

July 12, 2010

To: Kathleen Enz Finken, Provost

From: Bruce Riley, Interim Dean
College of Science and Health

Re: 2009-10 Year-End Report

What follows is my short summary of activities in the College of Science and Health; more information is described in the attached departmental summaries for AY2009-10.

College Staffing. Nineteen new tenure-track faculty and four instructional academic staff members joined the college in August 2009.

- The new staff increased departmental expertise in targeted areas of study, and provided several departments with opportunities to offer additional sections of high demand courses and laboratories.
- The new staff helped lighten the workload on continuing staff and, with the increased staff, some departments were able to provide faculty with some reassigned time to devote to scholarly activities (more departments need to examine how they might use reassigned time in this way).
- Based on first year reviews, the new faculty did quite well in the areas of teaching and scholarship during their first year at UW-La Crosse. Only one review contained notable concerns about the new faculty member in the area of teaching; the department is actively involved in helping the faculty member address the concerns.
- Eleven of the new faculty members participated in the College's early start program for grant proposal writing (during the month of August 2009). The results of the grant writing activity are displayed in an attachment.

During the year, seven new faculty and three instructional academic staff members were hired to begin in AY2010-11 (two additional IAS position searches, in the areas of nuclear medicine technology and medical dosimetry, are still underway). These new hires fill consequential needs in the college including the areas of clinical laboratory science, occupational therapy, and mathematics education.

During the AY2010-11, the college plans to search for two tenure-track faculty positions in science education (I had good discussions with each of the science departments regarding science education, and I am convinced that science teacher preparation will be a higher priority for these departments in the future). In addition, depending on impending budget reductions and the status of the GQ&A program, the college is considering searches for positions in the areas of geography (GIS/cartography), recreation management, community health education, radiation therapy, and exercise science.

With the uncertain budget situation, a major challenge in staffing will be hiring to meet accreditation requirements (for example, in radiation therapy next year and perhaps in nuclear medicine technology in the near future).

College Finances/Supplies and Expenses. The S&E budgets for two departments, Biology and Chemistry, were increased significantly for FY2010 to help with sizable laboratory instructional expenses; the increases were effective. At some point, S&E budget increases must be made in Microbiology and Physics, again to help with large laboratory instructional expenses.

Former Dean McLean left a sizable amount of carry-over (from FY2009) 102 funds. These funds were used, I think, effectively to meet (some new and some long time) needs in the college, including:

- Provide S&E help to the Microbiology and Physics Department (for 2009-10, and for 2010-11 in anticipation of a restricted budget in FY2011).
- Replace and upgrade equipment used in science teaching laboratories (much of this equipment will also be used for faculty and student research projects, and was referred to as institutional resources available to grant proposal projects).
- Replace computers in departmental computer laboratories.
- Fund small classroom/laboratory modernization projects.
- Replace faculty computers (two rounds, fall 2009 and spring 2010 in anticipation of a restricted budget in FY2011).
- Supplemental travel support for faculty.

Equipment needs were identified by departments in memoranda sent to the college office and in an inventory of equipment owned by the college conducted by the SAH College Committee.

College Programs. Several programs, Athletic Training, Physical Therapy, and Radiation Therapy, received positive reaccreditation reviews, and the Biochemistry, HEHP, PETE, and RMTR programs completed their academic program reviews. All of these reviews identified areas of concern that the department/program should address; the college will assist in these efforts as appropriate.

The Nuclear Medical Technology program was moved from the Chemistry Department to the Health Professions Department. This move places the programs in nuclear medicine technology, radiation therapy, and medical dosimetry in the same department and, hopefully, will lead to some efficiencies in the delivery of their related curricula.

College personnel were involved in investigations of possible new programs (for example, in nursing, health care/policy administration, and nutrition), and the Mathematics Department proposed a major in statistics to replace the current Mathematics Major with Statistics Emphasis (requiring no additional funding). In addition, college personnel are currently investigating possibilities for professional science masters programs. Of course, future budget consideration will play a role in how these investigations continue.

SAH faculty members administer the WiscAMP program at UW-La Crosse (the program's aim is to increase the number of underrepresented minorities who receive bachelor's degrees in the STEM

disciplines). This summer there are six WiscAMP scholars working with faculty mentors on undergraduate research projects in the sciences and mathematics.

The UW-La Crosse McNair program was started in AY2009-10. Currently, there are twenty-four McNair scholars. Of these students, four had successful research proposals funded by the WiscAMP program (2 students) and the SAH Dean's Summer Research Fellows program (2 students).

Collaborative programs continue with local high schools. In particular, the Biology Department offers its Introductory Biology course through Logan (La Crosse) High School, the Chemistry Department offers its general chemistry course through West Salem High School, and the Computer Science Department offers its first software design course through West Salem High School.

Selected College Activities. SAH faculty members were successful in their contract and grant writing efforts: 6 contracts, 6 federal grant proposals, and 10 non-federal grant proposals were funded totaling more than \$3.5 million in direct and over \$385,000 in indirect external funds coming to the university. In addition, 6 system grant proposals were funded with a total of \$104,379 in direct dollars coming to the university. Fifteen grant proposals are still pending with the potential of over \$2 million in direct and indirect dollars.

