University of Arkansas at Monticello
Academic Unit Annual Report

Unit: Mathematics and Natural Sciences

Academic Year: 2017-2018

What is the Unit Vision, Mission and Strategic Plan including goals, actions and key performance indicators (KPI)? (insert strategic plan, goals and KPIs below)
(See Addendum 1)

The School of Mathematical and Natural Sciences comprises the disciplines of biology, chemistry, computer science, earth science, mathematics, mathematics education, physical science, physics, and science education. The School has majors in Biology, Chemistry, Mathematics, and Natural Sciences

Mission

The mission of the School of Mathematical and Natural Sciences is to offer specialization in biology, chemistry, mathematics, and natural science and to provide opportunities for all students to enhance their understanding of science and mathematics. Curricula offered in the School prepare graduates for careers in industry and teaching, for graduate studies, and for admission to professional programs including allied health, dentistry, medicine, optometry, pharmacy, and veterinary medicine. This mission is fulfilled through the following goals:

1. To provide academic programs which promote the development of professional scientists and mathematicians and provide opportunities for all students to enhance their understanding of the natural sciences and mathematics.

2. To prepare individuals for successful careers in industry and teaching and for graduate studies in science and mathematics.

3. To provide curricula for pre-professional studies in dentistry, medicine, optometry, pharmacy, and allied health (physical therapy, radiological technology, respiratory therapy, medical technology, occupational therapy, and dental hygiene).

4. To provide technical and analytical courses to support studies in agriculture, forestry, nursing, physical education, psychology, and wildlife management.

5. To serve the general education program through courses in biology, chemistry, earth science, mathematics, physics, and physical science that provide a basic background for a baccalaureate degree.

Strategic Plan 2018-19

Unit: School of Mathematics and Natural Sciences				
Goal	Strategies/Action Steps	Desired Outcomes	Measures/Assessments of Success/Progress	Projected Timeline
1. Develop, deliver, and maintain quality academic programs	1A. Update Biology curricula	1A. Streamline the course requirements, and make options more relevant to our graduates.	1A. By end of the fall term, complete review of the Biology options. By the end of the academic year have approvals in place and changes implemented.	1A. 1-2 years
	1B. Update the Chemistry curricula	1B. Better prepare chemistry majors for graduate programs	1B. By end of the fall term, complete review of Chemistry options. By end of the academic year have approvals and changes implemented	1B. 1-2 years
	1C. Update the Mathematics curriculum	1C. Provide more degree options for mathematics students	1C. By the end of the academic year, develop and implement one new option in mathematics. In two years, develop additional options if needed	1C. 1-2 years
	1D. Update the Natural Science Curricula	1D. Review and possibly change coursework to better fit the needs of those majoring in N.S.	1D. By end of the academic year have updated degree plans in place. By July 2020, have Associates of Allied Health degree developed an in place	1D. 2 years

	1E. Increase success rates of developmental and freshman mathematics courses. 1F. Update laboratory equipment	1E. Improve the A,B,C pass rate to the ADHE goal of 75% by increasing our pass rate by 5% per year. 1F. Repair, improve, and replace lab equipment up to the standard of a small teaching college	1E. By the end of the academic year, establish a baseline to measure success of developmental and gateway courses. Each year after, improve the success rate by 5% 1F. By the end of the academic year, identify equipment and technology needs of each program and make repairs to current non-functioning equipment. By 2020 establish a plan to update equipment as needed	1E. 1-5 years 1F. 2-5 years
2. Enrollment and Retention Gains	2A. Establish relationships with math and science teachers in the regional schools by providing aid to teachers and visiting classrooms 2B. Produce recruiting materials such as Points of Pride to distribute to students 2C. Do a better job of marketing our successes	2A. Increase the number of freshmen interested in Math and Sciences and recruit the better students from local school districts 2B. Get program success data to students, parents, and high school teachers and counselors 2C. Produce radio advertising and do more press releases for the student successes in Math and Sciences	2A. Increase the number of Math and Science majors as incoming freshmen over the current number 2B. Increase the number of local students entering Math and Sciences over the current number 2C. Development of 2 additional radio spots and increase number of press releases related to success of our students	2A. 1-3 years 2B. 1-2 years 2C. 1-3 years

School of Math and Natural Sciences Strategic Plan Narrative

It is the goal of the School of Mathematical and Natural Sciences to produce qualified, well prepared students for graduate and professional programs and to enter the workplace. The School also has a goal to help other units thrive by offering coursework that serves majors in other units or the general education curriculum.

In order to be successful in these endeavors there are several items that must be done at the unit level.
While the unit must do certain things at all times, the highest priority items change from year to year depending on circumstances. This year's priorities are listed below with several specific activities or measures that support each overall goal.

1) Develop, deliver, and maintain quality academic programs

In a sense this is our purpose for being here. As times change we must continue to make improvements that will keep our programs current and our students well prepared for their future endeavors. All of the programs in the School of Math and Sciences should all be updated to help our graduates be successful. There are several goals in this area that we want to accomplish in the upcoming year. These are:

A) Update the Biology curricula to better serve their intended audience. We strongly feel that some streamlining could occur in some places, especially with laboratories. We will review our two options in Biology this fall and make recommendations at that time. Those will be submitted to Curriculum and Standards for approval and hopefully implemented by Fall 2019.

B) Update the Chemistry curricula to better prepare students for graduate programs. We feel that we have been somewhat stagnate with that curriculum over the past several years. We will review our course offerings for both options of the Chemistry degree plans during the fall term and make recommendations for improvement at that time. We will follow the American Chemical Society's program recommendations as closely as possible within reason. There are certainly shortcomings that cannot be overcome easily that we will not be able to meet.

C) Update the Mathematics curriculum to provide more options for mathematics students. Currently we have one pathway for Mathematics, and it is used for all majors in that field no matter what they plan to do upon graduation. We hope to find options for majors that are pre-engineering, those planning to attend graduate school in mathematics, for those that plan to become educators, and those that plan to enter the job market in a mathematics related field. We hope to have this plan developed by Spring 2019 and submitted to Curriculum and Standards by that time. While it may not be possible to develop all options this year, we hope to have at least one additional option by the end of the academic year.

D) Update the Natural Science curricula to better fit our current students. In the beginning, the Natural Science degree was developed to prepare students for the Physical Science or the Life Science licensure for secondary education. Arkansas no longer licenses students

in that manner. Each field has its own licensure (Biology, Chemistry, etc...) Today, most of the students in the two Natural Science options are Allied Health majors that are taking courses to enter a field such as Physical Therapy, Occupational Therapy, Physical Therapy Assistant, Dental Hygiene, Radiology, Respiratory Therapy, Medical Technology, or one of the other fields. Other than Physical Therapy and Occupational Therapy majors, most of these students will enter the professional program prior to earning a degree from UAM. By the end of the upcoming academic year, we hope to have reviewed the coursework that make up the core courses for the Natural Science major and also review the Physical Science and Life Science option courses. It is likely that some courses may be added to the degree plan since it is a comprehensive major. It is possible that an Associates of Allied Health degree will be spawned from this review. We hope to have all approvals completed and the program implemented by Aug 2020.

E) In the General Education area, Mathematics is the discipline that needs the greatest improvement. We have been trying new things over the past two years. Some appear to have been initially successful while others are still inconclusive. It is apparent that we need to continue to improve in that area. By the end of the upcoming academic year, we hope to have enough data to review to make well informed decisions on whether our ACT cut-offs are appropriate for Survey of Math with Review and College Algebra with Review. If those cut off scores change, we may need to reset the Intro Algebra cut off scores as well since students move from that course to Survey of Math with Review. Also by the end of the upcoming academic year we hope to have updated the course content and have developed/selected appropriate workbooks, online texts, and other teaching materials. By that time, we will have enough data to establish a baseline success rate for those courses. We hope to improve the success rate in the courses by improving the percentage receiving C or better by 5% in the following year, and each year after, without lowering the standards for those courses. Our ultimate goal is to reach the ADHE goal of 75% of the students receiving a C or better in the remedial math and gateway math courses. While we recognize that this is a lofty goal, there are hopes that the new degree pathways program implemented by UAM will help in this effort.

F) For laboratories courses several updates are needed. The main area of focus is essential laboratory equipment. Much of laboratory equipment is very old and some of it is not functioning properly. Some of it could be repaired if funds are available. Other pieces of equipment are beyond repair and should be replaced. Some equipment that is typical for a college lab to have is not available to UAM students because of price. Other pieces of equipment were purchased when courses were much smaller than the current course enrollments and we simply don't have the ability for so many students to share a single instrument. By the end of the academic year, we will have each discipline complete an assessment of what equipment is needed for their courses. If we currently have the instruments, we will assess their functionality. By the end of the next year our goal is to have all repairable equipment functioning properly. Equipment that cannot be repaired will be removed at that time. A plan will be written to obtain equipment in the future to meet the needs of our programs.

2) Enrollment and Retention Gains

While many of our courses are extremely large compared to just ten years ago, there are certain areas that growth must occur in order to remain a viable program, such as Mathematics. In order to better recruit students for our programs, we have the following goals:

A) Establish and maintain better contact with school districts in the region, and expand our contacts to schools outside the region. This year, every faculty member in the School of Math and Sciences is encouraged to have make a contact in some way with at least one school district in Arkansas, northern Louisiana, or western Mississippi. This can be through providing programs to that school, workshops, classroom visits, or other methods. Over this years, this relationship can be used to identify students that would be a good fit for our programs.

B) Produce recruiting materials that can be distributed to potential students. By late summer, we hope to have a new version of the "Points of Pride" developed and ready for printing. Hopefully we have printed copies available for Parents Day and other fall events where recruiting may occur. Through Admissions, we would like to have these made available to all the schools in the region by the end of the fall semester.

C) Do a better job of marketing our successes by increasing radio advertising and press releases.
During this academic year, we have a goal of producing a minimum of two new radio commercials for Math and Science programs. We also plan to work with media services and provide information to them in order to do press releases related to student success.

In Table 1, provide assessment of progress toward meeting KPIs during the past academic year and what changes, if any, might be considered to better meet goals.

Table 1: Assessment of Key Performance Indicators

KPI	Assessment of Progress	Implications for Future Planning/Change
Producing updated curricula in Math and Science major areas	Meetings have been scheduled for faculty development week to discuss our curricula. Faculty have begun to review requirements for professional and graduate programs to ensure we are meeting the students' needs.	There are likely to be some course changes in both Biology and Math. Courses required for the degree plans will need to be adjusted accordingly.
Improving recruiting and retention efforts for Math and Science majors	Development of the Points of Pride document is near completion. Planning meetings for workshop planning for public school teachers will occur in the fall semester. Development of updated degree plan sheets will take place in the spring term after changes described above occur.	With better marketing the success of past graduates will help recruit additional students in future the causing program growth. As relationships with public schools improve, we will hopefully discover schools with strong math and science backgrounds that will allow us to focus our efforts.

List, in Table 2, the Academic Unit Student Learning Outcomes (SLO) and the alignment with UAM and Unit Vision, Mission, and Strategic Plans

Table 2: Unit Student Learning Outcomes (See Addendum 2)

Unit Student Learning Outcome	Alignment with UAM Vision, Mission, and Strategic Plan	Alignment with Unit Vision, Mission, and Strategic Plan
Be able to clearly express mathematical and/or scientific ideas in oral and written communication	These skills are necessary for our graduates to contribute to the economic and quality of life indicators in the community, state, and region.	The curricula in Math and Sciences are the foundations for the content knowledge needed for this SLO. The upgrading of the major program requirements is important in keeping the programs up to date and relevent.
Be able to demonstrate the ability to apply scientific and/or mathematical concepts to real world situations	This is the basis for our graduates to succeed in a global environment, be	Our mission states that we wish to provide opportunities for our students to improve their understanding of

Unit Student Learning Outcome	Alignment with UAM Vision, Mission, and Strategic Plan	Alignment with Unit Vision, Mission, and Strategic Plan
	successful in entrepreneurial endeavors, and be a productive member of the community	math and science concepts and provide proper training in these concepts in our support courses to other academic units.
Have a core knowledge of the major discipline	These are skills required to be a productive member of any educational, healthcare, industrial or business in our community.	Core knowledge for all students is part of our mission statement, and is related to the curricula upgrades in the strategic plan
Be prepared for immediate employment in a scientific, technical, medical, or educational environment	The world is becoming more technical in nature and our graduates must be prepared to fill the technology related roles in the community.	It is a major component found in our mission statement. It is strongly related to the updating of curricula as part of our strategic plan to make sure our programs are current and relevant.
Be prepared to enter graduate or professional school in the appropriate area	A major factor in quality of life in any community is the quality of the health care system. Our programs are very successful at preparing students for all health care professional programs.	One of the major components of the mission statement for Math and Sciences is to prepare our students for graduate and pre-professional programs.

Describe how Student Learning Outcomes are assessed in the unit and how the results/data are used for course/program/unit improvements? The Student Learning Outcomes (SLOs) are measured in our courses through student performance on exams, quizzes, laboratory exercises, field course journals, homework assignments, research projects, reports, and presentations. Further assessment is done using performance on nationally normed examinations such as the American Chemical Society (ACS) standardized final examinations and pre-professional placement exams such as GRE, PCAT, MCAT, OAT, and DAT and post graduate placement into graduate programs, professional programs, and employment.

