown below -

	Publications		Presentations	
	Undergraduate	Graduate	Undergraduate	Graduate
Department of Biology	7	17	34	62
Department of Chemistry	3	6	9	21
Department of Computer Science	3	2	0	0
Department of Geography, Geology, and Planning	5	6	2	13
Department of Hospitality Leadership	0	0	0	0
Department of Mathematics	6	2	0	0
Department of Physics, Astronomy, and Materials Science	9	10	16	12
Cooperative Engineering Program	1	4	0	0
Unassigned Department	0	2	0	8

### ***CNAS Interdisciplinary Research***

The college also distributed \$10,400 in incentives to faculty for submitting grants requesting in excess of \$30,000. These dollars are transferred to departments for faculty to use for travel or research expenses.

The college currently has allocated over \$1.3 million (one-time dollars) for start-up funds for tenure track faculty over the past five years. Of that \$458,302.20 is available to the faculty as of June 20, 2017. Another \$292,000 will be allocated after July 1. In addition, summer fellowships for newly hired tenure-track faculty are funded with one-time funds in the college. The start-up funds are typically spent within the first three years of a faculty member's time on campus. By year four many have external funding.

- ✓ CNAS Undergraduate Research Day – April 2017 - 65 undergraduate research posters. This was the eighth annual event!

## **Partners for Progress**

- ✓ CNAS continues to work on JVIC collaborations – Kartik Ghosh serves as liaison.
  - Fichter, Sakidja and Stepanova continue to have research space at JVIC through June 30, 2018.
  - Durham continues to lead CBLs as part of JVIC.
- ✓ Continue to work with community colleges
- ✓ Continue collaborations with K-12 schools and science/math competitions
- ✓ Continue collaborations with National Park Service and others
- ✓ The HL funded project with USA Funds and the Hawthorne Foundation has been very successful in developing partners even though we are only in the second year of a five year project.
- ✓ MSU remains the host institution in Missouri for Project WET, WILD and Learning Tree.
- ✓ Continue hosting regional science fair and science Olympiad and Pummill Relays.
- ✓ Continue to support GLADE a summer camp for science students
- ✓ Continue to partner with Springfield-Greene County Library on a projects
- ✓ Continue to partner with Discovery Center, Dickerson Park Zoo, Department of Conservation and others.
- ✓ HL faculty engaged with Missouri ProStart Schools
- ✓ CRPM and OEWRI continues to work with city, county and area communities.

## **Valuing and Supporting People**

### 2017 Promotions

- Promoted to Distinguished Professor
  - Bob Mayanovic - PAMS
- Promoted to Full Professor
  - Judy Meyer – GGP
  - Xin Miao – GGP
  - Adam Wanekaya - CHM
- Promoted to Senior Instructor
  - Kimberly Van Ornum - MTH

CNAS currently has seven distinguished professors.

### University Award Winners - 2016

### ***Missouri State University Foundation Awards for Teaching***

Paul Durham, Biology

- ✓ CNAS established a new awards process in 2011 for faculty and staff to recognize outstanding work. First awards given in May of 2012 and listed below are the 2017 award winners based on their 2016 performance.
  - **Atwood Research and Teaching Award**
    - Bob Mayanovic - Physics, Astronomy and Materials Science
  - **CNAS Excellence in Teaching Award Winners**

- Doug Gouzie - Geography, Geology and Planning
- Brian Greene - Biology
- Rajinder Jutla - Geography, Geology and Planning
- Laszlo Kovacs - Biology
- Mark Rogers – Mathematics
- Matt Siebert - Chemistry
- **CNAS Excellence in Service Award Winners**
  - Matt Pierson – Cooperative Engineering
  - Matt Siebert – Chemistry
  - Brian Greene – Biology
  - Brian High – Chemistry
  - Michelle Bowe - Biology
- **CNAS Excellence in Research Award Winners**
  - Bob Pavlowsky – Geography, Geology and Planning
  - Kyoungtae Kim – Biology
  - Peter Plavchan – Physics, Astronomy and Materials Science
  - Albert Barreda – Hospitality Leadership
- **Faculty/Staff Excellence Awards—Student Nominated, Student Selected**
  - Yungchen Cheng – Mathematics
  - Jorge Rebaza – Mathematics
  - Ken Vollmar – Computer Science
  - Eric Bosch - Chemistry
- **CNAS Excellence Awards – Staff**
  - Ben Dalton – Laboratory Supervisor – Biology
  - Sarah Morrissey - Administrative Assistant – Cooperative Engineering
  - Linda Allen – Administrative Assistant - Chemistry