An immediate challenge for the college is to identify ways to help faculty with existing grants meet the new fringe benefit rates for external grants (for example, use college indirect account funds to help cover the new fringe benefit costs or providing teaching release time to PIs without charging their grants for teaching backfill freeing-up grant dollars to cover the new fringe benefit costs).

In AY2009-10, SAH faculty members were quite active (and successful) in the area of scholarship with a total of approximately 100 research publications, over 150 talks at professional meetings, and mentoring work with approximately 160 undergraduate and 90 graduate students on research projects.

SAH department chairs completed their first Faculty Assignment Record reports. These reports are being reviewed and will be shared with department chairs with the goal of more consistent recognition of faculty work activities and, in some cases, revision of workload assignment so that there might be more equity in workload across the college.

The Cowley Hall departments/faculty have been engaged in the pre-design activities associated with the Cowley Hall/Science Building Project. Departments/faculty members have come well prepared to the space need meetings, resulting in very productive meetings. Of course, we are now entering into the more challenging task of prioritizing space needs and identifying what spaces will be retained in the final pre-design report.

Inclusive Excellence. While I only minimally promoted inclusive excellence during AY2009-10, SAH faculty members were engaged in activities consistent with the goals of inclusive excellence. For example, several faculty members are involved in mentoring minority students in the previously mentioned WiscAMP and McNair programs, the Mathematics Department conducted a seminar on mathematical educational systems in Asian cultures, and the Biology Department is planning a workshop on universal design in biology courses.

During AY2010-11, I must give higher priority to increasing the awareness of diversity and equity issues within the college, and encouraging departments to engage in activities consistent with the goals of inclusive excellence that benefit the departments.

College Plans for AY2010-11. In the prequel, I mentioned several activities for the next academic year:

- Faculty recruitment.
- Cowley Hall/Science Building Project pre-design activities.
- Workload equity study.
- Assist departments address areas of concern identified during external/academic program reviews.
- Helping PIs with existing grants meet the new fringe benefits rates.
- Promoting the goals of Inclusive Excellence.

In addition, I place high priority on:

- Continuing to develop plans for meeting the additional responsibilities created by moving the secondary mathematics and science education programs into SAH.
- Finding ways to support faculty scholarship and professional development activities.

Biology Department Report 2009-10

Achievements:

In 2009-10, Biology welcomed four new faces to our staff: Dr. Anita Baines (Plant Biology), Dr. Lee Baines (General Biology), Dr. Sumei Liu (Physiology), and Dr. Tony Sanderfoot (Plant Cell Biology). With 9 untenured faculty, Biology created a formal mentoring committee which met with all untenured faculty. In addition, most tenured faculty participated in peer evaluations of teaching for the untenured faculty. In Spring semester we successfully hired Dr. Gretchen Gerrisch (Organismal Biology). This search received a record 170 applications.

These new hires have allowed us to offer numerous additional lecture and lab sections of core and high demand courses; both lowering enrollments per lecture section and increasing the number of seats available to students. In 2009-10 alone, additional sections were added to Plant Biology (BIO 204) lecture (+2), Ecology (BIO 307) lecture (non-lab course), Human Physiology II (BIO 313) lecture and lab, Cell Biology (BIO 315) lecture and lab (+2), and Capstone Seminar (BIO 491/492) (+3). In all, these courses served 186 more students in 2009-10 than in 2008-09.

Biology faculty and students were quite active in scholarship. Biology faculty were principal investigators or co-principal investigators on 25 externally funded grants or contracts totaling over \$4.9 million. Biology faculty published 20 articles in peer-reviewed journals and 10 articles in edited volumes. Together, Biology faculty and students participated in over 80 presentations of their scholarship. Eleven M.S. students finished their thesis in Biology, and another 30 or so were engaged in Master's research. Over 85 undergraduates performed undergraduate research with Biology faculty.

The Biology Department was also engaged in curriculum review and reform. Prior to this year, faculty determined two ways that the Biology curriculum could be improved. First, Biology students need additional formal training in evolution. Second, the current version of Capstone Seminar (BIO 491/492) does not consistently help all students achieve a capstone experience that draws upon their experiences from throughout their program. A Capstone Revision Committee (Rob Tyser, Chair; Kathryn Perez, Tisha King-Heiden, and Mike Abler) met throughout the year and created an all new syllabus for Capstone Seminar. The new version emphasizes evolution – providing more opportunity for students to master the concepts of evolution. In addition, the topics and course design provide a more structured framework that should require students to synthesize information from multiple courses – providing a better “capstone experience.”

Finally, Dr. Meredith Thomsen earned promotion from Assistant Professor to Associate Professor. Dr. Tim Gerber earned promotion from Associate Professor to Full Professor.