Public/Stakeholder/Student Notification of SLOs

List all locations/methods used to meet the HLC requirement to notify the public, students and other stakeholders of the unit SLO an. (Examples: unit website, course syllabi, unit publications, unit/accreditation reports, etc.)

- Posted in Science Center main entrance glass case
- Posted on the School of Math and Sciences website at http://uam-web2.uamont.edu/pdfs/mnsciences/mns%20student%20learning%20outcomes.pdf
- Course syllabi

Enrollment

Table 3: Number of Undergraduate and Graduate Program Majors

UNDERGRADUATE PROGRAM MAJOR: BIOLOGY					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	19	31	36	86 (Avg 28.7)	181 (Avg 18.1)
Sophomore	16	10	18	44 (Avg 14.7)	96 (Avg 9.6)
Junior	6	19	9	34 (Avg 11.3)	92 (Avg 9.2)
Senior	12	16	21	49 (Avg 16.3)	157 (Avg 15.7)
Post Bach	0	1	0	1 (Avg 0.3)	2 (Avg 0.5)
Total	53	77	85	214 (Avg 71.3)	528 (Avg 52.8)
UNDERGRADUATE PROGRAM MAJOR: CHEMISTRY					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	3	14	10	27 (Avg 9)	68 (Avg 6.8)
Sophomore	3	8	6	17 (Avg 5.7)	36 (Avg 3.6)
Junior	7	5	8	20 (Avg 6.7)	44 (Avg 4.4)
Senior	6	4	7	17 (Avg 5.7)	58 (Avg 5.8)
Post Bach	0	0	0	0 (Avg 0)	1 (Avg 0.1)
Total	19	31	31	81 (Avg 27)	208 (Avg 20.8)

UNDERGRADUATE PROGRAM MAJOR: MATHEMATICS					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	5	8	9	22 (Avg 7.3)	68 (Avg 6.8)
Sophomore	2	6	4	12 (Avg 4)	41 (Avg 4.1)
Junior	3	2	3	8 (Avg 2.7)	41 (Avg 4.1)
Senior	6	1	4	11 (Avg 3.7)	38 (Avg 3.8)
Post Bach	0	0	0	0 (Avg 0)	1 (Avg 0.1)
Total	16	17	20	53 (Avg 17.7)	192 (Avg 19.2)
UNDERGRADUATE PROGRAM MAJOR: NATURAL SCIENCE					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	19	10	13	42 (Avg 14)	60 (Avg 6.0)
Sophomore	4	4	5	13 (Avg 4.3)	28 (Avg 2.8)
Junior	5	6	5	16 (Avg 5.3)	34 (Avg 3.4)
Senior	5	6	5	16 (Avg 5.3)	45 (Avg 4.5)
Post Bach	0	0	0	0 (Avg 0)	1 (Avg 0.1)
Total	33	26	28	87 (Avg 29)	168 (Avg 16.8)
UNDERGRADUATE PROGRAM MAJOR: PRE-ENGINEERING					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	10	9	5	24 (Avg 8)	83 (Avg 8.3)
Sophomore	1	1	1	3 (Avg 1)	17 (Avg 1.7)
Junior	0	0	0	0 (Avg 0)	5 (Avg 0.5)
Senior	2	0	0	2 (Avg 0.3)	2 (Avg 0.2)
Post Bach	0	0	0	0 (Avg 0)	1 (Avg 0.1)
Total	13	10	6	29 (Avg 9.7)	108 (Avg 10.8)

UNDERGRADUATE PROGRAM MAJOR: PRE-MEDICINE					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	21	14	13	48 (Avg 16.0)	198 (Avg 19.8)
Sophomore	16	4	5	25 (Avg 8.3)	60 (Avg 6.0)
Junior	1	3	5	9 (Avg 3.0	36 (Avg 3.6)
Senior	6	2	5	13 (Avg 4.3)	27 (Avg 2.7)
Post Bach				0	3 (Avg 0.3)
Total	44	23	28	95 (Avg 31.6)	324 (Avg 32.4)
UNDERGRADUATE PROGRAM MAJOR: PRE-PHARMACY					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	11	6	4	21 (Avg 7)	117 (Avg 11.7)
Sophomore	6	4	5	15 (Avg 5)	61 (Avg 6.1)
Junior	7	2	3	12 (Avg 4)	45 (Avg 4.5)
Senior	3	1	2	6 (Avg 2)	11 (Avg 1.1)
Post Bach	0	0	0	0 (Avg 0)	1 (Avg 0.1)
Total	27	13	14	54 (Avg 18)	235 (Avg 23.5)
UNDERGRADUATE PROGRAM MAJOR: ALLIED HEALTH					
Classification	**Fall 2015**	**Fall 2016**	**Fall 2017**	**3-Year Total & Average**	**10-Year Total & Average**
Freshman	0	9	14	23 (Avg 7.7)	162 (Avg 16.2)
Sophomore	0	2	0	2 (Avg 0.7)	59 (Avg 5.9)
Junior	0	1	2	3 (Avg 1)	28 (Avg 2.8)
Senior	0	1	0	1 (Avg 0.3)	8 (Avg 0.8)
Post Bach	0	0	0	0 (Avg 0)	0 (Avg 0)
Total	0	13	16	29 (Avg 7.7)	271 (Avg 27.1)

School of Mathematical and Natural Sciences does not have any graduate programs.

What do the data indicate in regard to strengths, weaknesses, opportunities for growth and threats to effectiveness?

Strengths:

- The Biology and Chemistry majors, and the Pre-Medicine, Pre-Pharmacy, and Allied Health programs have good numbers and have been stable for several years. In 2015, zero allied health majors were shown because all were listed as Natural Science since Allied Health is not a degree. We graduate a fairly good number of these majors; however we have a lot of students that are unable to handle the rigor of this degree. It is unfortunate that someone with a low ACT and essentially no chance of getting into a professional program can claim to be pre-med or some other professional program major in the beginning. We do retain enough that there is crowding in the upper level courses. There is little room for growth due to space and number of faculty limitations. Many courses are quite full and the only way they will grow is to offer multiple sections of some of the courses, which would require additional faculty and classrooms. Several of the courses even have strong summer offerings.

Weaknesses:

- The most glaring weakness is the quality of the data that is kept on students. Some students are listed as a single major and are pursuing more than one major, as well as a non-degree pre-professional program. The way that information is stored is not consistent and makes it near impossible to accurately follow historical trends.

- Mathematics has been near the program viability line for several years with its number of graduates averaging approximately four per year. Recruiting for that degree is somewhat difficult in this region because many of the local school districts are not strong in mathematics. The mathematically talented students that are produced are being highly recruited by universities that have engineering programs.

- The Pre-Engineering major is a weakness because it has so little to offer for a well-prepared pre-engineering student. One can take mathematics courses and some physics courses along with the general education requirements, but with only one true pre-engineering course a student that transfers to another university after two years is very far behind in the major. The typical student majoring in pre-engineering is often weak in mathematics and is required to take College Algebra and Trigonometry before entering the Calculus sequence, putting them even farther behind.

Opportunities for Growth

- The UAMS College of Pharmacy named UAM the exclusive Rural Health Early Acceptance Program. For several years they have indicated that they are extremely pleased at the preparation the pharmacy students receive from UAM. With this agreement, they can now recommend UAM as a good program to get pre-requisite courses. This helps recruit top-notch students from all over the state to UAM.

- The Allied Health programs have grown slightly in the past several years, and the number of students from that program being accepted into professional programs has increased. This has been largely because of the focus placed on advising these students in the School of Math and Sciences. Unfortunately, many of these students are accepted into a professional program prior to even gaining an associates degree. Development of an Associate of Science degree for students in this pathway could increase the number of credentials awarded; however, we feel that most students would not take the additional hours needed to complete this award.

Threats to Effectiveness

- Declining population of students in the southeast Arkansas school districts is making it harder to recruit the higher ACT students for our programs

- Our facilities are inadequate, uninviting, and do not create a good space for learning

- Budgetary limitations are making it difficult to provide the learning experiences necessary for STEM majors. It is becoming increasingly difficult to provide adequate equipment or have meaningful field experiences that require travel. Our costs continue to increase dramatically while our budget remains the same, or even less than it was many years ago.

- Low salaries for faculty have caused several top notch faculty members in the School of Math and Sciences to begin looking for employment elsewhere. This year, three faculty members have left. While there were circumstances other than salary present, all three indicated that salary was a factor in their leaving. Three other faculty applied for positions at other universities, and again, salaries were given as a major factor in their searching elsewhere.

Progression/Retention Data
(See Addendum 3)

Table 4: Retention/Progression and Completion Rates by Major
Accurate data to complete this table was not supplied. Alternate tables which fits the data provided are listed below.

Name of Unit: Math and Sciences						
Academic Year	**2015-16**		**2016-17**		**2017-18**	
Total Number of Incoming Freshmen and Transfers	**121**		**151**		**164**	
Number and percentage of majors who:	**#**	**%**	**#**	**%**	**#**	**%**
Returned in major from previous year						
Graduated in major						
Changed to a different major in the unit						
Graduated in different UAM major outside of the unit						
Left University						
***Passed 30+ credit hours in two semesters: (fall and spring; no summers)**						
***Passed 30+ credit hours (fall, spring and summer)**						

*Passed = A, B, or C; Failed = D, F, or W
** This number is calculated based on the sum of Biology, Chemistry, Mathematics, and Natural Sciences majors. Those are the majors that lead to baccalaureate degrees in Math and Sciences. Pre-professional majors and Allied Health students are not included in this total since all of those students should be listed as a double major.

The following data tables are related to the incoming freshmen and transfer cohorts for the fall term of each year. It indicates that number of students that leave, change major, or graduate each term for a six year period. Because of the way the data was collected, if the six year period hasn't ended prior to the current term, it shows the students as "not returning" and gives a very inflated "Left University" number.

MATHS 2010 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2010	67	18	27%	7	10%	0		42	63%
Spring 2011	42	19	45%	3	7%	0		20	48%
Fall 2011	20	1	5%	1	5%	0		18	90%
Spring 2012	18	0		4	22%	0		14	78%
Fall 2012	14	1	7%	2	14%	0		11	79%
Spring 2013	11	3	27%	1	9%	1	9%	6	55%
Fall 2013	6	1	17%	0		1	17%	4	67%
Spring 2014	4	2	50%	0		2	50%	1	25%
Fall 2014	1	0		0		1	100%	1	100%
Spring2015	1	0		0		0		1	100%
Fall 2015	1	0		0		0		1	100%
Spring 2016	1	0		0		1	100%	0	
							#	%	
First time freshmen and transfers that started at UAM in 2010							67	100%	
Started with MATHS- Graduated with degree in MATHS							8	12%	
Started with MATHS- Left UAM							45	67%	
Started with MATHS- Changed Majors							18	27%	
Started with MATHS- graduated with degree NOT in MATHS							10	15%	
Did not start with MATHS- graduated with degree in MATHS							5	7%	
Total number graduated in MATHS(stated in or change to major)							13	19%	

MATHS 2011 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2011	60	15	25%	8	13%	0		37	62%
Spring 2012	37	9	24%	5	14%	0		23	62%
Fall 2012	23	2	9%	0		0		21	91%
Spring 2013	21	3	14%	1	5%	0		17	81%
Fall 2013	17	1	6%	0		0		16	94%
Spring 2014	16	3	19%	0		2	13%	11	69%
Fall 2014	11	1	9%	0		0		10	91%
Spring 2015	10	2	20%	0		4	40%	5	50%
Fall 2015	5	2	40%	0		2	40%	2	40%
Spring2016	2	1	50%	0		0		1	50%
Fall 2016	1	0		0		0		1	100%
Spring 2017	1	0		1	100%	2	200%	0	
							#	%	
First time freshmen and transfers that started at UAM in 2011							60	100%	
Started with MATHS- Graduated with degree in MATHS							9	15%	
Started with MATHS- Left UAM							39	65%	
Started with MATHS- Changed Majors							15	25%	
Started with MATHS- graduated with degree NOT in MATHS							10	17%	
Did not start with MATHS- graduated with degree in MATHS							6	10%	
Total number graduated in MATHS (started in or change to major)							15	25%	

MATHS 2012 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2012	71	7	10%	10	14%	0		54	76%
Spring 2013	54	22	41%	6	11%	0		26	48%
Fall 2013	26	2	8%	2	8%	0		22	85%
Spring 2014	22	5	23%	5	23%	0		12	55%
Fall 2014	12	4	33%	1	8%	0		7	58%
Spring 2015	7	1	14%	1	14%	1	14%	4	57%
Fall 2015	4	0		0		1	25%	4	100%
Spring 2016	4	1	25%	0		3	75%	0	
Fall 2016	0	0		0		1		0	
Spring2017	0	0		0		0		0	
Fall 2017	0	0		0		0		0	
Spring 2018	0	0		0		0		0	
							#	%	
First time freshmen and transfers that started at UAM in 2012							71	100%	
Started with MATHS- Graduated with degree in MATHS							6	85%	
Started with MATHS- Left UAM							42	59%	
Started with MATHS- Changed Majors							25	35%	
Started with MATHS- graduated with degree NOT in MATHS							12	17%	
Did not start with MATHS- graduated with degree in MATHS							1	1%	
Total number graduated in MATHS (started in or change to major)							7	10%	

