CNAS 2017 Annual Report
Submitted in July 1, 2018
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.

Mission - 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.

Vision - 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 the CNAS website. All college annual reports are posted on the college website. All department annual reports, which include assessment reports, are posted on a password protected website – click on assessment and reports.

Program Review/Accreditation/Action Plans Update –

Biology – Action Plan accepted March of 2016. The department has started offering more online course opportunities for students. The vivarium space is being fully utilized and the faculty helped to develop a usage policy. Department needs more greenhouse space and construction should begin soon. The faculty continue to work with COA to revise the curriculum of the Wildlife and Conservation Management program.
Chemistry –External review in fall of 2017. Action plan written, submitted and accepted in June of 2018. The department worked with others to develop a new pathway to teacher certification in the sciences. The other action items are a work in progress.
Computer Science – Accredited through 2019. Next accreditation report submitted in June of 2018 with site visit November 25-27, 2018.
Geography, Geology & Planning – Action plan for department accepted Spring of 2017. The GGP faculty identified seven research foci: solid earth surficial processes, geospatial sciences, water resources and environmental assessment, human geography and planning, landscape and culture, and sustainability. A space master plan was developed that reallocated space within the department to increase the amount of research space. All undergraduate programs have been revised over the past two years to benefit students.
Hospitality Leadership – Accreditation through summer of 2018. Accreditation team visited campus in spring of 2018, response was submitted June 1 and final accreditation letter should be sent in summer of

2018 – meeting is July 13.

Cooperative Engineering Program – ABET Accredited through Missouri S&T and the next ABET review will be in the fall of 2020. Hope to begin mechanical engineering program in fall of 2019.

Mathematics –Action Plan accepted in spring of 2018. Math pathway curricular changes complete with full implementation in 2018-2019. A review of the graduate program based on external reviewer comments was completed which resulted in one major change (decrease in requirement of number of seminar papers) and affirmation of several current practices. The faculty have noted that the gender diversity of the faculty does not match that of the student population which is 55% women. The department will fund a seminar program that focuses on women in mathematics.

Physics, Astronomy & Materials Science – Action plan accepted in summer of 2017. This plan involved five components. So far some data has been collected for the introductory course and additional action items have been added. The retention/recruitment/outreach team has updated four-year plans and is working on other action items. The computational team has worked with faculty to add computational projects to several courses. The other two action items were related to the graduate program and diversity.

Academic Profile

- Strategies to increase CNAS Graduates
  - Proactive advising – CNAS has employed several strategies
    - Contacted all advisees with more than 95 credit hours to ensure a path to graduation
    - Contact all graduate students annually to ensure all have a path to graduation.
    - Provide a more proactive student approach to students on probation to include required visits to advisor and associate dean.
    - *In the fall of 2018 8-10 CNAS advisors will be trained with COAL in proactive advising.*
  - Degree program growth
    - CSC has two tracks for completion at the BS level. The number of undergraduates has doubled since 2014.
    - HL has invested in a BAS program – putting it all online and proactively contacting community colleges to write articulation agreements. Growth has been slower than expected but the department has received a number of calls regarding an online option for the BS program. A plan is in place that will allow this to happen in the near future. If this takes off – additional faculty will be required.

Data on pages 3-5 – Number of graduates in each department for the past five years, percentage of students completing their degrees in each department, fall headcount of majors for the last five years, the number of faculty and staff in each department, college and department credit hour production and Delaware comparison data for each department.

CNAS - STEM Graduates

Biology	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	18	20	20	24	18
Undergraduate	122	112	114	111	128
Total	140	132	134	135	146

Chemistry	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	9	7	12	13	8
Undergraduate	17	29	29	21	25
Total	26	36	41	34	33

Computer Science	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	1	3	1	2	2
Undergraduate	18	21	36	41	58
Total	19	24	37	43	60

Geography, Geology & Planning	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	15	19	19	15	26
Undergraduate	77	60	64	65	52
Total	92	79	83	80	78

Hospitality Leadership	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	0	0	0	0	1
Undergraduate	65	58	92	73	61
Total	65	58	92	73	62

Mathematics	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	10	8	13	22	12
Undergraduate	32	31	28	36	30
Total	42	39	41	58	42

Physics, Astronomy & Materials Science	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	15	19	19	15	26
Undergraduate	77	60	64	65	52
Total	92	79	83	80	78

Percentage of students completing BS or MS degrees (no certificates) compared with total majors.