NEW CNAS Faculty – tenure-track

2017 Krista Evans, GGP - PhD Clemson University

2017 David Perkins, GGP - PhD University of North Carolina - Greensboro

2017 Cyren Rico, CHM - PhD University of Texas – El Paso

2017 Babur Mirza, BIO – PhD Texas State University

2017 Yoshimasa (Nancy) Kageyama, HL – PhD University of Central Florida

New faculty/staff

Sandra Bales, Academic Administrative Assistant - HL

Tracy Carroll, Academic Administrative Assistant – GGP

Wajeana White, Instructor - HL

Tig Besara, Visiting Assistant Professor – PAMS

Two new math instructors to be named in July

## Responsible Stewardship

Fiscal_Year	2013			2014		
Department	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG
	Value	Value	Value	Value	Value	Value
BIO	177	199	88.94	178	228	78.07
CHM	159	222	71.62	152	276	55.07
CSC	216	278	77.7	209	251	83.27
GGP	185	230	80.43	185	220	84.1
HL	201	195	103.08	229	221	103.6
MTH	152	143	106.29	166	169	98.22
PAMS	228	252	90.48	224	240	93.3

✓ Dean and heads will allocate resources appropriately and college budget committee will continue to meet regularly. Unfortunately the Delaware data is always 2-3 years behind so it misses significant increases in enrollment. It also does not take into account the additional hires made recently for both departments. The most significant take-away from this chart is that we run an extremely efficient operation.

✓ Space review and reallocation

PAMS, GGP, BIO and CHM continue to have a need for research space. MTH and Computer Science have needs for renovated classrooms in Cheek Hall to support new teaching strategies and program growth in Computer Science. CSC will great benefit with the new 50 seat computer lab that will be completed by August of 2017. CSC still needs small research spaces as it starts a new graduate program in fall of 2017.

In an attempt to find under-utilized space an analysis was conducted in early 2016. Action plans were developed and plans were delayed until summer of 2017 (and now I have heard fall 2017) as the university rents storage space. Many spaces will be cleared out and reallocations will be completed by December of 2017 if the storage space is secured by the university.

✓ The college distributed a newsletter in May of 2016 for the first time in approximately 5 years. The distribution was via email and we have distributed one every six months since the first edition.

All departmental goals and accomplishments are noted in departmental reports available on CNAS website.



## **Executive SWOT Summary**

CNAS met nearly all of our goals for the year. A new action plan is developed each year. A draft is currently developed and will be finalized in September.

Goals that we continue to work on -

Increasing graduation rates for CNAS units - What if every department had a goal to graduate 25% of majors every year? What would that mean? What would you have to change or do different to make that happen? Questions remain unanswered in most cases but departments are working on answers.

Although the Bear Claw is useful to some first year students it is not at all useful to STEM students beyond their first course. CNAS is forming study groups to aid these students. 30 study groups were active in the spring semester of 2016. We hope to work with the Bear Claw in 2017-2018 to continue and expand the study groups.

Several departments now have certificate programs. An inventory with enrollment and completion data is complete and will be updated annually.

Strengths – Faculty/student research; excellence in teaching by many, many faculty; external funding (submissions are up, funding is steady); instrumentation and facilities; and outstanding students. Teaching facilities continue to improve.

Weaknesses – A few science teaching facilities remain dated; with budget cuts all centers are being forced to work toward being totally self-funded; need for more research space in the sciences – especially if we are to increase the number of STEM graduates.

Opportunities – Interest at the federal and state level to increase the number of STEM graduates; external funding opportunities in the sciences; MNAS program; PSM program; all graduate programs in the college. Graduate programs in the college could grow significantly with additional assistantships, faculty and space.

Threats – Declining state funding has decreased the number of tenure track/tenured faculty in the college which directly conflicts with the increasing student demand and the federal/state demands to increase STEM graduates. Lack of space for growth. Lack of recurring funding for service contracts on major instrumentation. Decrease in federal grant funding. Lack of outstanding STEM facilities impedes recruitment of students.

**Action Plan for 2017-2018 will be available in September**



CNAS list of goals for fundraising -

Prioritized CNAS Big Projects – Contact the dean if you have questions about any project.

#1 – Science/Public Health Facility on lot 19 - \$100 million

#2 - Renovations and namings (\$5 million)

Cheek Hall, Kings Street Annex, Plaster Center for Free Enterprise, Temple Hall, Kemper Hall, Pummill Hall

#3/4 - Baker Observatory - \$5 million

Bull Shoals field station - \$5 million

#5 – Greenhouse addition to Temple Hall - \$1,000, 000

#6 - Faculty Awards - \$2 million (program)

#7 - Equipment Fund - \$5 million (program)

Already started with over \$30,000!!!

#8 - Endowed Professorships (10 @ \$1 million each)

#9 - Scholarships, scholarships, scholarships!!!!