MATHS 2013 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2013	46	8	17%	4	9%	0		34	74%
Spring 2014	34	10	29%	1	3%	0		23	68%
Fall 2014	23	6	26%	0		0		17	74%
Spring 2015	17	2	12%	1	6%	0		14	82%
Fall 2015	14	1	7%	0		1	7%	13	93%
Spring 2016	13	0		0		1	8%	12	92%
Fall 2016	12	0		0		0		12	100%
Spring 2017	12	2	17%	0		6	50%	4	33%
Fall 2017	4	0		0		0		4	100%
Spring2018	4	1	25%	0		4	100%	0	
							#	%	
First time freshmen and transfers that started at UAM in 2013							46	100%	
Started with MATHS- Graduated with degree in MATHS							12	26%	
Started with MATHS- Left UAM							30	65%	bad data*
Started with MATHS- Changed Majors							6	13%	
Started with MATHS- graduated with degree NOT in MATHS							2	4%	
Did not start with MATHS- graduated with degree in MATHS							5	11%	
Total number graduated in MATHS (started in or change to major)							17	37%	
The data was collected based on a 6 year cycle. Since students are not enrolled in any courses after Fall 2018, they are considered no longer at UAM. The reported number works fine as long as the 6 year cycle ends prior to the current term									

MATHS 2014 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2014	65	13	20%	8	12%	0		44	68%
Spring 2015	44	15	34%	5	11%	0		24	55%
Fall 2015	24	1	4%	1	4%	0		22	92%
Spring 2016	22	6	27%	2	9%	0		14	64%
Fall 2016	14	1	7%	0		0		13	93%
Spring 2017	13	3**	23%	0		1	8%	9	69%
Fall 2017	9	0		0		0		9	100%
Spring 2018	9	2	22%	0		7	78%	0	
							#	%	
First time freshmen and transfers that started at UAM in 2014							65	100%	
Started with MATHS- Graduated with degree in MATHS							8	12%	
Started with MATHS- Left UAM							41	63%	bad data*
Started with MATHS- Changed Majors							16	25%	
Started with MATHS- graduated with degree NOT in MATHS							5	8%	
Did not start with MATHS- graduated with degree in MATHS							2	3%	
Total number graduated in MATHS (started in or change to major)							10	15%	
The data was collected based on a 6 year cycle. Since students are not enrolled in any courses after Fall 2018, they are considered no longer at UAM. The reported number works fine as long as the 6 year cycle ends prior to the current term									

**It should be noted that the 3 students that left the University in Spring 2017 were students that were early accepted into Pharmacy professional programs (2 were accepted to UAMS College of Pharmacy, 1 was accepted to Harding University College of Pharmacy). This not only occurs with pharmacy students, but also Allied Health students who usually complete 3-5 semesters at UAM. This happens each year, rendering the data somewhat inaccurate; however, general trends can still be seen.

MATHS 2015 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2015	59	12	20%	8	14%	0		39	66%
Spring 2016	39	9	23%	6	15%	0		24	62%
Fall 2016	24	2	8%	3	13%	0		19	79%
Spring 2017	19	5	26%	0		0		14	74%
Fall 2017	14	0		0		0		14	100%
Spring 2018	14	14	100%	0		0		0	
							#	%	
First time freshmen and transfers that started at UAM in 2015							59	100%	
Started with MATHS- Graduated with degree in MATHS							0	0%	
Started with MATHS- Left UAM							42	71%	bad data*
Started with MATHS- Changed Majors							17	29%	
Started with MATHS- graduated with degree NOT in MATHS							0	0%	
Did not start with MATHS- graduated with degree in MATHS							0	0%	
Total number graduated in MATHS (started in or change to major)							0	0%	

The data was collected based on a 6 year cycle. Since students are not enrolled in any courses after Fall 2018, they are considered no longer at UAM. The reported number works fine as long as the 6 year cycle ends prior to the current term

Four of the 14 students that left the university in Spring 18 were early acceptances into the pharmacy programs at UAMS and Harding University. Several of the remaining 10 will be returning in the Fall 2018 term.

MATHS 2016 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2016	43	6	14%	6	14%	0		31	72%
Spring 2017	31	17	55%	4	13%	1	3%	9	29%
Fall 2017	9	0		2	22%	0		7	78%
Spring 2018	7	7	100%	0		0		0	
Fall 2018	0	0		0		0		0	
Spring 2019	0	0		0		0		0	
Fall 2019	0	0		0		0		0	
Spring 2020	0	0		0		0		0	
Fall 2020	0	0		0		0		0	
Spring2021	0	0		0		0		0	
Fall 2021	0	0		0		0		0	
Spring 2022	0	0		0		0		0	
							#	%	
First time freshmen and transfers that started at UAM in 2016							43	100%	
Started with MATHS- Graduated with degree in MATHS							1	2%	
Started with MATHS- Left UAM							30	70%	bad data*
Started with MATHS- Changed Majors							12	28%	
Started with MATHS- graduated with degree NOT in MATHS							0	0%	
Did not start with MATHS- graduated with degree in MATHS							0	0%	
Total number graduated in MATHS (started in or change to major)							1	2%	

*The data was collected based on a 6 year cycle. Since students are not enrolled in any courses after Fall 2018, they are considered no longer at UAM. The reported number works fine as long as the 6 year cycle ends prior to the current term

MATHS 2017 First Time Freshman & Transfers	Number of Declared Majors	Left University	% Left	Changed Major	% Changed Major	Graduated	% Graduated	Returned in Major	% Returned
Fall 2017	57	11	19%	14	25%	0		32	56%
Spring 2018	32	32	100%	0		0		0	
Fall 2018	0	0		0		0		0	
Spring 2019	0	0		0		0		0	
Fall 2019	0	0		0		0		0	
Spring 2020	0	0		0		0		0	
Fall 2020	0	0		0		0		0	
Spring 2021	0	0		0		0		0	
Fall 2021	0	0		0		0		0	
Spring2022	0	0		0		0		0	
Fall 2022	0	0		0		0		0	
Spring 2023	0	0		0		0		0	
							#	%	
First time freshmen and transfers that started at UAM in 2017							57	100%	
Started with MATHS- Graduated with degree in MATHS							0	0%	
Started with MATHS- Left UAM							43	75%	bad data*
Started with MATHS- Changed Majors							14	25%	
Started with MATHS- graduated with degree NOT in MATHS							0	0%	
Did not start with MATHS- graduated with degree in MATHS							0	0%	
Total number graduated in MATHS(stated in or change to major)							0	0%	

*The data was collected based on a 6 year cycle. Since students are not enrolled in any courses after Fall 2018, they are considered no longer at UAM. The reported number works fine as long as the 6 year cycle ends prior to the current term

The tables above indicate that the School of Math and Sciences typically loses 25-38% of incoming students during the first semester to leaving UAM or switching to a different major outside of Math and Sciences. There doesn't appear to be a huge level of success for those that transfer to other majors in terms of graduation. This is largely due to the fact that any student can mark the box that says Pre-Med or Pre-Pharm on their application and get counted against the School of Math and Sciences when they aren't successful. Many low ACT scoring students that start in one of the professional programs never take the first course in their major because they are taking remedial coursework and are never successful.

The table below provides data for transfer students only. The number of students involved in the analysis is small, so it is very difficult to recognize true trends.

Graduation Rate for Transfer Students in the School of Math and Sciences								
	2010	2011	2012	2013	2014	2015	2016	2017
Number of Transfer students entering MATHS in this term	15	10	10	6	10	11	8	11
Started with MATHS- Graduated with degree in MATHS	3	1	1	2	1	0	1	0
Started with MATHS- Left UAM* (This number incorrect after Fall2014)	8	6	7	5	8	7	6	7
Started with MATHS- Changed Majors	5	3	3	0	1	4	1	4
Started with MATHS- graduated with degree NOT in MATHS	4	3	2	0	0	0	0	0
Did not start with MATHS- graduated with degree in MATHS	1	3	0	1	1	0	0	0
Total number graduated in MATHS (started in or change to major)	4	4	1	3	2	0	1	0

The tables below indicate how many students are progressing each term with 15, 30, 45, 60, or 90 hours. If a student passes more than one progression point in that year, they are only counted for the higher number of hours. There are obviously some issues with how the data is collected. Students that change their major during the year, or add a second major are not included in the total number of majors, but are included in the total # progressing which makes it appear more are progressing than we have majors. With so many Math and Science students double or even triple majoring, it creates issues with the accuracy of data collected.

The number of students progressing is reasonably large compared to the number of majors for Math and Science students which indicates that our students are progressing toward a degree at a good level.

Major: Biology							Total # Progressing	Total # of majors	Notes
Year	ACAD_PLAN	15	30	45	60	90			
2018	BIOL_MAJ	7	16	5	23	17	68	85	Pre-med majors may or may not be included in the numbers in some years
2017	BIOL_MAJ	11	16	9	17	20	73	77	
2016	BIOL_MAJ	5	14	6	22	15	62	53	
2015	BIOL_MAJ	9	12	17	15	9	62	60	
2014	BIOL_MAJ	7	10	8	8	12	45	43	

Major: Chemistry							Total # Progressing	Total # of majors	Notes
Year	ACAD_PLAN	15	30	45	60	90			
2018	CHEM_MAJ		5	4	8	6	23	31	Pre-pharmacy majors may or may not be included in some years
2017	CHEM_MAJ	2	5	6	7	5	25	31	
2016	CHEM_MAJ	4	7	1	6	11	29	19	
2015	CHEM_MAJ	2	4	2	13	10	31	28	
2014	CHEM_MAJ	3	3	10	11	9	36	25	

Major: Mathematics							Total # Progressing	Total # of majors	Notes
Year	ACAD_PLAN	15	30	45	60	90			
2018	MATH_MAJ	2	3	2	2	3	12	20	Pre-engineering majors may or may not be included in some years.
2017	MATH_MAJ	5	5	3	4	5	22	17	
2016	MATH_MAJ	4	3	3	6		16	16	
2015	MATH_MAJ	2	8	3		5	18	17	
2014	MATH_MAJ	2	3	1	8	8	22	21	

Major: Natural Sciences							Total # Progressing	Total # of majors	Notes
Year	ACAD_PLAN	15	30	45	60	90			
2018	NAT_SC_MAJ	11	12	4	4	2	33	28	Allied Health majors may or may not be included in some years. *2014 includes Allied Health majors
2017	NAT_SC_MAJ	7	6	3	4	7	27	26	
2016	NAT_SC_MAJ	7	4	2	4	3	20	33	
2015	NAT_SC_MAJ	6	4	4	4	4	22	36	
2014	NAT_SC_MAJ	4	3	8	7	6	28	37*	

What do the data indicate in regard to strengths, weaknesses, opportunities for growth and threats to effectiveness?

Strengths It appears that our total number of majors has grown over the last three years, but it is likely differences in how numbers are reported. While there has been some growth, the big increases is likely due to the number of students that are listed as double majors compared to several terms ago.

Top notch faculty do an excellent job at preparing students despite the limitations in proper equipment and facilities.

Weaknesses The way this information is reported is a serious problem. If a student starts the term with 29 hours and completes 31 hours in that year, they would pass the 30, 45 and 60 hour progression points. This is not indicated in the tables above. They would only show up as completing the 60 hour progression point. This table is not reflective of how the funding formula works and attempts shouldn't be made to establish connectivity between the two.

Inconsistency in the number of mathematics majors is a weakness for that program. In some years, there are good numbers, in other years there are almost none. This makes running that program very inefficient in offering courses on a once every two year basis. In years with low numbers, courses are sometimes cancelled until the next year to allow more students in the course. This creates situations where we get very large numbers of graduates in some years, and none or very few in the next.

The pre-engineering program is lacking. It provides almost nothing in terms of true pre-engineering courses. Students coming to UAM can take a good portion of their general education courses, mathematics, science core, and a small number of their physics courses. If they do transfer to an engineering degree granting institution, they must start of by taking introductory freshman level engineering courses prior to taking upper level specialty courses. While there are several students that come to UAM each fall that select pre-engineering as their major, most do not have the mathematical skills to pursue this program. Many of these students have very low ACT scores in mathematics. In the past year, several of these students have been

encouraged to look into the engineering related technical programs at the Colleges of Technology; however, very few have followed that advice.

Opportunities for Growth Growing the number of mathematics majors is a priority. We have plans to update the curriculum and possibly tie the mathematics degree with other degrees such as CIS to make that major more appealing. This would also make those wanting to go into an industrial position more marketable. We are also considering the development of other options in mathematics that will be more attractive to students in pre-engineering. If additional faculty were hired and facilities improved, it might be possible to build a true pre-engineering program that would serve as a feeder to universities that have those programs.

Threats to Effectiveness Inability to properly track students and produce believable data is a serious threat to effectiveness. So many of the trends that we are making decisions on are really differences on how things are reported from year to year.

Many programs in Math and Sciences require a very solid background in mathematics to be successful. The better students from this region are being highly recruited by other universities, and most are not coming to UAM. The other universities have more to offer in terms of major options (such as physics and engineering) and better facilities. The absence of programs in physics and engineering is a major cause for the low numbers in mathematics. For many years, the only students majoring in mathematics are those desiring to teach.