Challenges for the Future:

The main challenge that Biology faces moving forward is a lack of space. Cowley Hall has insufficient space to add more lab sections to many high demand courses (BIO 306, BIO 312, BIO 313, BIO 315). Because Cowley lacks unused research lab space, Biology cannot make any further tenure-track faculty hires. Because Cowley lacks additional office space, two Instructional Academic Staff in Biology who

currently have individual offices will have to share one office. This move will be needed to provide an office to the new tenure-track hire.

Financial support for equipment maintenance repair contracts and future equipment repair is also a challenge.

Future Goals and Initiatives:

The Biology Department will continue to assess the curriculum and upper level electives in areas that are currently not covered. The faculty who have been added in the last three years have provided both the expertise and FTE to allow the addition of core courses and needed electives.

Inclusive Excellence:

The Department plans to further engage in discussions of how to better serve students from diverse populations. In 2009-10, we discussed plans to have a departmental workshop on Universal Design in Biology courses. After speaking with Deb Hoskins, Chris Coppess, and June Reinert we are hoping to host Dr. Greg Stefanich from University of Northern Iowa for a Universal Design workshop in 2010-11. In addition, several Biology faculty started a discussion with Lynette Lo, Diane Sasaki, and Guy Wolf on mechanisms to help Biology students who have English as second language. In 2010-11, we hope to continue this discussion and develop strategies to help these students meet their learning goals.

SUMMARY OF ANNUAL ACTIVITY
DEPARTMENT OF CHEMISTRY
(June 1, 2009 - May 31, 2010)

The Department of Chemistry welcomed five new staff members to its ranks this year—three tenure track faculty, and two IAS—and with these people, we worked through the academic year with an extensively revised set of departmental Bylaws (completed last year). Things went smoothly, and the new people helped to lighten the burden on a previously overloaded faculty. Many course section sizes were reduced and students were better served overall. Beyond normal teaching, several faculty members also assisted in special summer outreach teaching programs such as Girls in Science, Young Scholars, the Gifted and Talented Network, and the Chemistry Wizard Shows. Chemists also offered special laboratory safety workshops for all CSH departments in the summer and each semester, and these were archived on the web for the first time. We offered the year-long *General Chemistry I* course for advanced West Salem HS students for the fourth time. Department members also started a Chemistry Teaching Discussion Group, and this body met regularly throughout the year. We completed our required five-year program review for the new Biochemistry Major, which was well received and endorsed by the UW-L Faculty Senate. We planned and wrote a comprehensive Chemistry Writing in the Major Program proposal, and this was accepted and approved by the UW-L General Education Committee.

Outside the classroom, chemists collectively mentored or co-mentored over 40 undergraduate research students and sat on thesis committees for several graduate students in programs outside of chemistry (primarily BIO and MIC). Department members collectively wrote several proposals for external funding and were fortunate to receive some rather large awards. New grants for the 2009-10 year involving chemistry faculty exceeded \$2.5M, and an additional \$3M (approximate) in unfunded proposals were submitted. Department members and their students made numerous scholarly presentations at professional conferences and collectively published several peer-reviewed manuscripts (or patents) in the professional/academic literature.

Chemistry faculty members were widely engaged in university service and governance and sit on a wide range of college and faculty senate committees. The department also awarded over \$24k in scholarships to its majors, planned three different lab modernization efforts, was involved in several planning sessions for the new science building, and worked to prepare the comprehensive American Chemical Society's Periodic Review for external accreditation (submitted June 1, 2010). The department considers student advising important, and while all faculty advise students, some carry very heavy advising loads (NMT, pre-pharmacy, and biochemistry). At two department meetings, the faculty discussed how it might best participate in the Inclusive Excellence initiative. We also discussed the possibility of adding a new faculty line in Chemical Education and bolstering our participation in and support of teacher certification in chemistry. These efforts will continue into the next year, as will our curricular assessment work and ongoing efforts to update most all of our laboratories with new experiments that employ more modern equipment and technology.

(475 words)

Department Activities
ComputerScience
University of Wisconsin-La Crosse
June 1, 2009 - May 31, 2010

Department Activities

Summary of Departmental Activities from the Past Year

The 2009-10 academic year has again been a productive one for the UWL Computer Science department in all areas of instruction, scholarship and service. This summary focuses on activities of the whole department as opposed to individual scholarship and service activities.

Instructionally, approximately 120 students declared CS as their major with another 30 students declared as CS minors. In addition, through its CS 101, 103 & 104 course the department provided instruction for approximately 800 non-majors each year. Department enrollment trends in the major continue to be consistent with national trends which remain well below the peak of 2001.

The disparity between enrollment in CS programs and the demand for software developers continues to be a problem of national significance. The U.S. Department of Labor projects that computer software engineers will be among the fastest growing occupations through 2016 with an overall growth of 38%. Many national organizations including the National Science Foundation and the Association for Computing machinery are putting substantial effort into addressing this situation. On a local level our students are finding ample job opportunities with many well paying internship opportunities with local companies going unfilled. Graduates of the MSE program are receiving salary offers greater than the salaries offered to new assistant professors.