Department	Overall % grads	BS % grads	MS % grads
CNAS GOALS	**25%**	**25%**	**50%**
Biology	18.6%	17.4%	38.3%
Chemistry	15.9%	13.3%	42.1%
Computer Science	15.7%	15.5%	
GGP	41.7%	34.0%	76.5%
Hospitality Leadership	26.5%	26.3%	50%
Mathematics	23.6%	20.4%	38.7%
PAMS	37.5%	28.1%	73%

Biology	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
Graduate	48	51	43	42	47
Undergraduate	601	658	648	700	737
Total	649	709	691	742	784

Chemistry	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
Graduate	23	22	24	23	19
Undergraduate	176	206	204	202	188
Total	199	228	228	225	207

Computer Science	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	4	2	5	3	10
Undergraduate	193	284	299	351	373
Total	197	286	304	354	383

Geography, Geology & Planning	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	38	25	32	34	34
Undergraduate	186	195	189	172	153
Total	224	220	221	206	187

Hospitality Leadership	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	0	0	0	0	2
Undergraduate	224	232	198	239	232
Total	224	232	198	239	234

Mathematics	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	31	36	36	25	31
Undergraduate	139	153	165	145	147
Total	170	189	201	170	178

Natural & Appl Sci/Engineering	FY 2013	FY2014	FY2015	FY2016	FY2017
Undergraduate	160	225	209	195	193
Total	160	225	209	195	193

Physics, Astronomy & Materials Science	FY 2013	FY2014	FY2015	FY2016	FY2017
Graduate	18	17	18	21	15
Undergraduate	72	67	74	65	57
Total	90	84	92	86	72

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

2018 (SP)	Tenured/tenure-track Faculty	Instructors/Lab supervisors
BIO	18.0 FTE 17 FT + Head +AD	1/5
CHM	16 FTE 15.5 FT + Head	2/0
CSC	7 FTE 7 FT + Interim Head	0/0
GGP	19 FTE 18 FT + Head + AD	3/0
HL	5 FTE 4.5 FT + Head	3/0
MTH	23 FTE 22 FT + Head	13/0
PAMS	12 FTE 11.5 FT + Head	1/1
EGR	6 FTE (2 FTE MSU, 4 MO S&T) 5.5 + Director (S&T)	0/2 (MSU)

Although number of majors and number of graduates are important, it is also important to note credit hour production.

Calendar Year (SP/SU/FA)	2011	2012	2013	2014	2015	2016	2017
Agriculture	5,071	10,269	11,712	12,991	14,156	16,245	16,892
Arts & Letters	94,767	94,568	95,427	94,977	97,399	102,112	103,230
Business	102,843	99,138	100,350	100,030	106,171	108,149	110,736
Education	34,558	34,186	34,350	35,250	37,001	39,031	40,799
Health & Human Services	78,038	80,602	84,133	86,817	87,506	90,905	93,661
Humanities & Public Affairs	77,050	79,140	78,205	79,473	82,330	84,578	86,056
Library Science, Dept of	292	272	253	237	118	104	79
Natural & Applied Sciences	92,866	88,306	87,441	87,435	89,271	95,135	93,825
Undergraduate College/Provost	7,028	7,041	7,800	8,046	9,175	9,697	9,544
Total by COLUMNS	492,513	493,522	499,671	505,256	523,127	545,956	554,846

Credit hours production (total)	FY 2016	FY 2017
Biology	17484	18150
Chemistry	18335	18429
Computer Science	4322	4322
GGP	15613	15417
Hospitality Leadership	4216	4240
Mathematics	24870	23607
PAMS	8888	8337
EGR and SCI classes	1407	1313

Most recent Delaware data for CNAS departments.

FY 2012	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG
BIO	163	199	81.91
CHM	151	222	68.02
CSC	232	278	83.45
GGP	296	394	155.74
HL	216	195	110.77
MTH	136	143	95.10
PAMS	206	252	81.75

FY 2013	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG
BIO	175	217	80.65
CHM	141	247	57.09
CSC	164	239	68.62
GGP	315	389	80.98
HL	185	202	91.58
MTH	149	166	89.76
PAMS	209	211	99.05

FY 2014	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG
BIO	178	219	81.28
CHM	152	256	59.38
CSC	209	227	92.07
GGP	369	423	87.23
HL	229	210	109.05
MTH	166	169	98.22
PAMS	224	226	99.12

FY 2015	MSU SCH COST	DE AVG SCH COST	MSU SCH DEL AVG
BIO	165	235	70.21
CHM	147	244	60.25
CSC	219	246	89.02
GGP	366	425	86.12
HL	249	249	100
MTH	158	173	91.33
PAMS	205	242	84.71

- Academic Profile - continued
  - CNAS focused on increasing the number of online course and certificate programs.
    - A bootcamp in 2017 added 12 new classes and the central column shows the increases! A few additional courses will be added in the coming year.