The lack of quality instrumentation is becoming a problem in several science courses. UAM possesses only the most basic instrumentation and is far behind almost every other four-year institution in the state in terms of instrument holdings. In the past, the University would allow purchases of larger equipment items with end of the year left over money. That has not happened in approximately 15 years. Our NMR (nuclear magnetic resonance spectrometer) is non-functioning. We have never owned a GC-Mass Spectrometer. The AA (atomic absorption flame spectrophotometer) is non-functioning. The IR (Infrared Spectrometer) works occasionally, but cannot be trusted. These are considered basic instruments needed to run a chemistry program. This high-tech instrumentation is extremely expensive to purchase and sometimes has fairly costly monthly upkeep. We simply don't have the budget to buy or even properly maintain some of these instruments that cost over $100,000 each. At some point, UAM students will no longer be competitive with graduates from other institutions because our students will lack basic lab experiences needed to get some positions.

Gateway Course Success (Applies only to units teaching Gateway Courses)

Table 5: Gateway Course Success*

Course/Remediation		2015-2016 *Passed		2015-2016 Failed		2016-2017 *Passed		2016-2017 Failed		2017-2018 *Passed		2017-2018 Failed		3-Year Trend *Passed		3-Year Trend Failed	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Math 1003	Survey of Math	153 / 73%		56 /27%		183 / 75%		62 /25%		185 / 66%		95 / 34%		521 / 71%		213 / 29%	
	Surv. of Math w/Rev									38 / 38.4%		60 / 61.6%					
Math 1043	College Algebra	564 / 57%		428 / 43%		501 / 61%		320 / 39%		396 / 64%		221 / 36%		1461 / 60%		969 / 40%	
Math 1033	Trigonometry	91 / 72%		36 / 28%		75 / 64%		43 / 36%		84 / 61%		54 / 39%		250 / 65%		133 / 35%	
Math 1143	Coll Alg w/ Review	NA		NA		26 / 81%		6 / 19%		52 / 53%		46 / 47%		78/ 60%		52 / 40%	
Math 2225	Calculus I	27 / 71%		11 / 29%		47 / 61%		30 / 39%		34 / 50%		34 / 50%		108 / 59%		75 / 41%	

*Passed = A, B, or C; Failed = D, F, or W

The College Algebra with Review was listed as a special topics course in 2016-17

What do the data indicate in regard to strengths, weaknesses, opportunities for growth and threats to effectiveness?

Strengths

Considering the students that we bring in at UAM, the success rate in mathematics is better than expected once the student reaches the college credit bearing course. It is safe to say that many that are not retained during their first year never attempt a college bearing mathematics course. Initial results for the College Algebra with Review are very positive, and we hope that trend continues. ACT 19-21 in Math students typically had about 15-20% success in the regular college algebra courses. In the College Algebra with Review the results have varied considerably, but certainly the extra time spent with these students has raised their success rate considerably. While many non-STEM students are being pushed to take Survey of Math instead of College Algebra, this has reduced the number of sections of college algebra that are needed. It is interesting to note that the pass rate of College Algebra has improved slightly over each of the past three years. During that time, the success trend in Survey of Math has decreased slightly.

Weaknesses

Most students that are not retained never get past the remedial math courses. We need a more efficient way of getting those students up to speed before they get to college. Through Math Pathways, we have attempted co-requisite remediation in order to get students into credit bearing courses earlier. The Survey of Math with Review courses was added this year as a pilot. The initial numbers for Survey of Math with Review indicate a fairly considerable drop in success with only 38.4% scoring a C or better, compared to near 70% for the traditional Survey of Math course. This is largely because the ACT Math requirement was dropped from 19 to 16 for this course at the urging of Math Pathways and the Charles Dana Center at the University of Texas. While this

Opportunities for Growth

Co-requisite courses have completed the first stage of development with Survey of Math with Review. We have taught the course one semester as a special topics course with some success. Of the 98 students in the course, 38 have now completed a college level mathematics which is a major milestone to being retained and graduated. We will continue to improve the courses and how they are delivered in the future and look into other courses that we can do in a similar fashion.

The Math faculty have worked extremely hard to improve the success rate in both remedial and non-remedial courses. At some point, the quality of the students coming to UAM must be addressed. We are excited about the Degree Pathways that UAM is currently implementing. Hopefully it will cut down the number of poorly prepared students coming into our programs.

Threats to Effectiveness

Increasing costs of textbooks and supplemental instructional materials is a huge threat to the success of our students. Many students are having trouble buying texts and attempt the courses without them, and aren't willing to use reserve copies in the library on a regular basis. The Math faculty have written workbooks and published in house supplemental materials to reduce costs. A change was made in the supplemental instructional software to reduce the price as well.

The number of high school graduates in this region is declining, and other colleges are putting more effort into recruiting the better students from this region.

Completion (Graduation/Program Viability)

Table 6: Number of Degrees/Credentials Awarded by Program/Major

Undergraduate Program/Major	Number of Degrees Awarded				
	2015-2016	2016-2017	2017-2018	Three-Year Total	Three-Year Average
Biology	17	18	21	56	18.0
Chemistry	12	13	14	39	13.0
Mathematics	8	0	5	13	4.33
Natural Science	4	7	2	13	4.33

Provide an analysis and summary of the data related to Progression/Retention/Program Viability including future plans to promote/maintain program viability.

The Biology and Chemistry programs have excellent numbers for a university of this size. These majors are largely supported by Pre-Pharmacy and Pre-Medicine majors; however, some students seeking these degrees are interested in attending graduate school, seeking employment in STEM fields, or planning on entering the MAT program and pursuing a career in education. Through the years numbers have fluctuated somewhat, but there has been an overall growth in these majors over the past several years. Several courses that have traditionally been taught with only a single section are being split into two sections, such as ecology, microbiology, botany lab, and zoology lab. General Chemistry was increased from two sections to three sections for the fall of 2018. Organic Chemistry, Biochemistry, and Comparative Anatomy are at capacity and need to be split in the future if the growth trend continues.

Mathematics doesn't attract a lot of majors as freshmen. A few learn to love math while taking their gen ed math or courses for their major and then change or add a math major to their program. Several of the Pre-Engineering students attempt to obtain a degree in Mathematics, but some simply don't have the skills to handle the upper level course work. Typically universities with engineering programs or physics degrees will have stronger mathematics programs; however UAM has neither of these. These factors have led to the Mathematics major having a fairly low number of graduates. Over the last several years, we have been near the minimum of 4 graduates per year for the three year average. It seems that we have large numbers of graduates in some years, and literally zero in other years. This year, we had a respectable year with 5 graduates; however, there were two additional students that were on track to graduate that simply didn't want to finish. One deliberately dropped a major requirement class that the student was passing so he/she wouldn't graduate. Another student elected to not take a required course, and then added a second major so he could continue attending UAM. The student claimed health issues would prevent him from being able to do the MAT program at this time. Ultimately, we will get to count these students as graduates, but it hurts UAM in terms of completion on time in the funding formula. We are investigating new recruiting measures and possibly packaging Mathematics with other course work, such as CIS courses, to make the program more attractive.

The Natural Science major has two options; Life Science and Physical Science. The Life Science option is quite popular for those entering an allied health field; however most of those students aren't at UAM long enough to even obtain an associates degree before transferring to their allied health professional program. The Physical Science program has several difficult courses in chemistry in its curriculum, so most students elect to complete the chemistry degree if they are going to take those courses. Even though there is a very low number of graduates in these majors, very little effort has been spent on growing this program because it is a cognate major with every course being general education or a requirement in other majors in Math and Sciences. We are considering the formation of a Physics Option which would have a mixture of upper level physics, mathematics, and other science courses. This isn't likely to bring in lots of majors; however, it might be a good pathway for students planning to teach physics in the public schools. It could also be a possible pathway for those interested in Pre-Engineering.

Teaching Load shown in table below is by credit hours. * Indicates that contact hours are scheduled that are not included in the credit hour load. **Indicates that the faculty member teaches technical courses for one of the branch campuses.

Faculty

Table 7: Faculty Profile, Teaching Load, and Other Assignments

Faculty Name	Status/Rank	Highest Degree	Area(s) of Responsibility	Teaching Load				Other Assignments
				Summer II	Fall	Spring	Summer I	
Abedi, Farrokh	Assoc. Prof	Ph.D.	Mathematics		10	9		Asst Dean of Mathematics
Barton, Laura	Instructor	M.S.	Mathematics		12*	9*	6	
Dolberry, Charles	Assoc. Prof	Ph.D.	Mathematics		14	12		
Fox, Victoria Lynn	Asst Prof	Ph.D.	Mathematics	3	14	15	6	
Gavin, Jared	Asst Prof	Ph.D.	Mathematics	3	11*	10*	6	Also teaches Physics
Goodding, Alan	Instructor	MAT	Mathematics		15**	15**		
Martin, Carole	Assoc. Prof	Ed.D.	Mathematics		12*	9*		
Sayyar, Hassan	Assoc. Prof	Ph.D.	Mathematics	6	12	12		
Snyder, Sam	Instructor	Ph.D.	Mathematics		15	6		Retired Dec 2017, Adjunct in Spring 2018
Fairris, Jerry Jeff** (Crossett)	Instructor		Mathematics		9*	9* and **		
Hood, Jill** (McGehee)	Instructor	MAT	Mathematics		9**	9**		
Leek, Laura (McGehee)	Instructor (Adjunct)	MAT	Mathematics	3**	6	3		
Sandlin, Lura (McGehee)	Instructor (Adjunct)	MAT	Mathematics	3	3	3		
Burrows, Ross	Asst Prof	Ph.D.	Physics		9*	9*		
Bacon, Ed	Instructor/Prof Emeritus	Ph.D.	Biology		10*	7*		Director of Turner Neal Museum / Fundraiser
Blount, Keith	Asst Prof	Ph.D.	Biology		9*	11*		
Chappell, Jessie	Lab Instructor	M.S.	Biology		7*	7*		Bio Sci Stockroom manager
Fawley, Karen	Professor	Ph.D.	Biology		11*	14*	5	Director of the Sundell Herbarium
Fawley, Marvin	Asst Prof	Ph.D.	Biology			1*		Assistant Dean of Science and Research Director of the Research Program for Minority Students (RPMS)

Faculty Name	Status/Rank	Highest Degree	Area(s) of Responsibility	Teaching Load				Other Assignments
Hunt, John	Professor	Ph.D.	Biology	6	12*	12*		Director of Pre-Medical Studies
Manning, Glenn	Assoc. Prof	Ph.D.	Biology		8*	8*	4*	
Morgan, Lauren	Lab Instructor	B.S.	Biology	2*	5*	5*	2*	Microbiology lab manager
Sims, Christopher	Professor	Ph.D.	Biology		10*	11*	3	
Stewart, Mary	Professor	Ph.D.	Biology		11*	10*		
Grilliot, Matthew	Instructor (Adjunct)	Ph.D.	Biology		4*	4*		
Stephens, Faye (McGehee)	Instructor	B.S has finished MS coursework	Biology			9*	4*	
Maina, Andrew (McGehee)	Instructor		Biology		9*			
Cobb, Katie (McGehee)	Instructor	M.S.	Biology	4*				
Bramlett, J. Morris	Professor	Ph.D.	Chemistry		7*	3		Dean, Math and Natural Sciences Director of Pomeroy Planetarium
Hatfield, Susan	Lab Instructor	M.S.	Chemistry		9*	7*	4*	Gen Chem stockroom manager
Huang, Jinming	Assoc. Prof	Ph.D.	Chemistry		11*	13*	4*	
Taylor, M. Jeffrey	Assoc. Prof	Ph.D.	Chemistry	4*	7*	11*	4*	
Williams, Andrew	Assoc. Prof	Ph.D.	Chemistry	4*	off campus duty assign.	15*		
Sayyar, Kelley	Instructor	M.S.	Earth Science	4*	17*	13*		

What significant change, if any, has occurred in faculty during the past academic year?

December 2017, Dr. Sam Snyder (Math) retired. He continues to work as an adjunct teaching one or two classes per term. His position will not be filled at this time.

May 2018, Dr. Charles Dolberry announced that he is leaving UAM for a position at a university in Georgia. The decision was made to fill the position with an Instructor since there are still four faculty with doctorate degree on staff. Ms. Lura Sandlin was hired to fill the position beginning in August 2018.

In April 2018, Dr. Karen Fawley announced that she is leaving UAM for a position at University of the Ozarks in Clarksville, AR. Two candidates were interviewed. The offer was made to Dr. J. Richard Abbott and he accepted. He will begin work in August 2018.

Dr. Marvin Fawley will also be leaving as Assistant Dean of Science and Research; however, he will continue to consult with the current faculty on the Minority Research Program as non-student extra help. His duties will be distributed among other faculty.

Dr. Keith Blount will serve as the Director of the Minority Research Program. Dr. Andrew Williams will serve as the Assistant Director of that program. Dr. Chris Sims will take over the Assistant Dean for Science role.

Dr. Jared Gavin and Dr. Lynn Fox both were granted tenure and will be promoted to Associate Professor with the start of the new contract year.