The five-year track for completing the BS in Computer Science and Master of Software Engineering degrees continues to attract a significant number of students. This year, a total of 12 students (not counting the contract programs) completed the MSE program. Of these 4 were students in the five-year track.

The department proposed and received approval for three new courses: Software Security, Web Development and Open Source Software Development. These courses were proposed by the department because they each represent recent areas of significant growth in the discipline of computer science. The Software Security course focuses on the development of software using principles and methodologies that protect sensitive systems and information. The Web development course focuses on the development of complex software applications that are intended to be hosted through web based technologies. This course was offered as a special topics course this last year. The Open Source Software Development course surveys the numerous open and free source projects that have substantially changed the way in which large scale systems are developed. It also focuses on the tools, design principles and coding standards that allow communities of widely dispersed individuals to effectively develop software.

For a couple of years the Computer Science department has been in discussion with Information Systems and the College of Business regarding CS 103&104. These courses were created to service CBA students. Due to position cuts in the Computer Science department during 2003 the department was forced to offer these courses in a large lecture format only. The departments preferred solution was to reintegrate the CBA students into CS 101. The department is constantly evolving this course and continues to believe that it would best serve the students. However, CBA this year requested approval to drop the CS 103&104 requirements from their curriculum.

The department also conducted a search for an assistant professor under the GQA program. This search was successful, resulting in the hiring of Martin Allen.

The Computer Science department has for several years engaged in a number of outreach activities, to both high school students and employers. These efforts are intended to help promote the study of computer science and to support a better public understanding of employment opportunities in computer science and software engineering.

In 2008-09 the department consulted with area high schools concerning how we could contribute to improving computer science education at the high school level. The department was requested to considering offering its CS 120 course through area high schools. In this last year the department piloted this program with West Salem High School. The curriculum was taught by high school teachers with the assistance and over sight of CS department faculty. The department specifically reviewed examination and project performance of the students to ensure that appropriate expectations were maintained. We plan to continue this program next year and to also possibly expand the program to include G.E.T. High School as well.

The department also has been talking with employers about national trends. We have found that employers are increasingly aware that it is to their long term advantage to contribute to the promotion of computer science in high schools and universities. We have found interest in both creating scholarships and participating in cooperative activities with high school students and teachers.

The department is operating two NSF funded S-STEM scholarship programs. The first program awarded scholarships to its third cohort this last year. The focus has been broadened to include undergraduate CS majors as well as MSE students. So far, 12 students have received support under this program. The second program is joint with Western Technical College. This program awarded scholarships to three freshmen this year.

The department continues to develop contract programs for international students. This year the fifth cohort, consisting of 19 students from the South Central Universities for Nationalities, completed their MSE degrees at UWL. The department continues to work with schools in India to finish the process of obtaining approval for these programs from the Indian Government. The department has also worked closely with Wuhan University to begin recruitment for students under the agreement signed with them last year. As a preliminary to the full program, six Wuhan students (4 undergraduates and 2 graduate) attended UW-L this last year. The 2 graduate students will be completing the MSE degree this summer. Three of the four undergraduates will return to UW-L next year to complete the MSE degree.

The department's goals for the next year are a natural outgrowth of our current activities. The department will continue to work to strengthen its undergraduate curriculum particularly in the initial 120,220,340 and discrete mathematics sequence by more precisely delineating the responsibilities of each course. The department will continue to monitor the Computer Science accreditation program offered by ABET to ensure that our program continues to meet these standards should the department choose to pursue accreditation. The department will study ways to expand the regional base from which we draw MSE students as well as continue to promote the five-year track as a dual degree option for new students. The department will continue our various outreach efforts with high schools as part of an effort to address the national decline in computer science majors. The department will continue to evolve its CS 101 general education offering by focusing on the concepts important to computational thinking and to explore other potential offerings in the area of computational thinking. The department will work with the Mathematics department to recast the Computational Science Minor as a joint emphasis within the Computer Science and Mathematics majors.

Assessment - Additional Commentary

This was the second year in which the department completed the General Education assessment process for CS 101 and CS 120. This year the department reviewed the results of last years assessment and while generally pleased with the results the department determined that the exam questions and grading rubric required refinement to better distinguish student performance. These revised questions were used this year with the results submitted to the General Education assessment process. The department will review these results next fall.

This is the fourth year that the department has used the Major Field Exam as an assessment tool for the undergraduate major. The average score of UWL students taking this exam has been between 155 and 160 out of 200. UWL mean sub-scores, within the three areas measured by the exam, range from the 60th to 90th percentile when compared to other institutions using this exam. The department remains pleased with these results.

Estimated Number of IFTE Used for Graduate Education: 1

Lecture, Conference and/or Arts Events

Title of Event: Distinguished Lecturer in Computer Science

Scope: Regional

Event Sponsors:

UW-L College of SAH and UW-L Alumni Foundation

Number of Performances: 1

Size of Total Audience: 100

Audience Composition: Mixed Audience

Description:

This year's lecturer was Dr. Barbara Liskov, Institute Professor at MIT and 2009 winner of the ACM Turing Award.

