

Action Plan: Goal #1. Enhance our standing as the premiere science and mathematics institution within the PASSHE [SD1, 2 & 3, AA1 & 5]

Line	Objective	Action	Expected Outcome	Results	Progress
1	Maintain a contemporary curriculum in the sciences and mathematics that ensures quality and excellence.	Curricula will be regularly reviewed to ensure currency and alignment with professional organization standards and guidelines; monitor national trends.	<p>a) All programs will maintain national accreditation/approval or conformance to national guidelines, where available.</p> <p>b) Students will be successful in obtaining jobs in their field or admission to graduate or professional schools.</p>		Ongoing
2		Advance the quality and excellence for Biology	<p>a) Approve a new 120-credit program in Respiratory Therapy by 2006-07 as part of new B.S. Allied Health Technologies.</p> <p>b) Approve changes in the graduate biology program.</p> <p>c) Forensic option in biology reviewed with consultant assistance. New forensic chemistry course to be developed.</p>	<p>a) Spring 2007- proposal developed in department but put on hold during transition from LGH to LRMC. Spring 2008- BS-AHT degree proposal including new 2+2 in Respiratory Therapy passed MU curricular review.</p> <p>b) 2009-10: still under discussion.</p> <p>c) Trial chemistry forensics course offered in spring 2009. White Paper on forensic options developed in June 2009.</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>
3		Advance the quality and excellence for Chemistry	Develop forensic chemistry course.	Forensic chemistry course will be developed in 2010-2011	Ongoing
4		Advance the quality and excellence for Computer Science	Earn re-accreditation from ABET in Spring 2011	Prepare self-study report and host site team visit in 2010-2011	Ongoing

5		Advance the quality and excellence of the Earth Sciences	<p>a) Develop Integrated Earth System Science Program in accordance with 5-year review recommendation.</p> <p>b) Develop a set of “skills” courses in the earth sciences.</p> <p>c) Redesign ESCI BSE curriculum.</p> <p>d) Develop integrated capstone geology course</p>	<p>a) Department will consider MS in Integrated Scientific Applications.</p> <p>b) 2007-2008: One “skills” course developed- GIS. Forecasting Practicum and Broadcasting Practicum taught as topics courses; curriculum proposals under development. 2008-2009: Forecasting and Broadcasting Practicums approved as new courses.</p> <p>d) To be in place by Fall 2011</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>
6		Advance the quality and excellence for Mathematics	<p>a) Shift responsibility for Math student teacher supervision to the Math Department.</p> <p>b) Develop and implement changes in the graduate MEd program.</p>	<p>a) No action to date</p> <p>b) Grad courses moved to late afternoon and evening</p>	<p>Ongoing</p> <p>Ongoing</p>
7		Advance the quality and excellence for Physics.	Develop astronomy minor		Ongoing
8		Advance the quality and excellence for Nursing	<p>a) Earn re-accreditation for BSN and MSN programs by NLNAC</p> <p>b) Revise RN to BSN program</p> <p>c) Develop a RN-to-MSN curriculum</p>	<p>a) Self-study report preparation and site team visit during 2009-2010.</p> <p>b) Curriculum mapping to be completed during 2011-2012</p>	<p>Ongoing</p> <p>Ongoing</p>
9		Advance the quality and excellence in the BSE programs for mathematics and science to meet new Chapter 49-2 requirements.	<p>a) Add middle-level BSE programs for mathematics and science students.</p> <p>b) Adjust secondary post-bac school nurse programs to meet new Chapter 49-2 requirements</p>	<p>a) Middle-level curricula developed in 2008-2009 for BSE students with math emphasis, with science emphasis, and for BSE elementary majors.</p> <p>b) Under review by PDE</p>	<p>Ongoing</p> <p>Ongoing</p>
10		Enhance infrastructure and provide improved/enhanced support for distance learning programs.	Improve department’s ability to deliver DL programs.		Ongoing