- CNAS added seven new undergraduate, one new graduate and one new interdisciplinary certificate in the past year.

Department	Blended FY 16–17	Blended FY 17–18
BIO (FA, SP, SU)	5-4	2-1-0
CHM	5-4	2-4-0
GGP	3-3	0-1-1
HL	7-8	6-9-0
MTH	2-2	1-0-0
PAMS	0-0	0-0-0
CSC	0-0	1-1-0

Department	Online FY 16–17 (FA-SP)	Online FY 17–18 (FA-SP-SU)
BIO (FA, SP, SU)	5-4	2-1-0
CHM	5-4	2-4-0
GGP	3-3	0-1-1
HL	7-8	6-9-0
MTH	2-2	1-0-0
PAMS	0-0	0-0-0
CSC	0-0	1-1-0

Department	i-Course FY 16–17	i-Course FY 17–18 (FA-SP-SU)
BIO (FA, SP, SU)	5-4	2-1-0
CHM	5-4	2-4-0
GGP	3-3	0-1-1
HL	7-8	6-9-0
MTH	2-2	1-0-0
PAMS	0-0	0-0-0
CSC	0-0	1-1-0

- *Certificate Enrollments –*

Certificate Program	Level	Dept.	Added to Catalog	# Credit Hrs	FA 2016	SP 2017	FA 2017	SP 2018
Computational Science	UG	PAMS	FA 2014	18	-	-	-	-
Geographic Information Sciences	UG	GGP	FA 2002	18	6	7	7	5
Planning and Development	UG	GGP	SP 2003	13	1	-	-	16
Food and Beverage Operations	UG	HL	FA 2017	15	-	-	23	65
Web Programming	UG	CSC	all approved	16	-	-	-	n/a
Applied GIS	UG	GGP	challenge period	13-15	-	-	-	m/a
Engineering Geology	UG	GGP	challenge period	13-15	-	-	-	n/a

Certificate Program	Level	Dept.	Added to Catalog	# Credit Hrs	FA 2016	SP 2017	FA 2017	SP 2018
Environmental Geoscience	UG	GGP	challenge period	13-14	-	-	-	n/a
Geologic Foundations	UG	GGP	challenge period	13-14	-	-	-	n/a
Globalization and Sustainability	UG	GGP	challenge period	12	-	-	-	n/a
Petroleum Geology	UG	GGP	challenge period	13-14	-	-	-	n/a
Geospatial Information Sciences	GR	GGP	FA 2006	12	4	7	8	9
Environmental Monitoring & Sampling	GR	GGP	SP 2017	12	-	6	3	1
Hospitality Administration (online)	GR	HL	SP 2017	12	-	3	4	3
Planning and Development	GR	GGP	FA 2017	13	-	-	-	-
Data Science	GR	CSC	provost review	18	-	-	-	n/a
Petroleum Geology	GR	GGP	challenge period	13-14	-	-	2	-
Environmental Education	UG	BIO/GGP	FA 2016	14-16	3	5	5	5
Conservation Law Enforcement	UG	CRM/BIO	FA 2017	18-19	-	-	2	-
Foundations of Pharmaceutical Science	UG	CHM/BIO/BMS	challenge period	17-18	-	-	-	n/a

Certificate completions – In FY2017 twenty-one students completed one of the CNAS certificate programs. In FY2018 sixty-three students completed one of the CNAS certificate programs.