Student Activities

One MSE student presented at the Midwest Instruction and Computing Symposium held this last spring at UW-Eau Claire and several undergraduate participated in the robotics and programming competitions.

Department Activities
GeographyAndEarthScience
University of Wisconsin-La Crosse
June 1, 2009 - May 31, 2010

Department Activities

Summary of Departmental Activities from the Past Year

Three new faculty members joined the Department in Fall 2009. They are Dr. Colin Belby, Dr. Ryan Perroy, and Dr. Wen Lin. This academic year marks the end of Dr. Chu's chair appointment; Dr. Berlin has been elected to serve as chair for a term of three years, beginning on July 1, 2010.

Summary of Departmental Activities from the Past Year Specific to Graduate programs

Although the Department does not have a graduate program, some faculty members were active in serving as graduate faculty in several graduate level courses in Geography and Earth Science.

Assessment - Additional Commentary

Instructors who taught Gen Ed courses actively participated in the assessment of Gen Ed classes. The results are rather positive with high percentages of students who were tested satisfactory or above.

Significant Program Changes

Two of the three new faculty members have specialties in physical geography, a major void since the retirements of Drs. Dean Wilder and Harun Rashid. The GIS program also received a boost with the hiring of Dr. Wen Lin, who has the most recent training in GIS as this technology constantly advances in the forefront of technology.

Awards, Honors and Fellowships

Drs. Berlin and Chu received a NSF grant on Geoscience Education and began their research on the topic of Global Warming. They also taught a workshop to middle and high school teachers in the La Crosse School District. A second workshop is planned for the summer of 2010, to be attended by 50 teachers.

Estimated Number of IFTE Used for Graduate Education: 0

Future Plans:

The Department will continue to expand and emphasize on branches of geography and earth science that are in high demands. The new faculty members are crucial additions towards these goals.

This academic year also sees an elevated interest in grant-writing activities. The combined efforts of new faculty members as well as some senior members have indeed been successful as several grants have already been awarded. A half-a-million dollar grant collaborated between Geography and Physics faculty members submitted to the **National Science Foundation** is still pending at the time of writing this report. With the additional of Dr. Rachel Slocum this coming fall, grant writing activities will continue at a pace that this Department has never witnessed, as Dr. Slocum is a proven prolific grant writer.

A request to the College of SAH to add another faculty position through the Growth Quality and Access Initiative was submitted by Dr. Chu. This additional position will allow the Department to expand in the areas of environmental geography, an area that is important, multidisciplinary, and rapidly growing. We strongly believe that the discipline of geography can greatly contribute to an ever-needed curriculum in environmental science and environmental education, which is currently rather weak and incoherent at UWL. Much of contemporary research in environmental science is based on a spatial component (Where would Gulf oil spill move? Where and what are the environmental impacts? How many people or which population groups will be affected?). These spatial environmental questions are best answered by geographers' and their craft and expertise in analytical GIS. This forms the basis of the Department's future direction.

Annual Report, 2009-2010

Department of Mathematics

Teaching/Curricular and Related Activities: As a traditional academic discipline, mathematics is involved in the academic programs of virtually all UW-L students and the curriculum offered by the Mathematics Department serves many different needs for the UW-L student population. There are non-college courses to improve the mathematics backgrounds of students so they can then successfully pursue college level courses. The general education and service courses provide the mathematics and statistics foundations necessary for many academic programs. Finally the mathematics major/minor courses serve students pursuing academic programs in computer science and the physical sciences as well as students pursuing the various tracks within the mathematics major. Enrollment records indicate more than 140 declared mathematics majors (approximately half are secondary education mathematics majors) and more than 160 students with mathematics minor programs. Student demand for mathematics courses remains strong and the recent hiring of four additional mathematics faculty for Fall 2009 has allowed the department to begin to address the backlog from this high student demand in previous years. For example, in Fall 2009 the courses offered by the department consisted of 6 sections of non-college, 45 sections of general education/service, and 28 sections of major/minor with a total student enrollment of 2641 students. For Spring 2010, the courses consisted of 6 sections of non-college, 41 sections of general education/service, and 28 sections of major/minor with a total enrollment of 2383 students.

Beyond these regularly scheduled teaching activities, several department faculty are involved in other forms of instruction. For example, faculty supervised thirteen students in undergraduate research projects, developed mathematical enrichment offerings for area youth, and provided numerous in service programs for Wisconsin teachers. UW-L continues to be well represented by its student population in state, national, and international mathematical modeling competitions. For example, in the international COMAP contest, UW-L sponsored eight teams. Five teams placed in the top 40% and one team earned a finalist ranking (placing them in the top 1%).

The Department developed and received approval for an upper level elective statistics course, MTH 443/543 – Categorical Data Analysis, which will be offered in Fall 2010. The Faculty Senate Academic Planning Committee endorsed our proposal to transition the Mathematics Major with Statistics Emphasis into a Statistics Major. The Department is continuing its assessment activities for the general education courses MTH 126, 145, 150, 151, 175, 207, 208, 265 by measuring student performance relative to certain selected student learning outcomes. Results will be reported to GEAC and used to develop any appropriate course modifications.