Ms. Katie Cobb resigned her position of Instructor of Biology at the McGehee campus in August 2017. Mr. Andrew Maina was hired in August 2017. He stayed only one semester before leaving for a non-academic position in North Carolina. Ms. Faye Stephens was hired in January 2018 and has done a great job in that role.

Ms. Connie Smith resigned as Instructor of Mathematics at the Crossett campus. Mr. Jerry Fairris was hired to teach technical, developmental, and freshman level math courses.

Ms. Jill Hood was hired to teach math courses on the McGehee campus. She filled the position left vacant by the resignation of Ms. Elizabeth Jones.

Table 8: Total Unit SSCH Production by Academic Year (ten year)

Academic Year	Total SSCH Production	Percentage Change	Comment	
2007-08	14719		Not including 826 Concurrent Enrollment	
2008-09	15792	+7.29%	Not including 998 Concurrent Enrollment	
2009-10	14852	-6.05%	Not including 717 Concurrent Enrollment	
2010-11	13842	-6.80%	Not including 1314 Concurrent Enrollment	
2011-12	14909	+7.71%	Not including 1137 Concurrent Enrollment	
2012-13	14391	-3.60%	Not including 1161 Concurrent Enrollment	
2013-14	13546	-5.88%	Not including 1070 Concurrent Enrollment	
2014-15	15550	+14.8%	Not including 1403 Concurrent Enrollment	
2015-16	14696	-5.42%	Not including 1430 Concurrent Enrollment	
2016-17	13841	-5.82%	Not including 1729 Concurrent Enrollment	
2017-18	14421	+4.19%	Not including 1296 Concurrent Enrollment	

What significant change, if any, has occurred in unit SSCH during the past academic year and what might have impacted any change? The larger fluctuations come from unsteady enrollment on the technical campuses. McGehee campus Math enrollment has been unsteady with changing faculty and the number of course offerings. The Crossett campus has elected to not teach Anatomy and Physiology lecture and lab on a regular basis, and this has caused periodic ups and downs in SSCH from that campus. With the retirement of Connie Smith, Math enrollment has also dropped somewhat on that campus. In the past, Chemistry was occasionally offered by Richard O'Neal. That course hasn't been offered in a few semesters, so that has been a drop in enrollment. Enrollment on the main campus has fluctuated slightly, but most likely due to University enrollment fluctuations and numbers in general education and service courses.

The decision was made by the administration to not offer the online Arkansas Early College High School courses through UAM and Virtual Arkansas. UAM will continue to offer the ECHS credit to schools holding face-to-face courses; however, the number of students and the SSCH will drop by a very large amount next year.

Unit Agreements, MOUs, MOAs, Partnerships

Table 9: Unit Agreements-MOUs, MOAs, Partnerships, Etc.

Unit	Partner/Type	Purpose	Date	Length of Agreement	Date Renewed
UAM Pre-Pharmacy Program	UAMS College of Pharmacy	To provide early admissions opportunities for outstanding high school students and allow UAMS to recommend UAM as an institution to complete pre-pharmacy requirements	February 2017	Indefinite	annually at summer meeting each year by verbal agreement of both parties

List/briefly describe notable faculty recognition, achievements/awards, service activities and/or scholarly activity during the past academic year.

Faculty Scholarly Activity

- Farrokh Abedi –Major revisions of the Intro to Algebra Workbook
- Hassan Sayyar- Major revisions of the College Algebra Workbook
- Lynn Fox – Research project: Noise Color on Compounded Audio Signals, two presentations at professional meetings.
- Carole Martin – Development of College Algebra with Review. Developed workshops for area middle school teachers.
- Glenn Manning – Research project: Herpetology Surveys of Arkansas, Texas, New Mexico, and Arizona
- John Hunt – Numerous research projects, book accepted for publication, three professional publications, one professional presentation at a state meeting, four book reviews, and three grants.
- Karen Fawley – Numerous research projects, two publications in major journals, five grants, one contract, 11 presentations at professional meetings
- Mary Stewart – Research project in genetics, one presentation at a professional meeting, one grant
- Chris Sims – Two major projects involving waterfowl – Mentored Ph.D. student at University of Memphis, one presentation at professional meetings, two publications in major journals
- Ed Bacon – Research projects in aquatic biology – two presentations at professional meetings, one grant. Planning and carrying out improvements in the Turner Neal Museum, leading tours to more than 600 visitors
- Keith Blount – Research projects in parasitology and entomology- Two grants/contracts
- Andrew Williams – Numerous research projects in chemistry and biochemistry, four presentations at professional meetings, two grants. Dr. Williams also completed an Off Campus Duty Assignment in the Fall 2017 term where he carried out research at Purdue University
- Jinming Huang – One research project in food chemistry, two professional presentations, one publication, one grant.
- Jeff Taylor – Two research projects
- Jared Gavin – Development of projects in robotics for pre-engineering
- Ross Burrows – One research project
- Morris Bramlett - AP Chemistry teacher workshops and student test prep

Notable Faculty Recognition or Faculty/Service Projects

- Chris Sims, 2018 Hornaday Outstanding Faculty Award winner
- Carol Martin, Laura Barton, Farrokh Abedi Student Success Award

- Morris Bramlett, Alpha Chi Administrator of the Year
- Chris Sims, Alpha Chi Teacher of the Year
- Lauren Morgan, Alpha Chi Rookie of the Year
- Morris Bramlett, Arkansas Dean's Association Board of Directors
- Karen Fawley, Board of Advisors for the Arkansas Archeological Survey-UAM Research Station
- Marvin Fawley, UAM Representative for the NASA-Arkansas Space Grant Consortium
- Glenn Manning, Board of Advisor for the Ouachita Mountain Biological Station
- John Hunt, Board of Governor for the Ouachita Mountain Biological Station

Faculty Grant Awards

- Karen and Marvin Fawley, UAM Faculty Research Grant, $1500, Soil Crust Algal Communities of Warren Prairie Natural Area
- Karen and Marvin Fawley, INBRE, $6340, Assessing species diversity in a protist lineage.
- Karen and Marvin Fawley, Morris Bramlett, INBRE Project Renewal 2015-2017 through the National Institutes of Health, $190,000, Alterations and Renovations to Improve Biomedical Research Facilities
- Karen and Marvin Fawley, extension grant National Science Foundation
- Karen and Marvin Fawley, Arkansas Natural Heritage Commission, $4000, Molecular taxonomy of *Streptanthus* in Arkansas
- John Hunt, Glenn Manning, Keith Blount, Centennial Opportunity Award, $13,847, Biology slides, specimens, and model upgrades
- John Hunt, UAM Faculty Research Grant, $1500, Mammals of the Southwestern United States
- John Hunt, INBRE Equipment Grant, $7200, Bomb calorimeter of small mammal foods
- Ed Bacon, Centennial Opportunity Award, $7200, Improvements for the Turner Neal Museum
- Mary Stewart, UAM Faculty Research Grant, $1500, Cell size and cell number in mutant strain of *Drosophila melanogaster*
- Jinming Huang, Arkansas Department of Higher Education, $2750, SURF Mentor Grant

Describe any significant changes in the unit, in programs/degrees, during the past academic year.

List program/curricular changes made in the past academic year and briefly describe the reasons for the change.

- Both Mathematics and Biology (traditional option) dropped the requirement of a minor. In both programs, the goals of the students were so diverse that those majors needed to be more flexible to take courses from other units to better prepare them for their career. By dropping the requirement of a minor, the student can take courses from any unit to fulfill the free electives. The driving force for this change was the recognition of the fact that many students were staying additional time (often over 130 hours) to complete the minor due to taking other desired electives.

- In Mathematics, Calculus III was changed back to a 5 hour class from a 3 hour class to allow coverage of specific topics that were recognized as deficiencies in our program. Another change was to include Trigonometry as a supportive requirement for the Mathematics major. Trigonometry is considered a basic skill that should be learned in high school; however, the faculty were noticing that many students struggled in Calculus II, which is large based on Trigonometry. Now students majoring in Math must take Trigonometry or make a passing score on a departmental written Trigonometry skills exam.

- In Earth Science, an Oceanography course as well as the lab were added. Both courses will be taught exclusively online with course content provided by NOAA, who also provides the up to date content for the Meteorology courses. The course was added for several reasons. It is an option for Biology students who want more knowledge about marine environments. It is a fantastic earth science topic course for those planning to teach general or environmental science, and it is another online option that will fulfill the general education science requirement.

- The Biology major, Organismal Option, removed the NRM 2014 Introduction to GIS, GPS, and Remote Sensing from the supportive requirement list. It was added as an elective option to the degree and three more hours of electives are now required. It was very difficult to get this course scheduled due to conflicts with other required courses. Several students responded in student surveys that this course was not helpful to them.

- In the General Education area, Survey of Math with Review was added with a co-requisite remedial laboratory required. The format for the course is 5 days per week, for one hour per day. This allows the pace of the course to be customized to the needs of the students. Having a single two hour meeting once per week would not allow this to occur. This course is specifically required for students with an ACT Math score of 16-19. In the past, students in this range

had to complete Intermediate Algebra prior to taking Survey of Math. Many thought that the Intermediate Algebra skills taught were not that helpful to Survey of Math. Although the success has been limited with a low 30% success rate, you must realize that these students would not have been allowed to even attempt this course in the past. Changes are being made that will hopefully improve that success rate. In a similar fashion, College Algebra with Review was also added; however, this is for students in the ACT Math score range of 19-21. Although these are not considered remedial students, they typically have not had a high rate of success in traditional College Algebra. We currently have a pass rate similar to, or even better than, the traditional College Algebra course with students scoring >22 on the ACT Math exam. The goal is to reduce the number of students required to re-take the College Algebra course. It appears we have certainly been successful in the first 4 semesters that the course has been offered. We still must develop a plan that will allow students to take this course in the summer terms and also at the technical campuses that are only open 4 days per week.

Describe unit initiatives/action steps taken in the past academic year to enhance teaching/learning and student engagement.

There are numerous ways that the faculty in Math and Sciences have tried to improve student performance. Here is a list of some of those items:

1) Faculty have been encouraged to follow the plan described in the "First Four Weeks" program that was developed about 5 years ago by a committee and Academic Affairs on this campus. There are several things that are done during the first four weeks of the term to help the students be more successful. Some of these are: taking time out of class to teach the students to take notes in a course, giving lots of tips on how to study for exams, and even tips on how to take exams. Many of the items described in this plan are designed to build relationships between the students and the faculty. This was asked of all faculty by the dean.

2) We have attempted to take the in house tutoring to a new level by having tutors present as many as 32 hours per week. To help with this process, we are asking tutors to make guest appearances in classes so the students can get to know them. We are asking faculty to spend part of their office hours in the tutoring lab on a regular basis.

3) We are attempting to get students more involved as early as possibly by having social events such as mixers, museum tours, planetarium shows, and even allowing some of the younger students to tag along on on-campus field trips with upper level classes. There hasn't been a huge number of students getting involved in this way, but the ones that do love the experience.

4) We are bringing in more external speakers, especially for those that are planning to go to a professional program. We are actively recruiting the pre-professional students to come to these events. The topic of discussion is largely, "What do you have to do at UAM to be successfully accepted into _____."

5) We are asking students for feedback very early in the semester. This may be verbal, or it may be a question or two at the end of a homework or quiz. We then take this feedback and consider changes that could help the students be more successful. One such request was in an Intro to Biology class taught by Dr. John Hunt. Someone recommended having an embedded tutor in the

course that would hold weekly study sessions outside of class time. Junior and senior level students were sought out, and the plan was put in place for the student to attend class every day, and then have tutoring once per week, and a review session once per week. Student turn out was low; however, the students that did come did fantastically well in the course.

6) The faculty take attendance daily, and turn in students with poor attendance or performance to academic alert as early as possible.

7) The faculty have put more effort into recruiting the younger students into the Biology Club and the Pre-Med Club. They are doing activities like Roadside Cleanup and Stream Team and going on field trips.

8) We are making efforts to get more students involved with undergraduate research. The RPMS (Research Program for Minority Students) has been very successful at getting the students involved as a freshman and helping them stay active throughout their career. Several of the minority students have attended graduate or professional programs in the last few years.

Other Unit Data

Include any additional information pertinent to this report. Please avoid using student information that is prohibited by FERPA.