Certificate Program	**Level**	**Department**	**FY 2017**	**FY 2018**
Computational Science	UG	PAMS	-	
Geographic Information Sciences	UG	GGP	2	5
Planning and Development	UG	GGP	1	4
Food and Beverage Operations	UG	HL	9	37
Web Programming	UG	CSC	n/a	n/a
Applied GIS	UG	GGP	n/a	n/a
Engineering Geology	UG	GGP	n/a	n/a
Environmental Geoscience	UG	GGP	n/a	n/a
Geologic Foundations	UG	GGP	n/a	n/a
Globalization and Sustainability	UG	GGP	n/a	n/a
Petroleum Geology	UG	GGP	n/a	n/a
Geospatial Information Sciences	GR	GGP	3	10
Environmental Monitoring and Sampling	GR	GGP	2	2
Hospitality Administration (online)	GR	HL	-	

Certificate Program	Level	Department	FY 2017	FY 2018
Planning and Development	GR	GGP	-	
Data Science	GR	CSC	n/a	n/a
Environmental Education	UG	BIO and GGP	4	5
Conservation Law Enforcement	UG	CRM and BIO	-	
Foundations of Pharmaceutical Science	UG	CHM / BIO / BMS	n/a	n/a

Other accomplishments related to "Academic Profile"

- Started new MS program in computer science. Enrollments are lower than we had planned – 13 current students. So far 14 students have been admitted to start in the fall.
- The PSM advisory board has been restarted and will meet late in June.
- Curricular revision for BSED in science along with transition plan will be finalized in fall of 2018. New science degree programs have been approved. Faculty are working on a graduate advanced science certificate program to help with dual credit certification. By Oct of 2018 all students will be placed in the new degree programs and tagged to complete the current BSED programs.
- 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.
- MTH began a co-requisite class (MTH107) for MTH130 for all students with an ACT score of 20-21. In fall of 2017 75% of students participating in the co-requisite passed MTH130. Beginning in the fall of 2018 students with an ACT of 19-21 will be enrolled in the co-requisite course. In spring of 2018 MTH offered MTH103 first block and MTH135 second block. Only 15 students participated in this option with a pass rate of 55% (small sample size). As the new math pathways are initiated in fall of 2018 the department will explore options.
- CNAS will work with Missouri S&T to implement the mechanical engineering degree program. The plan will be approved by the start of fall of 2018.
- Connections with STEM Teachers in K-12 Education
  - While math teachers are here for Pummill Relays they receive professional development.
  - CNAS departments reviewed the credentials for all dual credit teachers and departments are working with them to ensure their eligibility to teach dual credit for Missouri State.
  - Departments 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.
- Graduate Programs within CNAS are well supported and strong.

2017-2018	TOTAL GAs with Assistantships	State Funded	Grant and Contract Funded	MNAS	Startup Funds
Biology	36.5	26	8.5*	2	
Chemistry	16.5	15.5		1	
Computer Science	3.5	3.5			

2017-2018	TOTAL GAs with Assistantships	State Funded	Grant and Contract Funded	MNAS	Startup Funds
EGR	0.5				0.5
GGP	20	18	1	1	
Hospitality Leadership	1.5	1.5			
Mathematics	13.5	13.5			
OEWRI (all GGP Students)	6.5		6.5		
PAMS	15	13.5	0.5	1	
TOTAL	**113.5**	**95.5**	**12.5**	**5**	**0.5**

*Four TA's are funded by OTC.

Department	FY19 TA Allocations	Funds
BIO	$267,589	Funds 25-30 TA's
CHM	$156,921	Funds 14.5-17.5 TA's
CSC	$60,000	Funds 6-7 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

Student Experience

- A student expo is held each fall semester to recruit new members into the various CNAS student organizations and the leaders of student organizations within CNAS meet with Dean's staff on a regular basis.
- Provide opportunities for all CNAS students to experience a high impact academic experience – note undergraduate research presentation and publication data on page 11In 2015 we distributed nearly $150,000 in foundation scholarships. It has become clear that the common application for foundation scholarships is not user friendly and that students are not applying for this money. In 2017 CNAS distributed under $110,000 in foundation scholarships. Student Scholarship Winners are recognized throughout the year. Chemistry (April), Mathematics (September), Biology (September) and Hospitality Leadership (September) hold annual picnics/banquets/receptions to recognize scholarship recipients and donors. CNAS will recognize all recipients on a website, in a press release and in newsletter.