The Friday afternoon departmental mathematics seminar series continued to provide faculty opportunities to share their interests and recent work with colleagues. With the increasing population of international students from Asia, the department responded to the Inclusive Excellence Initiative by

scheduling one seminar session devoted to the topic of how the mathematics education system is structured in certain Asian cultures. Three UW-L mathematics faculty from China, Japan, and the Philippines led the seminar.

The Department will continue to develop plans for meeting the additional demands, duties, and responsibilities created by the institution's decision to move the secondary education programs into the academic departments. The Department will continue its discussion to describe its vision for the future operation of the Mathematics Learning Center. A mission statement will be drafted for the Center and a position description for the Director of the Center will be developed.

Departmental Staffing: The Department conducted a successful search to fill an open position giving us a total of four specialists in Mathematics Education. The list of department members now has twenty six faculty and seven instructional academic staff. Of the twenty five 2009-2010 faculty, several had no or reduced teaching assignments (one is serving as interim Dean of SAH, another is the faculty intern in the Office of the Provost and also the director of IIURL, a third served as Faculty Senate Chair, another served as director of the Statistical Consulting Center, a fifth has a joint appointment with and is chair of the Computer Science Department, two more had grant funded "course buy outs", and the Department chair has a reduced teaching assignment).

Scholarship: Department faculty compiled an impressive record of scholarly achievement during the past year. This list of accomplishments includes 27 research papers published, 13 manuscripts accepted for publication, and 9 more scholarly papers submitted are being considered for publication. Faculty were involved in more than 30 presentations at local, regional, national, and international professional conferences as well as participating in a number of grant submissions. These latter efforts have resulted in more than \$300,000 being awarded while proposals for more than \$230,000 are still under review.

Service: Members of the department also have a strong record of university and professional service. The Chair of the Faculty Senate and the chairs of several Faculty Senate Committees and other University Committees are members of the Mathematics Department. Beyond our own institution, department members held leadership positions in professional organizations, refereed and reviewed research papers and book chapters, reviewed grant proposals, and served as consultants to other academic institutions or professional organizations.

Awards: In March, the Institute of Combinatorics and its Applications presented Futaba Okamoto with the Kirkman medal and in April the Student Wisconsin Education Association presented Jennifer Kosiak with its Teacher Educator of the year Award.

D. W. Koster, Chair, Department of Mathematics

June 22, 2010

Department Activities
Microbiology
University of Wisconsin-La Crosse
June 1, 2009 - May 31, 2010

Summary of Departmental Activities from the Past year

The Microbiology Department had a successful 2009-2010 school year. The department continues to be very active in teaching, scholarship and service. A number of our faculty members are engaged in cutting edge research programs. The department faculty and instructional academic staff also actively contributed to the College and University by serving on various committees in leadership roles. The key departmental activities from the past year are highlighted in this report.

Teaching: The department continued the tradition of offering a wide range of core and elective courses to meet the needs of microbiology majors, microbiology minors, clinical laboratory science majors, and students from other disciplines. The new course, *Global Impact of Infectious Disease* (MIC 130), was one of our popular general education courses. Due to limited manpower, we were able to field only two sections of this course during the spring semester. Both sections were full. We could have very easily filled another section. Another course that is bursting at the seams is *Fundamentals of Microbiology* (MIC 230). We offer two sections of this course every semester. The limitation for expanding this course is the laboratory space. We offer eight laboratory sections of MIC 230 every semester. With the time required to set these labs up and take them down, it is very difficult to accommodate additional laboratory sections. Our *Immunology* (MIC 406) course is another high demand upper division course. In response to the high demand for this course, we decided to add one more laboratory section during fall 2010 and thereby increasing enrollment in this course.

Scholarship. Microbiology faculty and academic staff, in spite of shouldering high teaching loads, remained very active in their scholarship and professional developmental endeavors. This past year, our faculty published six peer reviewed journal articles. Undergraduate and graduate students were coauthors in some of these publications. The faculty and instructional academic staff, during 2009-2010, made two presentations at local meetings, ten presentations at regional meetings and nine presentations at national and international meetings. Again, many undergraduate and graduate students were co-presenters at these events. This past year, microbiology faculty provided research opportunities and mentored thirty undergraduate students. During 2009 - 2010 school year, microbiology faculty secured more than three hundred thousand dollars (\$300,000) in new funding from intramural and extramural sources. The biggest component of these dollars, \$197,000, came from an NIH grant. In addition to the new grants, the faculty were busy meeting the obligations of continuing grants totaling more than three million dollars. Many of these grants support graduate students' research work thereby strengthening our graduate program.

Service. Microbiology faculty and staff continued their strong record of service to the college, university, community, and the profession. The department members actively served on and provided leadership to the College, UW-La Crosse Faculty Senate and University committees. The department members were also active outside of the university, for example, by taking up leadership roles in professional organizations, reviewing journal articles and grant proposals, and serving on community organizations.