11	Utilize a Learning Outcomes Assessment protocol to maintain academic quality.	All departments will participate in the university outcomes and assessment plan	All departments will assess three degree level outcomes per year beginning 2004-05	Fall 2005-present – all departments have an assessment plan in place. Plan updated yearly.	Accomplished Ongoing
12	Enhance and expand our role in the Marine Science Consortium, across all areas of the sciences.	Become a Senior Partner in MSC and give MU input on reorganization of MSC	MU will become a senior partner in the MSC and take on key roles within the Consortium governing bodies	MU President now Chair of the MSC Board for 2009-2011 MU Provost now chair of new Council of Academic Administrators MU administrators assisting MSC in developing Strategic Plan and creating administrative and financial systems	Accomplished Accomplished & Ongoing Ongoing
13		MU will assume a leadership role at MSC	MU faculty will assume key roles on MSC Academic Advisory Board and NASA Collaboration Committee		Ongoing
14		Investigate mechanisms to increase enrollments and course offerings at MSC and research opportunities at MSC	a) Number of MU students attending MSC courses will increase by 50% by summer 2011 b) Number of courses taught by MU faculty at MSC will increase by 33% by summer of 2012. c) Research projects conducted at MSC will increase	c) Research collaborations with NASA and others will increase.	Ongoing Ongoing Ongoing
15	Use the MU Center for Environmental Science to promote interdisciplinary environmental science activities on campus	Obtain recognition as a University Center for the MU Center for Environmental Sciences and implement environmental programming	The MU Center for Environmental Science will coordinate interdisciplinary environmental efforts in the University.	CES developed summer 2007 Environmental Institute, but inadequate enrollment available to teach the Institute. Revised and offered again in summer 2008 with earlier advertising, but still had inadequate enrollment. CES identifies possible graduate certificates. Spring 2009 – CES not yet a recognized Center.	Ongoing Ongoing Ongoing

16	Promote undergraduate student research and co-ops as important capstone experiences in the School.	Enhance and expand individualized opportunities for undergraduate and graduate students in the School	<p>a) Expand undergraduate research and internships experiences by 2006-07</p> <p>b) Expand graduate research opportunities</p> <p>c) Develop a funded summer undergraduate research program by 2006-07</p> <p>d) Expand the number of co-op experiences by four by the end of 2006-07</p>	<p>a) 2004-2005: 122 UG research experiences 2005-2006: 140 UG research experiences 2006-2007: 148 UG research experiences 2007-2008: 149 UG research experiences 11 students did NSF-REU supported research at Millersville and other universities. 21 students had (off-campus) internships. 5 KIZ summer research opportunities. 50 poster papers presented at spring School Research Symposium. A School record of 65 students presented their research at regional and national professional meetings. Research collaborations involve PA State Library, Lancaster Solid Waste Authority, Penn DOT, Lancaster Conservancy, City of Lancaster, and four regional science start-up companies. 2008-2009: 110 UG research experiences</p> <p>b) Number of Graduate Nursing research projects are increasing at about 15 per year.</p> <p>c) Fall 2006 – funding for UG research coming from individual faculty research grants. Summer 2007-2009 – REU program funded for three summers. Also have funding from individual faculty research grants</p> <p>d) 2004-05 coops – 31 2005-06 coops – 19 2006-07 coops – 39 2007-08 coops – 36 2008-09 coops – 23</p>	<p>Ongoing</p> <p>Ongoing</p> <p>Accomplished & Accomplished</p> <p>Accomplished</p>
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17	Assure academic quality by continuation of regular 5-year program reviews and maintenance of ongoing accreditation of academic programs.	Utilize department 5-year program reviews and accreditation reviews to identify future directions for the departments. 2005-2006: Physics 2006-2007: Earth Sciences, Chemistry 2007-2008: Biology, Mathematics 2008-2009: none	a) Departments evaluate department strengths and weaknesses and develop a 5-year plan to strengthen the department. b) Maintain accreditation of computer science, nursing, and respiratory therapy programs and ACS approval of the chemistry program.	a) 5-year reviews completed for Mathematics (sp'08) and Biology (sp-08). b) 2008 – Respiratory Therapy received CAAHEP continuing accreditation until 2017. NLNAC site visit (sp-10) awaiting re-accreditation decision ABET site visit planned for 2010-2011 Still awaiting ACS action on chemistry program approval.	Accomplished & Ongoing
18	Increase grant-writing activities in the school.	Encourage school faculty to take advantage of grant opportunities.	Number of grants submitted will increase by 10% by 2014		Ongoing
19	Enhance and expand graduate programs in mathematics and biology and explore new curricular directions, especially in developing fields and interdisciplinary fields (such as professional science master's degree programs).	Develop a Professional Science Master's program in Integrated Scientific Applications	Will develop a PSM program with 3 options: Environmental Systems Management, Earth systems Informatics and Weather Intelligence and Risk Management	MU faculty co-wrote two NSF grants to support the development of such programs. Preparing Letter of Intent for PASSHE SP10	Ongoing
20		Revamp the MS program in Biology to a sustainable program	A new, sustainable program will emerge from moratorium by 2013.		Ongoing
21		Restructure MEd Mathematics offerings	The number of students enrolled in graduate mathematics classes will increase by 10% by 2013.		Ongoing
22	Increase options and enrollments in allied health fields.	Implement new BS ALHT program	The number of students enrolled in Respiratory Therapy will increase by 15% by 2013.		Ongoing
23		Add new options in BS ALHT program	Develop and implement options in...		Ongoing