2017-2018 CNAS Scholarship Totals

Committee/ Department	Scholarships Awarded	Total Award Amount
Biology	12	$6,000.00
Chemistry	17	$17,500.00
CNAS- Bio/ Chem Joint	1	$1,000.00
College of Natural and Applied Science	17	$1,700.00
Computer Science	11	$8,235.00

Committee/ Department	Scholarships Awarded	Total Award Amount
Geography and Planning	3	$1,750.00
Geography, Geology, and Planning	8	$6,300.00
Geology	3	$1,750.00
Mathematics	30	$29,585.00
Hospitality Leadership	16	$22,400.00
Physics, Astronomy, and Materials Science	17	$12,650.00
TOTALS:	**135**	**$108,870.00**

Diversity and Inclusion

- CNAS Diversity Committee held the most successful spring picnic ever in 2018.
- Diversity Conference allowed for professional development for all faculty and staff. All were encouraged to attend this event.
- Continue to 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.

Date	Location	Faculty member (number of students)
July 2017	Chile	Gary Michelfelder (8 students)
March 2017	Jamaica	Bob Pavlowsky (10)
May 2017	Costa Rico (with WP)	Ana Estrella-Riollana (4)

Infrastructure

- CNAS departments will use space efficiently and will not fill the hallways and closets with unnecessary items. The hallways and storage rooms are in much better shape which has allowed for some additional research space for faculty and students.
- The university has provided 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.

Research

- The college also distributed $7,600 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 $1.4 million (one-time dollars) for start-up funds for tenure track faculty over the past five years. Of that $538,163 is available to the faculty as of June 4, 2018. Another $260,000 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 – May 2018 - 60 undergraduate research posters. This was the ninth annual event!

Peer reviewed publication totals by college – number of contributions

Calendar Year	2012	2013	2014	2015	2016	2017
Agriculture	10	2	5	7	4	6
Arts & Letters	60	108	115	81	87	88
Business	56	49	67	58	39	49
Education	27	38	20	18	27	38
Health & Human Services	52	50	49	48	30	32
Humanities & Public Affairs	105	69	87	64	69	77
Library Science, Dept of	2	7	3	2	3	2

Peer reviewed publications by CNAS department with CNAS totals – number of contributions by calendar year

Calendar Year	2012	2013	2014	2015	2016	2017
CNAS total	74	104	107	93	94	109
BIO	19	18	33	24	29	31
CHM	16	19	10	15	9	13
CSC	0	3	1	1	2	3
EGR	0	1	0	1	0	1
GGP	12	23	22	20	15	17
HRA	2	2	2	4	5	4
MTH	8	15	5	8	8	12
PAMS	17	23	24	20	26	28
Total by	74	104	107	93	94	109

- The table below indicates the number of students listed as co-authors of publications and presentations.

Department	UG Publications	Grad Publications	UG Presentations	Grad Presentations
BIO	14	33	56	50
CHM	4	10	14	18
CSC	2	1	8	0
GGP	2	8	117	76
HL	0	0	0	0
MTH	9	2	0	0
PAMS	13	12	4	17
COOP EGN.	3	3	0	0

Funding

- CRPM and OEWRI will be totally self-funded in FY19. Both centers have funding to meet current staffing needs and the demands of southwest Missouri.
- 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. Grant activity for FY18 through May of 2018 follows:

Unit	#Staff Applying / Awarded	#Faculty Applying / Awarded
Administrative Services	1/0	0/0
College of Agriculture	1/1	7/6
Center for Grapevine Biology	0/0	1/1
Mid-America Viticulture	2/2	1/1
College of Arts & Letters	0/0	2/3
Center for Dispute Resolution	0/0	1/1
Center for Writing in College	3/2	1/1
College of Business	0/0	1/1
Center for Project Innovation	0/0	0/1
College of Education	2/2	8/5
Agency for Teaching, Leading & Lang.	2/0	1/1
Institute for Play Therapy	0/0	0/0
Institute for School Improvement	0/0	0/0
College of Health & Human Services	2/3	20/17
Center for Research & Service	0/0	0/0
College of Humanities & Public Affairs	0/0	5/1
Center for Archaeological Research	2/2	1/1
Center for Community Engagement	0/0	0/0
Center for Economic Research	0/0	0/0
Center for Social Sciences	0/0	0/0
College of Natural & Applied Sciences	2/0	35/12
Bull Shoals Field Station	0/0	1/1
Center for Resource Planning	3/3	0/0
Ozark Environmental & Water Res. Inst.	1/1	1/1
Diversity & Inclusion	1/0	0/0
Graduate College	0/0	0/0
Information Services	0/0	0/0
Library	1/0	4/2
President	1/1	0/0
Provost	2/1	2/2
Ozarks Public Health Institute	0/0	1/1
Southwest MO Area Health Edu Ctr	1/1	0/0
Research & Economic Development	4/4	0/0
Center for Applied Science & Engineering	4/4	0/0
Center for Biomedical & Life Sciences	0/0	1/1
International Leadership & Training Ctr.	0/0	0/0
Jordan Valley Innovation Center	1/1	0/0
Small Business & Tech Dev. Center	1/1	0/0
Student Affairs	1/2	0/0
West Plains	4/5	4/2
Total	42/36	98/62