This past year our Clinical Microbiology Masters' Program forged a new relationship with Northwestern University and welcomed first graduate student from that program. Also, to meet the increased demand for the Clinical Laboratory Science Program, we increased the number of students admitted to the CLS core courses.

The other key highlights of the 2009-2010 school year include:

- Ms. Marisa Barbknecht joined the department as Instructional Academic Staff.
- Ms. Susan Betts joined the department as Academic Department Associate.
- Ms. Yoo Mee Howard joined the department in the fall as part-time Laboratory Manager. She resigned during early spring.
- Initiated a search for a Lecturer to teach Clinical Laboratory Science and general microbiology courses. We have successfully filled this position. The new member will join us in fall 2010.
- Initiated a search to fill Instructional Academic Staff position. This individual will support the existing prep room staff. We expect the person to be on board by fall 2010.
- Submitted Academic Program Review Self-Study Report to the College/University.
- Hosted external examiners as part of Academic Program Review.
- Hosted 69th Annual Meeting of North Central Branch of American Society for Microbiology. This was a two-day regional scientific meeting and featured speakers from across the country and the participants (more than 140) came from Wisconsin, Iowa, Minnesota, North and South Dakota.
- Hosted 14th Annual Symposium on Industrial and Fermentation Microbiology. It was one day long scientific meeting and featured seven speakers. About 100 people from the region attended the meeting. More than three thousand five hundred dollars were raised in private donations to support the event.
- Cosponsored Distinguished Speakers in Life Sciences event.

To maintain the current level of rigor in our program, to meet the growing demand, and to keep current with the ever-changing discipline, the department needs significant infusion of resources. At this juncture, perhaps, this is the most critical challenge facing the department. Resources, in terms of dollars for supplies are very critical, because, the cost of media, reagents, chemicals and disposable supplies continues to increase. The second key challenge is related to the research laboratory space to accommodate undergraduates interested in pursuing research. Another challenge, perhaps specific to our department (due to our lab intensive curriculum), is the high contact hour load for the faculty and instructional academic staff. With new individual coming on board, it should help alleviate this problem somewhat.

As a department, one thing we were unable to devote significant resources this past year was to work on Inclusive Excellence. Early in the school year we devoted good deal of time on this and came up with clever ways of incorporating Inclusive Excellence in our departmental activities and curriculum. Unfortunately, we were unable to follow through due to other pressing demands. We will continue to work on this during the coming year

The department has worked very diligently to meet all of its obligations in terms of delivering curriculum, maintaining strong scholarship, and commitment to service. We will continue to work toward reaching excellence in all of these categories. The specific areas we would like to focus during 2010-2011 include, but not limited to:

- Work on bylaws and bring them up to date to meet college/university requirements.
- Complete the Academic Program Review Process.
- Examine our undergraduate course offerings and make necessary changes.
- Increase recruitment efforts - recruitment of both undergraduate and graduate students. We had a department retreat on June 17, 2010 to specifically address recruitment and retention. We will continue to work on the strategies identified at this retreat.
- Try to establish / forge stronger relationships with alumni
- Continue to work on Inclusive Excellence
- The department has established a working relationship with science teachers in area high schools. We would like to continue this and expand to other schools in the region and beyond as part of our outreach program.

S.N. Rajagopal
Chair
June 18, 2010

Physics Department Highlights for 2009-2010 Annual Report

UW-L Physics Department Ranked 10th in the Nation

Each year the American Institute of Physics (AIP) Statistical Research Center publishes a list of Bachelor's-only departments averaging 10 or more physics bachelor's degree per year in its Physics Undergraduate Enrollments and Degrees data in the nation. This year UW-L Physics Department was ranked 10th in the nation averaging 16 graduates per year for classes 2005 through 2007.

UW-L Physics Majors Shine in the International Mathematical Contest in Modeling

John Nehls (Physics) and Joey Powers (Physics/Engineering) earned a “finalist” ranking in the recently held annual International Mathematical Contest in Modeling. They were placed among the top **nine papers in the world and top five in the nation** (out of 920). In addition, **Cody Hunt (Physics) and Ali Khalili (Physics)** were placed in the top 15% of submissions.

Distinguished Lecture Series in Physics (DLS)

The Physics Department celebrated the tenth anniversary of the successful Distinguished Lecture Series in October 2009. Dr. Riccardo Giacconi, a 2002 Nobel Laureate and Professor of Physics at the Johns Hopkins University in Baltimore, MD, served as the UW-L Physics Department Distinguished Lecture Series speaker on October 8-9, 2009. Dr. Giacconi gave a public lecture entitled “A New Revolution in Astronomy 400 Years after Galileo” and a physics seminar entitled “X-Ray Astronomy 2009”. An article entitled “Distinguished Lecture Series in Physics” appeared in the College of SAH Winter 2010 News Letter.