Action Plan: Goal #2: Maintain and Expand Facilities and Equipment to Meet the Growing Needs of the School [SD1, AA]

Line	Objective	Action	Expected Outcome	Results	Progress
24	Obtain resources for equipment as an essential contributor to program excellence.	Establish a long-term plan for enhancements and upgrades of equipment, multimedia and technology	Develop and implement a plan to maintain up-to-date equipment and facilities on an annual basis.	Plan includes funding from Base Equipment, one-time supplement equipment, Long-term Equipment, Technology Fee, and faculty grants. Major accomplishments for 2008-09 include replacement of multimedia equipment in Caputo/Roddy/ Brossman Halls (\$350,000) during the spring and summer 2008 funded by the Technology Fee. Personal response systems installed in all science classrooms. Tech Fee also funded new CSCI teaching lab (\$53,000), meteorology server cluster (\$23,000), and biology dissecting microscopes (\$28,000). For 2009-10, include laboratory equipment for new BIOL 101 course (\$37,000), Atmospheric Profiling System (\$85,000), replacement HPLC (\$28,000), replacement multimedia for Nursing Skills Lab (\$20,000) and telescopes (\$6,000).	Ongoing
25	Maintain, improve and acquire equipment and technology as needed.	Use Base Equipment and Student Technology Fee budgets to maintain and improve equipment.	Maintain school's inventory of modern, updated equipment, meeting growing needs of the school.		Ongoing
26	Plan for replacement of Caputo Hall HVAC system.	Work with Facilities to fund through energy efficiency initiatives.	Replace system with reliable, energy efficient system. The system will pay for itself in a few years.	Request made to PASSHE for funding under the ESCO initiative; funding is pending.	Ongoing
27	Properly maintain facilities and plan for renovations, as needed.	Annually review facilities needs and request renovations and repairs, as needed.	Facilities will remain in excellent and attractive condition.	Some requests have been submitted and some have been placed on hold.	Ongoing
28	Plan for design of new science facilities, as needed to support new or expanded programs.	Initiate discussion of feasibility of new space.	Yearly review of space needs.		Ongoing

29	Increase grant-writing activities supporting equipment acquisition and facilities renovation or construction.	Encourage school faculty to engage in grant-writing activities.	The number of grants submitted to external agencies to support equipment and facilities will increase.	Pending	Ongoing
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Action Plan: Goal #3. Improve retention and graduation rates in the School through an emphasis on a student-centered environment [SD 2, AA 3]

Line	Objective	Action	Expected Outcome	Results	Progress
30	Improve School's first-year and second-year university retention rate	Prepare data base that documents retention rates and informs effort to improve retention rates.	Establish a 1-year retention rate for the School of at least 78% by 2006	<p>Background: 2002-2003 Benchmark average retention rate = 77.6%</p> <p>First year retention rate for fall 2004 class of 82.4%. Fall '05- 83.7%. Fall '06- 82.8%, Fall '07-80.3%. Fall '08-83.2%</p>	Ongoing
31			Establish a 2-year retention rate for the School of at least 70% by 2006	<p>Background: 2000-2002 Benchmark average retention rate = 70.0%</p> <p>Second year retention rate for fall 2003 class of 66.8%. Fall '04- 73.4%. Fall '05- 68.8%. Fall '06- 68.7%. Fall '07-69.6%.</p> <p>Retention strategies include: Living Learning Communities for biology, chemistry, earth sciences, mathematics and physics. Student Peer Mentoring used in chemistry and earth sciences. Freshman Seminars offered in biology, chemistry, earth sciences, mathematics, and physics.</p>	Ongoing
32	Improve School's 4-year and 6-year university graduation rate	Prepare data base that documents graduation rates and informs effort improve graduation rates.	Establish a 4-year graduation rate from university of at least 33% by the 2002 cohort	<p>Background: 1998-2000 Benchmark average graduation rate = 32.1%</p> <p>4-year graduation rate for the class of 2001 was 34%. 2002- 32.5%. 2003- 29.7%. 2004- 39.3%. 2005-36.6% [Univ mean 38.5% for this period]</p>	Ongoing