Unit	Credit Share* Grants Submitted/ Contract Awards	Award $
Administrative Services	1/0	-

Unit	Credit Share* Grants Submitted/ Contract Awards	Award $
College of Agriculture	19/18	$229,526
Center for Grapevine Biology	3/2	$84,964
Mid-America Viticulture	6/7	$431,646
College of Arts & Letters	2/3	$582,241
Center for Dispute Resolution	4/4	$54,383
Center for Writing in College	13/10	$111,908
College of Business	4/4	$1,763,325
Center for Project Innovation	0/1	$30,000
College of Education	15/12	$745,884
Agency for Teaching, Leading & Lang.	9/6	$1,395,377
Institute for Play Therapy	0/0	-
Institute for School Improvement	0/0	-
College of Health & Human Services	41/37	$1,571,433
Center for Research & Service	0/0	-
College of Humanities & Public Affairs	6/2	$421,875
Center for Archaeological Research	15/12	$535,074
Center for Community Engagement	0/0	0/0
Center for Economic Research	0/0	-
Center for Social Sciences	0/0	-
College of Natural & Applied Sciences	65/20	$1,456,753
Bull Shoals Field Station	3/3	$18,992
Center for Resource Planning	14/15	$618,530
Ozark Environmental & Water Res. Inst.	11/9	$243,152
Diversity & Inclusion	1/0	-
Graduate College	0/0	-
Information Services	0/0	-
Library	6/2	$6,555
President	2/3	$620,368
Provost	8/6	$725,341
Ozarks Public Health Institute	9/9	$885,188
Southwest MO Area Health Edu Ctr	6/6	$200,870
Research & Economic Development	20/20	$1,824,136
Center for Applied Science & Engineering	11/11	$4,146,762
Center for Biomedical & Life Sciences	7/8	$162,359
International Leadership & Training Ctr.	0/0	-
Jordan Valley Innovation Center	7/7	$819,416
Small Business & Tech Dev. Center	5/7	$351,381
Student Affairs	1/3	$305,373
West Plains	13/9	$1,038,034
Total	327/256	$21,380,845

*Credit Share – divides the proposals/awards between the PI's, therefore proposals/awards may be reflected in the totals.

Unit	Actual* Grants Submitted/ Contract Awards	Award $
Administrative Services	1/0	-

Unit	Actual* Grants Submitted/ Contract Awards	Award $
College of Agriculture	16/14	$229,526
Center for Grapevine Biology	2/2	$84,964
Mid-America Viticulture	5/6	$431,646
College of Arts & Letters	1/3	$582,241
Center for Dispute Resolution	4/4	$54,383
Center for Writing in College	8/6	$111,908
College of Business	4/4	$1,763,325
Center for Project Innovation	0/1	$30,000
College of Education	14/12	$745,884
Agency for Teaching, Leading & Lang.	7/6	$1,395,377
Institute for Play Therapy	0/0	-
Institute for School Improvement	0/0	-
College of Health & Human Services	32/28	$1,514,697
Center for Research & Service	0/0	-
College of Humanities & Public Affairs	5/2	$421,875
Center for Archaeological Research	10/8	$535,074
Center for Community Engagement	0/0	-
Center for Economic Research	0/0	-
Center for Social Sciences	0/0	-
College of Natural & Applied Sciences	47/19	$1,444,753
Bull Shoals Field Station	3/3	$18,992
Center for Resource Planning	10/10	$618,530
Ozark Environmental & Water Res. Inst.	8/7	$255,152
Diversity & Inclusion	2/0	-
Graduate College	0/0	-
Information Services	0/0	-
Library	4/2	$6,555
President	2/3	$620,368
Provost	8/6	$725,341
Ozarks Public Health Institute	9/9	$941,924
Southwest MO Area Health Edu Ctr	6/6	$200,870
Research & Economic Development	16/16	$1,824,136
Center for Applied Science & Engineering	7/7	$4,146,762
Center for Biomedical & Life Sciences	7/8	$162,359
International Leadership & Training Ctr.	0/0	-
Jordan Valley Innovation Center	7/7	$819,416
Small Business & Tech Dev. Center	5/7	$351,381
Student Affairs	1/3	$305,373
West Plains	12/8	$1,038,034
Total	263/217	$21,380,845

*Credit Share – divides the proposals/awards between the PI's, therefore proposals/awards may be reflected in the totals.