- Acceptances into Professional Programs in the Past Year
- Graduates from the School of Math and Sciences July 2017-June 2018
- Publications in Refereed Journals
- Publications in Non-Refereed Journals
- Presentations at Professional Meetings, Workshops, and Guest Lectures
- Specific Course Assessments
- External Assessments

Table 10 Acceptances into Professional Programs in the Past Year *Indicates graduation prior to this year

Student identifier	Major	Major	Placement
A	Physical Education		UAMS College of Pharmacy
B	Biology		UAMS College of Pharmacy
C	Mathematics	Chemistry	UAMS College of Pharmacy
D	Biochemistry		Harding University College of Pharmacy (early admission)
E	Biochemistry	Biology	UAMS College of Pharmacy (early admission)
F	Biochemistry	Biology	UAMS College of Pharmacy (early admission)
G	Biochemistry	Biology	UAMS College of Pharmacy (early admission)
H*	Biology		American University of Antigua College of Medicine
I*	Biology	Biochemistry	LSU-New Orleans College of Medicine Ph.D./M.D. program
J	Biology	Biochemistry	UAMS College of Medicine
K*	Biology		American College of Antigua College of Medicine
L	Biology	Biochemistry	UT-Memphis College of Dentistry
M	Biology	Bio /Psych	UCA Doctor of Physical Therapy program
N	Biology	Biochemistry	UAMS Cytotechnology program
O	Mathematics		UA-Fayetteville Ph.D. Program in Mathematics
P*	Natural Science		UAMS Physician's Assistant Program
Q*	Natural Science		UAMS Cardio-Respiratory Therapy program
R*	Mathematics		University of Iceland Biomechanical Engineering program
S	Biology		UALR Microbiology program
T	Biology	Biochemistry	Tulane Molecular Biology program
U	Biology	Biochemistry	Tulane Molecular Biology program
V*	Natural Science		UAMS Dental Hygiene program
W	Biology		UAM MAT Program (Chemistry, Biology at Dumas High School)

Table 11 Graduates from the School of Math and Sciences July 2017 – June 2018

Name	Date	Major	Major	Placement
1	May 18	Biochemistry	Biology	Arkansas State Crime Lab
2	May 18	Biochemistry	Biology	Seeking job in chemistry or biology related position
3	May 18	Biochemistry	Biology	Tulane University Masters Program
4	May 18	Mathematics		Manager of UAM Trotter House, applying to graduate programs
5	May 18	Biochemistry	Biology	Preparing for MCAT exam
6	May 18	Biochemistry	Biology	Preparing for MCAT exam
7	May 18	Biochemistry	Biology	UCA Doctor of Physical Therapy
8	May 18	Biology		UAMS College of Pharmacy
9	May 18	Biology		
10	May 18	Biochemistry	Biology	Tulane University Masters Program
11	May 18	Biology		UAM MAT Program (Chemistry, Biology at Dumas High School)
12	May 18	Mathematics	Chemistry	UAMS College of Pharmacy
13	May 18	Biology		
14	May 18	Biochemistry		UAMS College of Pharmacy (Early admittance in 2017)
15	May 18	Biochemistry	Biology	UAMS College of Medicine
16	May 18	Natural Sci		USDA Food and Drug Admin Nat. Center forToxicological Research
17	May 18	Biochemistry	Biology	
18	May 18	Biochemistry	Biology	
19	May 18	Biochemistry	Biology	UALR Masters Program in Microbiology
20	May 18	Biochemistry	Biology	UT-Memphis College of Dentistry
21	May 18	Biochemistry	Biology	UAMS Cytotechnology
22	May 18	Biology		
23	May 18	Mathematics		UA-Fayetteville Ph.D. program in Mathematics
24	Aug 17	Biology		
25	Dec 17	Biology		
26	Dec 17	Mathematics	Biology	Preparing for DAT Exam
27	Dec 17	Mathematics		

Publications in the past year in refereed journals

- Grilliot, M.E., J. L. Hunt, and C. G. Sims. *In review.* Organochloride pesticides present in animal fur, soil, and streambed in an agricultural region of southeastern Arkansas. *Journal of the Arkansas Academy of Science.*
- Connior, M. B., R. Tumlison, D. P. Holland, J. L. Hunt, L. A. Durden, and D. B. Sasse. 2017. Survey of rodents within Arkansas Game and Fish Commission Wildlife Management Areas. *Journal of the Arkansas Academy of Science,* 71:215-218.
- Cothran, E. G., J. L. Hunt, and T. L. Best. 2017. Sexual size dimorphism in the thirteen-lined ground squirrel (*Ictidomys tridecemlineatus*). *The Southwestern Naturalist,* 62:207-244.
- Jinming Huang, Cynthia Robinson, Conner Callaway, Samuel Pope, Mackenzie Willis, Nathan Probst**,** Joshuah Hathcox, Trent Roberts, Daniel B. Kim-Shapiro, and Autumn Webb. Cabbage Juice Inhibits Nitrite Formation in Other Vegetable Juices during Storage, submitted to ***Journal of the Science of Food and Agriculture***. (Under Review)
- Fawley, K. P. and Fawley, M.W. 2017. Final report, NSF Grant "Diversity and Classification of the poorly known algal class Eustigmatophyceae." Submitted to the National Science Foundation.
- Eliáš, M., Amaral, R., Fawley, K.P., Fawley, M.W., Němcová, Y., Neustupa, J., Přibyl, P., Santos, L. and Ševčíková, T. 2017. Eustigmatophyceae. In *Handbook of the Protists* edited by John M. Archibald, Alastair Simpson and Claudio Slamovits.
- (In review) "Effects of hunting on baseline stress physiology and body condition in waterfowl" J. R. Henson, C. G. Sims, S. Schoech, and B. Malanchuk.
- (In press) "Organochloride pesticides present in animal fur, soil, and streambed in an agricultural region of southeastern Arkansas." Grilliot, M.E., J. L. Hunt, and C. G. Sims. *Journal of the Arkansas Academy of Science.*

Non Refereed publications in the past year

- Hunt, J. L. *In press.* Reproduction in mammals; the female perspective, by Virginia Hayssen and Teri J. Orr (review). *Choice.*
- Hunt, J. L. 2018. Inheritors of the earth: how nature is thriving in an age of extinction, by Chris D. Thomas (review). *Choice* 55:3211.
- Hunt, J. L. 2017. How to tame a fox (and build a dog), by Lee Alan Dugatkin and Lyudmila Trut (review). *Choice* 55:0173.
- Hunt, J. L. 2017. Scarlet experiment: birds and humans in America, by Jeff Karnicky (review). *Choice* 54:3749.
- (Book) Best, T. L., and J. H. Hunt. *In press.* Mammals of the Southeastern United States: Biology of Native, Extirpated, Extinct, and Some Introduced and Prehistoric Species. University of Alabama Press, Tuscaloosa.
- Abedi, Farrokh. 2017-18, Introduction to Algebra Workbook (major revision and re-write)
- Sayyar, Hassan. 2017, College Algebra Workbook (revision and re-write)

Presentations at Professional Meetings, Workshops, and Guest Lectures

- Fawley, K.P. Managing and Curating Algal Culture Collections. Skype lecture to Dr. Travis Marsico's Curations and Collections Class, Arkansas State University, Invited Skype lecture, 10/2017

- Haynes, C. C., Knight, R.E., Lamb, C. W., Baker, B., Fawley, M.W. and Fawley, K.P. Soil Crust Algal Communities of Warren Prairie Natural Area. Arkansas INBRE Research Conference, Fayetteville, AR, October 2017, student poster.

- Henning L. Magana J. A., Mendoza V., O' Neal B., Fawley M.W., and Fawley K.P.. Evaluating the Taxonomic Status of Arkansas Twistflower, *Streptanthus maculatus* subsp. *obtusifolius* and Clasping Jewel Flower, *S. maculatus* subsp. *maculatus* (Brassicaceae). Arkansas INBRE Research Conference, Fayetteville, AR, October 2017, student poster presentation

- Gray, A.L., Knight R.E., Lamb C. W., Baker B., Fawley M.W., and Fawley K.P.
  Soil Crust Algal Communities of Warren Prairie Natural Area. Posters at the Capital Undergraduate Research Symposium, February 2018, student poster presentation

- Henning L., Magana J. A., Mendoza V., O' Neal B., Fawley M.W., and Fawley K.P.. Evaluating the Taxonomic Status of Arkansas Twistflower, *Streptanthus maculatus* subsp. *obtusifolius* and Clasping Jewel Flower, *S. maculatus* subsp. *maculatus* (Brassicaceae). Posters at the Capital Undergraduate Research Symposium, February 2018, student poster presentation

- Novel nuclear and plastid loci and their utility for inferring relationships among species of the genus *Streptanthus* (Brassicaceae) found in Arkansas and adjoining states. Henning, L.M., Rivera, F. Rivera, Baker, B., Fawley, K.P., and Fawley M.W. UAM Undergraduate Research Symposium, March 2018, student poster presentation

- Evaluating the Taxonomic Status of Arkansas Twistflower, *Streptanthus maculatus* subsp. *obtusifolius* and Clasping Jewel Flower, *S. maculatus* subsp. *maculatus* (Brassicaceae). Arellano, A., Bailey, J., Baldwin, M., Jones, A., Reed, Z., Rodriguez, J., Fawley, K. and Fawley, M. UAM Undergraduate Research Symposium, March 2018, student poster presentation

- Novel nuclear and plastid loci and their utility for inferring relationships among species of the genus *Streptanthus* (Brassicaceae) found in Arkansas and adjoining states. Henning, L.M., Rivera, F. Rivera, Baker, B., Fawley, K.P., and Fawley M.W. Arkansas Academy of Sciences Annual Meeting, Jonesboro, AR, April 2018, student poster presentation

- Soil Crust Algal Communities of Warren Prairie Natural Area. Fawley, K.P., Baker, B., and Fawley, M.W. Arkansas Academy of Sciences Annual Meeting, Jonesboro, AR, April 2018, oral presentation

- Soil Crust Algal Communities of Warren Prairie Natural Area. Fawley, K.P., Baker, B., and Fawley, M.W. Meeting of the Phycological Society of America(PSA)/International Society of Protistologists (ISOP), University of British Columbia, Vancouver, B.C. 07/2018 poster presentation

- Organellar phylogenomics perspective on the evolution of eustigmatophytes algae Yurchenko, T.[1], Ševcíková, T.[1], Fawley, K. P.[2], Pribyl, P.[3], Amaral, R.[4], Strnad, H.[5], Santos, L. M.[4], Fawley, M. W.[2] and Eliáš, M.[1] Meeting of the Phycological Society of America(PSA)/International Society of Protistologists (ISOP), University of British Columbia, Vancouver, B.C. 07/2018, oral presentation

  [1]University of Ostrava, Czech Republic,
  [2]University of Arkansas at Monticello,
  [3] Institute of Botany, Czech Academy of Science, Czech Republic,
  [4]University of Coimbra, Portugal,
  [5] Institute of Molecular Genetics, Czech Academy of Sciences, Czech Republic

- Booth D, L Pearson, B Sanders, and EJ Bacon. 2018. Biodiversity and Habitat Preferences of Aquatic Insects in the Lower Little Missouri River. Arkansas Academy of Sciences Annual Meeting, Jonesboro, AR, April 2018.

- Booth D, L Pearson, B Sanders, and EJ Bacon. 2018. Biodiversity and Habitat Preferences of Aquatic Insects in the Lower Little Missouri River. UAM Undergraduate Research Symposium, March 2018

- ORGANOCHLORIDE PESTICIDES PRESENT IN ANIMAL FUR, SOIL, AND STREAMBED IN AN AGRICULTURAL REGION OF SOUTHEASTERN ARKANSAS. Matthew E. Grilliot, John L. Hunt, and Christopher G. Sims. Poster Presentation, Arkansas Academy of Science, Jonesboro, Arkansas, April 7, 2018

- Green Cabbage Inhibits Nitrite Formation in Celery Juice during Storage, Conner Callaway and Jinming Huang, 26th Annual ASGC Symposium, Winthrop Rockefeller Institute, Morrilton, AR 72110, Apr 20, 2018. (Poster)

- Cabbage Inhibits Nitrate Reduction and Nitrite Formation in Other Vegetables during Storage, Jinming Huang, Cynthia Robinson, Daniel B. Kim-Shapiro, and Autumn Webb, 254th American Chemical Society National Meeting, Washington, DC, Aug 20-24, 2017. (oral presentation)

- John Mitchell and Mary Stewart. Analysis of a *Drosophila melanogaster* Ribosomal Protein Gene. Posters at the Capital Undergraduate Research Symposium, February 2018

- Carole Martin and Lynn Fox. "Expressions and Equations" (workshop), Arkansas Curriculum Conference, November 2017

- Morris Bramlett and Tracie Jones. "Chemical Kinetics" (workshop), ERZ Advanced Placement Chemistry Teacher Workshop, Monticello, AR, 2017

Specific Course Assessments

Assessment Report for General Chemistry, Spring 2018, University of Arkansas at Monticello, Morris Bramlett instructor

At the end of the course, on the final exam, a short survey is given at the end. Several questions were asked in relation to the book used, the amount of homework assigned, the format of homework assigned (online vs. paper handout), the length of homework assignments, quizzes, the use of Blackboard, and tutorial videos. One of the questions is related to the student's comfort level with the material covered in the class. Out of 36 students 6 said they would feel comfortable tutoring this course, 22 felt they had a good grasp of the general concepts, 8 indicated they understood a few of the concepts, and 0 felt that they didn't understand anything in the course. When asked about their feelings at the beginning of the course, 0 felt they could tutor the course, 5 thought they had a good grasp of the general concepts, 14 felt that they understood a few of the concepts, and 16 felt they didn't understand any of the concepts. One student did not answer this question. Obviously the comfort level improved dramatically from beginning to the end of the course.

Assessment Report for Introduction to Biological Sciences, Fall 2017-Spring 2018, University of Arkansas at Monticello, John L. Hunt, Instructor.