33			Establish a 6-year graduation rate from university of at least 67% by the 2000 cohort	Background: 1998-1999 average = 60.1%] 6-year graduation rate for the class of 1999 of 61.0%; 2000- 62.4%; 2001- 63.1%. 2002- 58.6%.2003-59.4% [Univ. mean 61.2% for this period]	Ongoing
34	Improve science tutoring, learning communities, and peer mentoring to enhance retention.	Develop and implement tutoring strategies for science and mathematics courses	Tutoring process has been in place since September 2005; will be continued and monitored	Protocol established during fall 2005 between Learning Center Director and SCMA to identify tutors in collaboration with SCMA faculty and department chairs. Tutors and tutoring schedule prepared collaboratively every fall and spring semester. The Mathematics Department continues to coordinate math tutoring.	Ongoing
35		Develop and implement learning communities for School majors	Learning communities will be monitored annually	Biology and Earth Sciences living learning communities established in fall 2004. Chemistry and Physics living learning communities established fall 2006. Fall 2007and 2008. (Living) Learning Communities offered for Biology, Chemistry, Earth Sciences, and Physics. Housing Office able to assign housing component only for earth sciences, but Learning Community did exist. Mathematics (Living) Learning Communities established for fall 2008.	Ongoing Completed: Learning Community Ongoing: Living Component
36		Develop and implement strategies for student peer mentoring in the School	Peer mentoring will be implemented by 2007-08	Chemistry uses peer mentoring coordinated through the ACS student affiliate chapter. Earth Sciences uses peer mentoring coordinated through the AMS student club. Began in fall 2004.	Ongoing
37	Maintain the new database that summarizes retention to graduation in the departments and in the school.	Maintain database to monitor retention within the School and movement of students between departments in the School.	Data will show improved retention in the school	Data on six-year graduation of freshmen in their original departments and in the school and university tabulated for entering classes 1996-2001. Six-year graduation rate for Fall 2003 Freshmen from dept/school/university of incoming freshmen of: Biology- 33/35/55%; Chemistry- 25/38/63%; CSCI- 41/43/57%; ESCI- 38/40/65%; Math- 53/53/72%; Physics- 23/46/46%;SCMA-37/41/59%;Univ-33/-/61%.	Ongoing

38	Increase grant-writing activities supporting recruitment and retention of a diverse group of students.	Encourage school faculty to engage in grant-writing activities that support recruitment and retention of a diverse group of students.	The number of grants submitted to external agencies to support equipment and facilities will increase.	A group of faculty are currently writing an NSF proposal to support Hispanic STEM students.	Ongoing
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Action Plan: Goal #4: Improve the quality and increase the diversity of incoming majors in the School [SD4, AA 2]

Line	Objective	Action	Expected Outcome	Results	Progress
39	Increase the proportion of entering African-American and Hispanic students in the School through coordination of admissions effort with Admissions Office.	Prepare data base that documents diversity in the School.	The proportion of entering African-American students in the School will be at least 7% by fall 2007.	Background: Fall 2001: 16/316= 5.1% Fall 2002: 27/284= 9.5% Fall 2003: 28/291= 9.1% Fall 2004: 25/297= 8.4% Fall 2005: 24/284= 8.5% Fall 2006: 7.2% Fall 2007: 7.2% Fall 2008: 29/293=9.9% Fall 2009: 24/344=7.0%	Ongoing
40			The proportion of entering Hispanic students in the School will be at least 3% by fall 2007	Background: Fall 2001: 10/316= 3.2% Fall 2002: 8/284= 2.8% Fall 2003: 5/291= 1.7% Fall 2004: 5/297 = 1.7% Fall 2005: 16/284= 5.6% Fall 2006: 4.8% Fall 2007: 3.0% Fall 2008: 12/293=4.1% Fall 2009: 18/344=5.2%	Ongoing