Partners for Progress

- ✓ Continue to work with community colleges
- ✓ Continue collaborations with K-12 schools and science/math competitions
- ✓ Continue collaborations with National Park Service and others
- ✓ MSU remains the host institution in Missouri for Project's 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 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 continue to work with city, county and area communities.

Valuing and Supporting People

2018 Promotions
Promoted to Distinguished Professor
Shouchuan Hu - MTH
Promoted to Full Professor
Jun Luo – GGP
Mark Rogers – MTH
Jamil Saquer - CSC
Tenure granted
Ridwan Sakidja - PAMS
Promoted to Associate Professor with tenure
Matthew Siebert - CHM

CNAS currently has eight distinguished professors.

University Award Winners - 2018

Missouri State University Foundation Awards for Research
Kyoungtae Kim, Biology
Ridwan Sakidja, Physics, Astronomy and Materials Science
Missouri State University Foundation Awards for Service
Paul Durham, Biology

Missouri State University Excellence in Community Service Award
Rich Biagioni, Chemistry

Board of Governors Excellence in Public Affairs Award
Abbe Ehlers, Hospitality Leadership

- ✓ 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 2018 award winners based on their 2017 performance.

  - **Atwood Research and Teaching Award**
    - Kyoungtae Kim - Biology
  - **CNAS Excellence in Teaching Award Winners**
    - Tony Clark – Computer Science
    - Paul Durham - Biology
    - Janice Greene - Biology
    - Patrick Sullivan – Mathematics
    - Jeff Thomas – Cooperative Engineering

- **CNAS Excellence in Service Award Winners**
  - Chris Barnhart – Biology
  - John Heywood - Biology
- **CNAS Excellence in Research Award Winners**
  - Eric Bosch – Chemistry
  - Razib Iqbal – Computer Science
  - Steven Senger – Mathematics
- **Faculty/Staff Excellence Awards—Student Nominated, Student Selected**
  - Dave Cornelison – Physics, Astronomy and Materials Science
  - Katye Fichter – Chemistry
  - La Toya Kissoon-Charles – Biology
  - Razib Iqbal – Computer Science
- **CNAS Excellence Awards – Staff**
  - Robin Powell – Administrative Assistant – Computer Science
  - Rachel Rigby - Administrative Assistant – Biology

NEW CNAS Faculty – tenure-track

2018 Liza Cobos, HL - PhD University of Central Florida
2018 Jacob Hendricks, CSC - PhD University of Arkansas
2018 Tiglet Besara, PAMS - PhD Florida State University
2019 Sarah Morrison, PAMS – PhD University of Arizona

NEW DEPARTMENT HEADS

- Ajay Katangur – Computer Science (Btech – India, MS and PhD – Georgia State University) 2004-2018 – Faculty member at Texas A&M – Corpus Christi
- Robert Mayanovic – Physics, Astronomy and Materials Science (BS Missouri State University, MS and PhD Purdue University) 1992-present – Faculty member at Missouri State University

New faculty/staff

2018 Melanie E. Carden-Jessen, Instructor, GGP – MS Missouri State University
2018 Scott Curis, Instructor, CHM – MS Missouri State University

Space review and reallocation

PAMS, GGP, BIO and CHM continue to have a need for research space. CNAS moved out of JVIC space and back into Kemper and Temple Halls. This will exacerbate the research space issue but it will allow for more collaboration to occur.
MTH and Computer Science have needs for renovated classrooms in Cheek Hall to support new teaching strategies and program growth in Computer Science. CSC benefits with the new 50 seat computer lab was completed in August of 2017. CSC still needs small research spaces.

All departmental 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 under development and will be finalized in early September.

Goals that we continue to work on -

Retention and completions are still a challenge for many CNAS departments for a variety of reasons. All units are reviewing data and will have an action plan to address the challenge of completing 25% students with BS or MS degrees each year (or maintaining enrollment if their percentage is higher – a recruitment challenge.)