On the first class day of the Fall 2017 semester and the Spring 2018 semester, a pre-test was administered to the students in the Introduction to Biological Sciences classes taught by John Hunt at the University of Arkansas at Monticello. The pre-test consisted of 15 questions designed to test the students' prior knowledge of some of the most important concepts of Biology. The questions were a mix of "big-concept" and detail ideas, and concerned facts that a student who has completed the course would be expected to know, but that wouldn't necessarily be familiar to a student who hasn't had the class. The questions were multiple choice questions with a correct answer and four distractors. (A copy of the questions is included at the end of this report.) On the last day of class, the students were given the same questions. Students at the beginning of the course were not made aware that they would be assessed in this manner.

Only students who completed both the pre-test and post-test are included in the results given here. There were two separate sections, one each in the Fall and Spring. For the purposes of this report, the two sections were combined. Average score on the pre-test was 7.58 out of 15, or 50.5% (n = 90, range 2-12, standard deviation 2.27). Average score on the post-test was 10.5, or 70.0% (n = 90, range 4-15, standard deviation 2.29). Of those who took both pre-test and post-test, 81 registered an improvement on the post-test (n = 90, average increase 2.9 questions, range -4-8, standard deviation 2.22). Average percentage change in score was 48.6% (n = 90, range -44.4-233.3%, standard deviation 48.8%). Six students actually did worse on the post-test than on the pre-test, and three registered no change.

This is the fifth year that this type of assessment has been used in the Introduction to Biological Science class. Results seem to indicate that many of the objectives of the class are being met. Results for this year include the greatest increase in number of correct answers between pre-test and post-test since this assessment was begun. Part of the reason for this increase may be the use of dedicated tutors for both sections of the class during this academic year. The tutors sat in on classes, took notes, then conducted bi-weekly voluntary study sessions for the students. However, the number of students who took advantage of the study sessions was disappointing, to say the least. No more than five students attended any one session, and most sessions included only one or two students. However, the tutor for Fall 2017 constructed on-line study aids using the Quizlet app and made them available to all interested students. Many students commented that this was quite helpful to them. In order to assess the effectiveness of the dedicated tutor, I compared the final average score for Fall 2017 to the average final score for Fall 2016. (Because the attendance of the dedicated tutor in Spring 2018 can best be described as "spotty," no comparison for Spring semesters was made.) The average score for 2016 was 72.1 (n =40); for 2017, the score was 74.5 (n=70). Although this difference was small, it was statistically significant (t-test, $p < 0.001$). The number of students who made a D or an F, or who withdrew from the course (DFW rate) for the

two sections was also compared. The DFW rate for Fall 2016 was 42.8% (21 of 49). The DFW rate for Fall 2017 was 39.3% (33 of 84). Although these improvements are small, they suggest that the dedicated tutor program may be worth repeating, assuming a reliable tutor can be found.

The instructor will use the assessment again next year. It should be noted that this is a freshman class, and many of the students in the class clearly came directly from high schools with good biology programs. As is indicated by the wide variation in pre-test scores, some of the students were not so well-prepared. In addition, many of the students who take the pre-test but not the post-test because they have dropped the class are students who are not well-prepared, which would seem to skew the data in an unfavorable way against potential improvement.

Questions used for both the pre-test and post-test are included below.

1. Which of the following is NOT one of the basic types of organic molecules found in living things?
    a. Carbohydrates
    b. Proteins
    c. Salts
    d. Nucleic acids
    e. Lipids

2. The primary difference between prokaryotic and eukaryotic cells is that prokaryotic cells DO NOT contain membrane-bound structures called:
    a. Cilia
    b. Chromosomes
    c. Organelles
    d. Ribosomes
    e. Sutures

3. Which of the following is the BEST definition of the word “gene?”
    a. Physical trait exhibited by an organism.
    b. Section of DNA molecule that contains instructions for building a protein.
    c. Part of the cell membrane that causes specific behavior.
    d. Sperm cell or egg cell; a gamete.

e. All of the chromosomes found in a given individual.

4. The aerobic process of breaking down organic molecules such as glucose to build ATP is called:
    a. Photosynthesis
    b. Translation
    c. Methylation
    d. Digestion
    e. Cellular respiration

5. Which of the following is the best definition of a scientific theory?
    a. A law which can be stated mathematically
    b. An explanation for observations which has a good deal of evidence to support it
    c. An educated guess
    d. An observation of natural phenomena
    e. A statement of things that are unknown

6. Proteins are complex molecules made of subunits called:
    a. Hydrocarbons
    b. Amino acids
    c. Sugars
    d. Nucleotides
    e. Fatty acids

7. Spontaneous movement of molecules from an area of higher concentration to an area of lower concentration is called:
    a. Crenation
    b. Brownian motion
    c. Reduction
    d. Diffusion
    e. Concentration dispersal

8. All of the living organisms interacting within a specific area make up a:
    a. Population
    b. Community
    c. Ecosystem
    d. Species
    e. Biome

9. "A change in allele frequencies between generations" is a simple definition of:
    a. Mutation
    b. Speciation
    c. Evolution
    d. Fitness
    e. Stabilizing selection

10. Which of these terms ***best*** describes the overall structure of DNA?
    a. phospholipid bilayer
    b. helix
    c. double helix
    d. triple helix
    e. modified polypeptide chain

11. Where do plants get carbon that they make into organic molecules?
    a. From groundwater absorbed by roots
    b. Symbiotic fungi
    c. The sun
    d. Carbon dioxide from the atmosphere
    e. Other organisms

12. In animals, meiosis occurs to produce:
    a. Somatic cells
    b. Clones
    c. Diploid cells
    d. Red blood cells
    e. Gametes

13. Which of the following is a byproduct of photosynthesis?
    a. Carbon dioxide
    b. Glucose
    c. Riboflavin
    d. Oxygen
    e. Nitrogen gas

14. Why does your body need oxygen?
    a. DNA molecules don't break down properly without oxygen
    b. Kidneys use oxygen to construct molecules of urine
    c. Oxygen is necessary to get rid of carbon dioxide
    d. Oxygen allows cells to get more usable energy from organic molecules
    e. Lack of oxygen allows anti-oxidants to trigger apoptosis (cell death).

15. A true-breeding plant that produces red flowers is crossed with a true-breeding plant that produces white flowers. All of the flowers of all of the offspring are red. The best explanation for this is:
    a. the red allele is recessive to the white allele
    b. all of the offspring are homozygous red
    c. the red allele is dominant to the white allele
    d. the alleles are codominant
    e. red is an easier color to produce

Assessment Report for Comparative Anatomy, Fall 2017, University of Arkansas at Monticello, John L. Hunt, Instructor.

On the first class day of the Fall 2017 semester, a pre-test was administered to the students in the Comparative Anatomy class at the University of Arkansas at Monticello. The pre-test consisted of 15 questions designed to test the students' prior knowledge of some of the most important concepts of Comparative Anatomy. The questions were a mix of "big-concept" and detail ideas, and concerned facts that a student who has completed the course would be expected to know, but that wouldn't necessarily be familiar to a student who hasn't had the class. The questions were multiple choice questions with a correct answer and four distractors. (A copy of the questions is included at the end of this report.) On the last day of class, the students were given the same questions. Students at the beginning of the course were not made aware that they would be assessed in this manner.

Only students who completed both the pre-test and post-test are included in the results given here. Average score on the pre-test was 4.1 out of 15, or 27.3% (n = 15, range 1-8, standard deviation 2.07). Average score on the post-test was 8.9, or 59.3% (n = 15, range 5-13, standard deviation 1.96). Every student in the class except one registered an improvement on the post-test (n = 15, average increase 4.7 questions, range 0-11, standard deviation 2.74). Average percentage change in score was 195.9% (n = 15, range 0-800.0%, standard deviation 223.9%).

This is the sixth year that this type of assessment has been used in the Comparative Anatomy class. Results in 2017 were roughly equivalent to those obtained in the preceding four years. Results seem to indicate that many of the objectives of the class are being met. The instructor will use the assessment again next year.

Questions used for both the pre-test and post-test are included below.

1. Which of the terms below describes similarities due to convergent evolution?
    a. Homoplasy
    b. Homology
    c. Analogy
    d. Pleiotropy
    e. Anamorphy

2. Which of the following terms refers to a group that you don't belong to?
    a. Tetrapoda
    b. Chordata
    c. Eutheria
    d. Archosauria
    e. Amniota

3. The process of induction is an important part of which of the following?
    a. Evolution
    b. Development
    c. Respiration
    d. Digestion
    e. Muscle function

4. Vertebrate jaws originally evolved from:
    a. Dermal bones
    b. Cervical vertebrae
    c. Cranial bones
    d. Gill arches
    e. Fin rays

5. Zygapophyses are projections found on:
    a. Inner wall of the digestive tract
    b. Jawbones
    c. Fins
    d. Vertebrae
    e. Tongue

6. Which one of the following structures is the evolutionary ancestor of the human forearm:

a. Lobed fin
b. Ray fin
c. Procoracoid
d. Gill arch
e. Interclavicle

7. Hypobranchial and branchiomeric musculature is associated with:
    a. Lungs
    b. Limbs
    c. Veterbral column
    d. Eyeballs
    e. Jaws

8. From an evolutionary standpoint, most fishes and tetrapods started out with a specific number of aortic arches. That number is:
    a. Four
    b. Five
    c. Six
    d. Eight
    e. Twelve

9. One of the following organs does not develop embryologically from the digestive system. Which is it?
    a. Lung
    b. Liver
    c. Intestine
    d. Stomach
    e. Kidney

10. Pronephric, mesonephric, and metanephric are different types of:
    a. Kidney
    b. Lung

c. Liver
d. Brain
e. Vertebrae

11. In which type of animal is the male reproductive system most closely related to the excretory system?
    a. Kangaroo
    b. Red-winged blackbird
    c. Perch
    d. King snake
    e. African elephant

12. Another name for the telencephalon is:
    a. Olfactory nerve
    b. Cerebrum
    c. Pancreas
    d. Cranium
    e. Mandible

13. The sclera, ciliary body, and suspensory ligament are structures associated with:
    a. Esophagus
    b. Pancreas
    c. Brain stem
    d. Spinal cord
    e. Eye

14. Mammals have a four-chambered heart with two atria and two ventricles. Which of the following animals also has such a heart?
    a. Lungfish
    b. Bull shark
    c. Musk turtle
    d. American alligator

e. Iguana

15. The part of the skull which originates with structures associated with the gills of early vertebrates is called:

a. Splanchnocranium b. Dermatocranium

c. Neurocranium d. Chondrocranium e. Glossocranium

Assessment Report for Evolution, Spring 2018, University of Arkansas at Monticello, John L. Hunt, Instructor.

On the first class day of the Spring 2018 semester, a pre-test was administered to the students in the Evolution class at the University of Arkansas at Monticello. The pre-test consisted of 15 questions designed to test the students' prior knowledge of some of the most important concepts of Evolution. The questions were a mix of "big-concept" and detailed ideas, and concerned facts that a student who has completed the course would be expected to know, but that wouldn't necessarily be familiar to a student who hasn't had the class. The questions were multiple choice questions with a correct answer and four distractors. (A copy of the questions is included at the end of this report.) On the last day of class, the students were given the same questions. Students at the beginning of the course were not made aware that they would be assessed in this manner.

Only students who completed both the pre-test and post-test are included in the results given here. Average score on the pre-test was 5.32 out of 15, or 35.5% (n = 28, range 2-8, standard deviation 1.54). Average score on the post-test was 9.4 out of 15, or 62.7% (n = 28, range 6-13, standard deviation 1.89). All 28 students registered an improvement on the post-test (n = 28, average increase 4.1 questions, range 2-7, standard deviation 1.51). Average percentage change in score was 89.0% (n = 28, range 28.6-350.0%, standard deviation 75.6%).

This is the fifth year that this type of assessment has been used in the Evolution class. Results seem to indicate that many of the objectives of the class are being met. This year's results were slightly worse than last year, but similar to results in 2015 and 2016. This is in part due to the fact that a week of classes was missed due to weather in both 2015 and 2016, and two weeks were missed this year, so that not all material covered on the assessment tests was covered in class. In 2017, no time was missed.

Questions used for both the pre-test and post-test are included below.

1. Which of the following is the best definition of "evolution?"
    a. Adaptation to environmental change.
    b. Selection of the best traits.
    c. Change in gene frequency between generations.
    d. Change over time.
    e. Mutation of genes into new alleles.

2. The most critical factor in the evolution of new species is:
    a. Large amounts of inbreeding
    b. High heterozygosity

c. Sexual dimorphism
d. Reproductive isolation
e. Low genetic diversity.

3. Which of the following is ***most*** compatible with the idea of evolution through natural selection?
    a. Chain of Being
    b. Fixity of species
    c. Mutability of species
    d. Special creation
    e. Theory of Acquired Characteristics

4. Which of the following concepts is crucial to building phylogenies?
    a. Analogous structures
    b. Sympatry
    c. Allopatry
    d. Convergent evolution
    e. Parsimony

5. "Any non-random force which causes differential reproductive success of organisms with different genetic traits" is a good definition of:
    a. Evolution
    b. Adaptation
    c. Selection
    d. Fitness
    e. Mutation

6. Which of the following is the best description of the function of HOX genes:
    a. Providing variation for the immune system.
    b. Allowing an increase in hair coloration.
    c. Control of morphogenesis.
    d. Increasing fecundity.

e. Reduction of mutations.