41	Increase available university scholarships for minority students.	Collaborate with the Advancement staff to promote new scholarships	Secure additional scholarships to attract minority students to the School Secure additional scholarships to attract students to the School.	Nursing secured \$46,000 in nursing scholarships during 2005-2006 through PHEF. \$101,887 during 2006-2007; \$20,196 during 2007-2008; \$38,500 during 2009-2010, from various sources. NSF-STEM scholarship grant for \$585,000 submitted in November 2007. Emphasis on low income and minority students. Funded July 2008. Scholarships offered to 10 sophomores in fall 2008 and 22 incoming freshmen in spring 2009. New Department scholarships awarded in 2008-2009: biology(1),chemistry (2), geology (1), and physics (3), math (2). Several new endowed scholarships established in biology, chemistry, geology, mathematics, and physics	Ongoing Ongoing Ongoing
42	Promote diversity and improved recruitment through contacts with high school teachers and prospective students.	Collaborate with high school science and math teachers to help recruit students to the School	Promotional letters will be sent to selected high school science and math teachers by fall 2005. Dean and Departments promote School in expanded Open House presentations.	Chemistry and Physics Departments send promotional letters to high school teachers. Dean offers 20 minute School overview at all Open Houses; Departments offer 1 ½ hour departmental orientations for prospects.	Accomplished & Ongoing
43		Maintain School and departmental web pages and recruitment literature that attract students to the School	Both School and all departmental web pages will be updated regularly. Departmental brochures developed and updated regularly.	Fall 2006. School Web page completed redesigned by a School committee and implemented. Department web pages regularly updated. Annual updates. Departmental brochures were prepared to replace the older school brochure in collaboration with University Marketing. 2008-2009. School web pages updated in new university format. Dept. web pages (CSCI, chem., math, earth sciences) updated.	Ongoing Ongoing Ongoing
44		Offer Central PA Science Olympiad	Pool of potential science and math students, majority and underrepresented, increased.	Successful Science Olympiad offered in spring 2008 for about 700 students and teachers. Olympiad attracted about 600 students and teachers in 2009 and about 500 students and teachers in 2010. Excellent reviews from participants each year.	Ongoing

45	Promote diversity through development of school diversity plan and recruitment of a diverse faculty.	Review School Diversity Plan	School Diversity plan will be maintained regularly	School Diversity Plan completed spring 2008.	Ongoing
46		Recruit a diverse faculty that can act as role models for students	The School will increase its proportion of minority faculty members and women faculty members by 2007-08 towards the goal of matching the national pool for minority and women faculty in the sciences and mathematics.	<p>Fall 2004: Hired Dr. Nazli Mollah (CSCI) and Dr. Natalia Dushkina (PHYS). Spring 2005: Hired Dr. Christopher Hardy (BIOL). Diversity: Two women, one man, one Asian Fall 2005: Hired Dr. Ryan Wagner (BIOL), Dr. Dominique Dagit (BIOL), Dr. Sean Hendrick (PHYS), Dr. Antonia Cardwell (MATH), Dr. Maria Schiza (CHEM). Diversity: three women, two men Fall 2006: Hired Dr. Judith Cebra-Thomas (BIOL). Diversity: one woman Fall 2007: Hired Dr. Steve Bonser (CHEM), Dr. Ajoy Kumar (ESCI), Dr. Travis Miller (MATH), Dr. Elizabeth Sell (MATH), Dr. Kevin Robinson (MATH), Ms. Kelly Kuhns (NURS), Dr. Mehmet Goksu (PHYS). Diversity: two women, 5 men, one Asian, and one Middle Eastern. Fall 2008: Hired Dr. Robert Vaillancourt (ESCI) and Dr. Yuan Zhong (BIOL). Dr. Tae-Wan Park (MATH) hired as TTF. Diversity: one woman, two men, two Asian Fall 2009: Hired Dr. Sam Earman (ESCI), Dr. Zhigang Han (MATH) and Dr. Erin Moss (MATH). Dr. Andrey Glubokov, Dr. Louis Levy (MATH) and Dr. John Rosson (MATH) as TFTP Diversity: one woman, four men, one Asian</p>	Ongoing