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

Weaknesses – A few science teaching facilities remain dated; need for more research space in the sciences – especially if we are to increase the number of STEM graduates. With dated science labs and facilities – recruitment is more difficult!

Opportunities – Interest at the federal and state level to increase the number of STEM graduates; external funding opportunities in the sciences; PSM program; strategic uses of online education in all units. Graduate programs in the college could grow significantly with additional assistantships, faculty and space. New programs that would allow for increased revenue.

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 2018-2019 will be available in September

CNAS list of goals for fundraising as of June 2018 -

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 - Baker Observatory - $5 million

#4 – Greenhouse addition to Temple Hall - $100,000 for supplies

#5 - Faculty Awards - $2 million (program)

#6 - Equipment Fund - $5 million (program) Already started with over $30,000!!!

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

#8 - Scholarships, scholarships, scholarships!!!!

#9 - 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)
- BIO—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 secondary teacher education 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 STEM majors with the goal of teaching HS STEM. Fully funded this would cost $15,000/year.
- CNAS Equipment Fund ($5-million-dollar goal) 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 2017 included some assessment data and analysis. These reports are available upon request.

Biology – The department reviewed specific data on four SLO's in 2017 – 1) apply methods of scientific inquiry in biology; 2) describe the flow of energy and matter within and among organisms; 3) explain the flow of genetic information; and 4) explain how resource limitation influences populations. For the first SLO the department looked at the results of an assignment from three different courses – BIO369 (general ecology), BIO511 (immunology) and BIO578 (behavioral ecology). For the second SLO the department looked at the results of a number of exam questions from five different courses – BIO121 (general biology I), BIO320 (cell biology), BIO310 (microbiology), BIO369 (ecology), and BIO562 (limnology). For the third SLO the department analyzed the results of exams from BIO235 (general genetics) and BIO310 (microbiology). For the fourth SLO the department reviewed the results of BIO369 (general ecology). The analysis confirmed that over 75% of students had mastered the learning outcomes.

Chemistry – The department reviewed four SLO's through undergraduate research courses CHM399/499. The data indicated success in all areas but one – use of literature reviews/library. The department will be developing an action plan at their August retreat. In addition they noted that very few students are enrolling in CHM499 and will be looking into that as well.

Computer Science – The department has collected data on all SLO's and courses as required for their ABET accreditation. A review of the assessment of two courses CSC130 and 338 shows that the department is serious about assessment. Seven learning outcomes were measured in CSC130 with students have difficulties with at three of them. The faculty have recommendations for the future to help to improve student learning as it pertains to those areas. In CSC338 all of the learning outcomes were met by the students but faculty still reviewed the outcomes and noted areas of improvement.

GGP – GGP reported primarily on course assessments, not assessments based on SLO's in assessment plan although there is probably some overlap. Program changes were made to reduce credit hours required for geography, geology and planning. It does not appear that the department (or each program) chose 2-4 SLO's to review (per their plan). The department did report on the results of the ACAT exam taken by geology students.

HL –The department noted the following areas of success: leadership theory to practice, community service activities by senior students, performance on National Restaurant Associate ServSafe exam, students' understanding of the strategy, marketing and finance skills necessary to run a business, and business skills and oral/written communication skills.

The biggest area of concern was student understanding of the economic environment of the hospitality industry. Other concerns included comprehension of core business skills such as marketing, hospitality operations, human resources and accounting. The faculty are busy reviewing the curriculum to determine where and how they can reinforce these skills throughout the curriculum.

MTH – The math faculty focused on three assessments – MFAT exam results, exit survey responses and graduate comprehensive exams. The MFAT exam results show consistency over the past five years. The exit survey responses were detailed and provide a great list for the department to work on in the coming year. In the fall of 2017 four students successfully passed their comprehensive exams for their MS degree programs (two repeated one exam). In the spring of 2018 nine students took comprehensive exams. Of the nine, eight successfully completed their exams and one student must repeat one exam in the fall of 2018. This data indicates that students are engaged in learning at the MS level.

PAMS –Faculty collected data related to student engagement. A total of 56 students participated in one of four different outreach activities. The MFAT data was reviewed and used to determine success discipline specific learning outcomes. PHY385 course was used to determine student's knowledge of instrumentation and course grades were used as the instrument of measurement. The department faculty used a comprehensive exam outcome to determine student success of graduate students. Four of five students passed the exam with a score of 70 or higher in their first try and the fifth student passed in the second attempt. The department also conducted exit interviews with all graduates.