7. The Hardy-Weinberg Law describes:
    a. Sexual selection possibilities.
    b. How recessive mutations are maintained in a population.
    c. The speed with which new species are formed.
    d. Equilibrium of allele frequencies in a population.
    e. Formation of biogeographical regions.

8. The Hamilton-Zuk hypothesis relates sexual selection to:
    a. Number of body segments.
    b. Size of genitalia.
    c. Number of offspring.
    d. Parasite load.
    e. Feather color.

9. At what level does natural selection act most strongly?
    a. Gene
    b. Cell
    c. Species
    d. Family
    e. Genus

10. Which of the following taxonomic groups contains organisms that are probably most similar to the first organisms to arise on earth?
    a. Archaea
    b. Eubacteria
    c. Protista
    d. Eucarya
    e. Fungi

11. What is another word that means exactly the same thing as “type specimen?”

a. Paratype
b. Holotype
c. Topotype
d. Allotype
e. Neotype

12. Which of the following is NOT a real proposed hypothesis that attempts to explain the disappearance of the dinosaurs?
    a. Terminal Constipation Hypothesis
    b. Arctic Spillover Hypothesis
    c. Death Star Hypothesis
    d. Genetic Collapse Hypothesis
    e. Extraterrestrial Impact Hypothesis

13. Cuckoos which lay their eggs in the nest of other birds color their eggs to match those of the host bird. This is a form of:
    a. Mullerian mimicry
    b. Batesian mimicry
    c. Photomimicry
    d. Aggressive mimicry
    e. Mertensian mimicry

14. Of the following species concepts, which one is most commonly used when discussing sexually reproducing animals?
    a. Ecological
    b. Phenetic
    c. Recognition
    d. Biological
    e. Morphological

15. For natural selection to operate:
    a. members of a population must lack variation
    b. all offspring in a population must survive
    c. advantageous traits must be genetic in nature
    d. there must be an excess of available resources

External Assessments

In Math and Sciences, we strongly feel that the best assessment of our programs and courses is that done using external measures. We feel that the placement of our applicants into professional programs is an excellent measure of the quality of preparation that our students receive. In the last 12 years, UAM has had 38 of 42 applicants to medical school accepted. Many of those applicants have been accepted into more than one college of medicine. During that same 12 year period we have about 90% acceptance rate into colleges of dentistry and optometry which are out of state programs and are extremely difficult to get into. Not only do our pre-professional students get accepted at a high rate, they perform extremely well in the professional programs. We have several students in the upper 20% of their class in these programs.

During that same period, UAM has had 77 out of 78 applicants accepted into a college of pharmacy. Almost every applicant that has applied to multiple schools has been accepted to more than one school. Our record of preparation of pre-pharmacy students has led to the establishment of the UAMS-UAM Rural Health Early Admission Program (RHEAP). This allows students with exceptional high school credentials to apply to UAMS and UAM together, and go through the interview process with the pharmacy school. The accepted students are then granted automatic admission to the UAMS College of Pharmacy upon completion of the UAM prerequisite coursework with an acceptable GPA and PCAT score. In discussions being held to work out the details of this agreement, a faculty member from UAMS made the comment, "We don't know what you guys do in Biochemistry and Biology, but whatever it is, keep doing it!" They openly praised our students entering their program. With the agreement in place, they can now recommend UAM for any student that contacts them with questions about where to attend college to get an excellent background for pharmacy school.

Another assessment tool that we use measure the quality of our programs and courses are standardized exams. The American Chemical Society has a testing institute that develops standardized course exams for essentially every chemistry course offered in a traditional program. At UAM, we use the exams at the end of the sequences in General Chemistry, Organic Chemistry, and Biochemistry. We have used the standardized exams in other courses as well on occasion. In General Chemistry, our students typically average around the 48^{th} percentile mark with a range of 42^{nd} percentile to 55^{th} percentile in some years. We consider this to be an excellent performance since we are competing largely with private institutions with high admissions standards and larger universities that only use the final exam in courses designed for chemistry majors. Based on the questions on the exams, we do feel that the test is becoming more difficult as indicated by lower averages in the last few years. In organic chemistry we have performed extremely well, finishing at the national average or better 17 of the last 24 years. We have only used the biochemistry exam a few

years and really don't have enough data to judge our performance at this time. The limited data that we have has placed our class averages just below national average each year. With all of the exams, we do apply a curve that prevents students' grades from being destroyed on these exams. With the curve, the class average on the final exam is usually near the average for the other exams for that course for the semester. It is not uncommon for the top students to score near or above 100% on the final exam with the applied curve. In the past we have taken the results from several years and identified areas of weakness that tend to occur more often. We have changed what material is covered, and the order of coverage to help with those issues. One example is the moving coverage of basic concepts in Nuclear Chemistry to the first semester to allow more time to be spent on the more rigorous material in Chem II. As the books continue to get more information packed in, it is becoming very difficult to cover all the material needed in two semesters.

We also do our best to track performance of our graduates on exams such as the GRE, MCAT, PCAT, DAT, OAT, and other pre-professional exams. We depend on students to supply the scores to us, and most of them do so upon request because they know we use the tests as a measure of our preparation. Over the years, the students typically score highest in chemistry and biology areas, and somewhat lower in critical reading skills, quantitative skills, and social sciences. This year was no exception. On the MCAT exam, UAM students averaged just over 50th percentile nationally in physical sciences and life sciences areas; however only 41st percentile in verbal, and 20th percentile in the social sciences. The PCAT exam averages were over 65th percentile in chemistry, 51st percentile in biology, 46th percentile in critical reading, and 40th percentile in the quantitative skills. Two of the students scored 89th percentile or higher in chemistry.

In Math and Sciences, we use courses such as Senior Seminar in Biology and Math as a capstone course. In chemistry, the seminar and paper are included as part of Advanced Lab Techniques. Also in chemistry, if a student has done undergraduate research and presented at a state, regional, or national meeting, they are not required to take Advanced Lab Techniques. The courses have a writing component, and also an oral presentation. The students are graded on their ability to prepare a paper in a format similar to a professional journal. The faculty correct the written product multiple times prior to the final turn in. The student then prepares an oral presentation using visual aids. Each student is also graded on their performance of the oral presentation. If a student is unsatisfactory in the oral presentation, they are given multiple attempts to reach the satisfactory level. On a few occasions we have asked a student to repeat the seminar on a later date, but most are successful on their first attempt. No one has had to attempt the seminar more than twice.

Addendums

Addendum 1: UAM Vision, Mission, and Strategic Plan

VISION

The University of Arkansas at Monticello will be recognized as a model, open access regional institution with retention and graduation rates that meet or exceed its peer institutions.
Through these efforts, UAM will develop key relationships and partnerships that contribute to the economic and quality of life indicators in the community, region, state, and beyond.

MISSION

The University of Arkansas at Monticello is a society of learners committed to individual achievement by:
- Fostering a quality, comprehensive, and seamless education for diverse learners to succeed in a global environment;
- Serving the communities of Arkansas and beyond to improve the quality of life as well as generate, enrich, and sustain economic development;
- Promoting innovative leadership, scholarship, and research which will provide for entrepreneurial endeavors and service learning opportunities;
- Creating a synergistic culture of safety, collegiality, and productivity which engages a diverse community of learners.

CORE VALUES:
- *Ethic of Care*: We care for those in our UAM community from a holistic perspective by supporting them in times of need and engaging them in ways that inspire and mentor.
- *Professionalism*: We promote personal integrity, a culture of servant leadership responsive to individuals' needs as well as responsible stewardship of resources.
- *Collaboration*: We foster a collegial culture that encourages open communication, cooperation, leadership, and teamwork, as well as shared responsibility.
- *Evidence-based Decision Making*: We improve practices and foster innovation through assessment, research, and evaluation for continuous improvement.
- *Diversity*: We embrace difference by cultivating inclusiveness and respect of both people and points of view and by promoting not only tolerance and acceptance, but also support and advocacy.

STRATEGIC PLAN

1. STUDENT SUCCESS—fulfilling academic and co-curricular needs

 Develop, deliver, and maintain quality academic programs.

o Enhance and increase scholarly activity for undergraduate and graduate faculty/student research opportunities as well as creative endeavors.

o Revitalize general education curriculum.

o Expand academic and degree offerings (technical, associate, bachelor, graduate) to meet regional, state, and national demands.

 Encourage and support engagement in academics, student life, and athletics for well-rounded experience.

o Develop an emerging student leadership program under direction of Chancellor's Office.

o Enhance and increase real world engagement opportunities in coordination with ACT Work Ready Community initiatives.

o Prepare a Student Affairs Master Plan that will create an active and vibrant student culture and include the Colleges of Technology at both Crossett and McGehee.

 Retain and recruit high achieving faculty and staff.

o Invest in quality technology and library resources and services.

o Provide opportunities for faculty and staff professional development.

o Invest in quality classroom and research space.

o Develop a model Leadership Program (using such programs as American Council on Education, ACE and/or Association of American Schools, Colleges, and Universities, AASCU) under the direction of the Chancellor's Office to grow our own higher education leaders for successive leadership planning.

o Create an Institute for Teaching and Learning Effectiveness.

 Expand accessibility to academic programs.

o Engage in institutional partnerships, satellite programs, alternative course delivery, and online partnerships with eVersity.

o Create a summer academic enrichment plan to ensure growth and sustainability.

o Develop a model program for college readiness.

o Revitalize general education.

o Coordinate with community leaders in southeast Arkansas to provide student internships, service learning, and multi-cultural opportunities.

2. ENROLLMENT and RETENTION GAINS

 Engage in concurrent enrollment partnerships with public schools, especially in the areas of math transition courses.

 Provide assistance and appropriate outreach initiatives with students (working adults, international, transfers, and diversity) for successful transition.
 Coordinate and promote marketing efforts that will highlight alumni, recognize outstanding faculty and staff, and spotlight student success.
 Develop systematic structures for first year and at-risk students.
 Identify and enhance pipeline for recruiting

3. INFRASTRUCTURE REVITALIZATION and COLLABORATIONS

 Improve Institutional Effectiveness and Resources through participation in a strategic budget process aligned with unit plans and goals for resource allocations.

 Conduct and prepare Economic Impact Studies to support UAM efforts and align program and partnerships accordingly.

 Prepare and update University Master Plan.

 Partner with system and state legislators to maximize funding.

 Increase external funding opportunities that will create a philanthropic culture among incoming students, graduates, and community.

o Increased efforts to earn research and grant funds.
o Creation of philanthropic culture among incoming students, graduates and community.
Collaborating with Athletics Fundraising to maximize synergies.
Create a Growing our Alumni Base Campaign.
o Encourage entrepreneurial opportunities where appropriate.
o Participation in articulation agreements to capitalize on academic and economic resources.
o Partner with communities to address the socio economic, educational, and health and wellness (safety needs) of all citizens.

Addendum 2: Higher Learning Commission Sample Assessment Questions

1. How are your stated student learning outcomes appropriate to your mission, programs, degrees, students, and other stakeholders? How explicitly do major institutional statements (mission, vision, goals) address student learning?

- How well do the student learning outcomes of programs and majors align with the institutional mission?
- How well do the student learning outcomes of general education and co-curricular activities align with the institutional mission?

- How well do course-based student learning outcomes align with institutional mission and program outcomes?
- How well integrated are assessment practices in courses, services, and co-curricular activities?
- How are the measures of the achievement of student learning outcomes established? How well are they understood?

2. What evidence do you have that students achieve your stated learning outcomes?

- Who actually measures the achievement of student learning outcomes?
- At what points in the curriculum or co-curricular activities are essential institutional (including general education), major, or program outcomes assessed?
- How is evidence of student learning collected?
- How extensive is the collection of evidence?

3. In what ways do you analyze and use evidence of student learning?

- Who analyzes the evidence?
- What is your evidence telling you about student learning?
- What systems are in place to ensure that conclusions are drawn and actions taken on the basis of the analysis of evidence?
- How is evidence of the achievement of student learning outcomes incorporated into institutional planning and budgeting?

4. How do you ensure shared responsibility for student learning and assessment of student learning?

- How well integrated are assessment practices in courses, services, and co-curricular activities?
- Who is responsible for the collection of evidence?
- How cross-functional (i.e., involving instructional faculty, Student Affairs, Institutional
- Research, and/or relevant administrators) are the processes for gathering, analyzing, and using evidence of student learning?
- How are the results of the assessment process communicated to stakeholders inside and outside the institution?

5. How do you evaluate and improve the effectiveness of your efforts to assess and improve student learning?

- What is the quality of the information you have collected telling you about your assessment processes as well as the quality of the evidence?
- How do you know how well your assessment plan is working?

6. In what ways do you inform the public about what students learn—and how well they learn it?

- To what internal stakeholders do you provide information about student learning?
- What is the nature of that information?
- To what external stakeholders do you provide information about student learning?
- What is the nature of that information?

Addendum 3: Arkansas Productivity Funding Metrics

- The productivity funding formula consists of four categories: Effectiveness (80% of formula), Affordability (20% of formula), Adjustments, and Efficiency (+/-2% of formula).

Effectiveness	**Affordability**	**Adjustment**	**Efficiency**
• Credentials • Progression • Transfer Success • Gateway Course Success	• Time to Degree • Credits at Completion	• Research (4-year only)	• Core Expense Ratio • Faculty to Administrator Salary