#10 - Science Summer Camp program for HS students - \$2 million (program)

**Specific Projects by Department –**

Chemistry – Speaker Series - \$5000

GGP – Endow the Fagerlin-Johnson-Moeglin Field Studies Scholarship - \$25,000

Establish the Robin Melton Memorial Scholarship - \$25,000

PAMS – PHYZBIZ and Baker Observatory (see above)

Bull Shoals Field Station – housing (see above)

BIO—Seeking funding for expansion of greenhouse; Advisory Board is committed to raising 20K for undergraduate research scholarships

CNAS Annual Faculty Awards - \$5000/year

CNAS Undergraduate Research Day - \$2000/year

CNAS Scholarship Funds for BSED students (expenses are \$650-750 with most expenses coming in the junior/senior years). Goal is to fund \$250/year for juniors and seniors. CNAS averages 60 students/year who are junior/senior BSED majors. Fully funded this would cost \$15,000/year. Even if we could start with a \$100/year scholarship it would be awesome.

CNAS Equipment Fund (\$5-million-dollar goal, dean contributed \$5K for \$25K raised – total is \$30 K) – Mike Minor (CHM alumnus) is matching \$1 for every \$5 dollar donated up to \$5K. Will use \$20 of first \$30 K for equipment now and the rest is going into an endowment – need \$5 million in the endowment!!)

## **CNAS Summary of Assessment Update –**

Departmental annual reports from 2016 included some assessment data and analysis. These reports are available upon request.

**Biology** – The department reviewed specific data on four SLO's in 2016 – 1) explain the historical context of biological discoveries; 2) evaluate information by discriminating between science and non-science; 3) Evaluate and interpret quantitative data using the scientific method; and 4) describe the diversity of life. For the first SLO the department looked at data from three different course exams in BIO320 and determined that students have achieved this learning outcome to their expectations. For the second SLO the department looked at data from four courses: 210, 511, 515 and 550 and determined that students have achieved this learning outcome to their expectations. Specific test questions were used for BIO210 analysis and course grades were used for the 500 level courses. For the third SLO the department looked at data from three courses: 361, 369, and 550 and determined that students have achieved this learning outcome to their expectations. It was noted that students at the 300 level struggle with this topic but that the outcome in 550 was outstanding. For the fourth SLO the department looked at data from BIO122 and 380. It was noted that in BIO380 student's grades on the "diversity exam" correlated well with course final grades.

**Chemistry** – The department reviewed MFAT exam data for graduates. In addition the department reviews undergraduate research reports using a rubric that addresses three learning outcomes. They have used the same learning outcomes and SLO's for the past three years to analyze trends. The undergraduate research reports show that students are meeting all SLO expectations documented. One item that the department has learned is that students take CHM399 without progressing to CHM499. The CHM499 course offers significant opportunities for students to publically communicate their work. The department is reviewing this outcome to develop an action plan.

**Computer Science** – The department has collected data on all SLO's and courses as required for their ABET accreditation. A report to ABET in summer of 2018 with a visit in 2018-2019. The outcome of the 2016 assessment process was generally positive, with actions generally related to the issues of shifting curricular material from course to course and updating course material. Specifics will be included in the ABET report of 2018.

**GGP** – Program changes were made to reduce credit hours required for geography, geology and planning. The faculty teaching GRY100 use a pre-test/post-test to assess student learning in the course. Scores typically increase by 10-20 points for students each semester. Students of GLG358 were given a survey to determine if they thought they had met SLO's. Geography, geospatial science and geology programs give an exit exam each year. The geology exam is a national exam while the other two were developed in house. The data from the exams were reviewed with the faculty. The department plans to look at correlation of

exam results to student GPA. They also want to examine exam subscores.

HL – All SLO's were measured by at least one direct measure in 2016. The department noted the following areas of success: ethical leadership, corporate culture and performance as measured in HRA490, performance on National Restaurant Associate ServSafe exam, business skills and oral/written communication skills. Areas of concern include analysis of Case Studies to apply leadership theories to the workplace, understanding of emerging industry segments, operations support and quantitative reasoning. An action plan is in place.

MTH – The math faculty focused on MTH261 (Calculus I) and MTH280 as they reviewed assessment data. The faculty compared final exam grades to final course grades for the students this past year. The faculty also reviewed MTH315 and its effectiveness in preparing students for MTH503 and 532. MTH315 was found to be good preparation for both courses. The faculty also reviewed MFAT results for all graduates.

PAMS – PAMS faculty use a short written paper in PHY386 to see if students can identify and apply ethical principles within the field. At this point the department is not using a standard rubric to assess the papers. A pre/post ethics survey will be given in the future. Written and oral communication skills are measured in the lab components of PHY203 and 204. Students tend to do better in 204 and the faculty believe that it is due to students learning through the coursework to write better lab reports. Communication skills improve over time. Grades in PHY385 were used to determine that students can design and conduct an experiment. Grades in PHY291 were used to determine that students can understand analytical/numerical techniques.