Public Lecture Series in Physics (PLS)

The Physics Department introduced for the first time a new lecture series called the Public Lecture Series (PLS) during spring of 2010. This series is based on the successful Distinguished Lecture Series and brings to La Crosse a Physicist who can enlighten the public, students and faculty with topics of current interests and the application of physics principle in everyday life. Dr. Diandra Leslie-Pelecky, professor of physics at the University of Texas at Dallas and the author of the book “The Physics of NASCAR” inaugurated the PLS in April 2010. She gave a public lecture entitled “The Physics of NASCAR: The Science behind the Speed” on April 9. The lecture was very well attended and she was featured on the local TV station (TV-19), newspaper (La Crosse Tribune) and the radio station (WLSU).

PHY 106 Course Selected for National Study

PHY 106 course (developed with funding from a NASA-NOVA grant) was selected as one of the 30 reform undergraduate science courses from a national population of 103

diverse institutions (NASA-NOVA Grant Recipients) for the **National Study of Education in Undergraduate Science (NSEUS) Project**. This 5-year project funded by NSF focuses on critical needs in teaching undergraduate science to all diverse majors with emphasis on the preparation and long-term development of pre-service, undergraduate, K-6 teachers of science. The NSEUS project team members visited the UW-L campus during October 26-30, 2009 to collect data on the PHY 106 course.

Faculty Accomplishments

Dr. Barnes is currently working on a NASA grant funded for \$154,301 (2007-2010) and **Dr. Sallmen** is working on NSF and Research Corporation grants funded for \$162,116 (2005-2009).

Dr. Barnes (Astrophysics) published two research papers entitled "The Radial Orbit Instability in Collisionless N-Body Systems" in The Astrophysical Journal and "The Radial Orbit Instability" in Journal of Undergraduate Research in Physics.

Dr. Gansen (Optics) published a research paper in the Journal of Applied Physics.

Dr. Seth King (Co-PI) and **Dr. Eric Gansen** (Supporting) received external funding for their proposal entitled "MRI-R2: Acquisition of a Scanning Electron Microscope (SEM) and Atomic Force Microscope (AFM) for a Multidisciplinary Core Imaging Facility, Sponsored by National Science Foundation, \$524145.

Dr. Seth King received the Wisconsin Space Grant Consortium 2010 Research Infrastructure Award for \$10,000 for his proposal entitled "Development of Zinc Oxide Alloy Nano-rods for Photovoltaic Applications". He also received the 2010 UW-L Faculty Research grant for \$15395.

Dr. Shelly Leshner (Co-PI) received funding for "Radioactivity of sediments from Sturgeon Lake, a backwater lake of the Upper Mississippi River, near the Prairie Island Indian Community in southeastern Minnesota", Sponsored by Prairie Island Indian Community, \$24219.

Dr. Shelly Leshner received the 2010 UW-L Faculty Research grant for her proposal entitled "Contributing to the Nuclear Standard Model" for \$9214.

Dr. Shelly Leshner (Nuclear Physics) published three research papers in the **Physical Review C** journal and one in the **Physical Review Letters**.

Dr. Shauna Sallmen received the Wisconsin Space Grant Consortium 2010 Research Infrastructure Award for **\$11, 935** for her proposal entitled "Studying Interstellar Shells in our Milky Way Galaxy".

Dr. Gubbi Sudhakaran was appointed as the Associate Director of Research for the Wisconsin Space Grant Consortium (WSGC). He will oversee the Undergraduate Research and the Research Infrastructure Programs at the WSGC.

Dr. Lyndon Zink (Co-Principal) received a \$37,590 external grant (Sub Award from Central Washington State University) for a proposal entitled “NSF LMR Grant”, sponsored by NSF.

UW-L Physics faculty (**Drs. Barnes, Gansen, King, Leshner, Ragan, and Sallmen**) mentored 15 undergraduate students for research during 2009-2010.

Drs. Barnes, Gansen, King, Leshner, Ragan, Sallmen, and Sudhakaran presented papers at the state and national conferences and Drs. Barnes and Sudhakaran served on M.S. and Ph.D. thesis committees as external examiners.

Student Accomplishments

UW-L physics majors Joseph Lanska (Washington State University, Pullman, WA) and Michael Olson (Institute of Optics, University of Rochester, Rochester, NY) received research assistantships to pursue graduate studies starting fall 2010.

UW-L physics majors, **Melissa Wheeler** (Mentor: **Dr. Barnes**), **Ben Oleson** (Mentor: **Dr. King**) and **Beth Tennyson** (Mentor: **Dr. Sallmen**) received the 2010 Wisconsin Space Grant Consortium (WSGC) Undergraduate Research Fellowships.

UW-L Physics major **Sean Harrington** and **Kevin Weathers** (Physics Education) received the 2010 Wisconsin Space Grant Consortium Undergraduate Scholarships.

UW-L physics major **Paul Lanzel** (Mentor: **Dr. Barnes**) published a paper entitled “Global Behavior of the Radial Orbit Instability” in Journal of Undergraduate Research in Physics.

UW-L physics major **C. Koehler** (Mentors: **Drs. Kernozek and Ragan**) presented a paper "Variation in anatomical parameters that affect estimated anterior cruciate loading during drop landing", at the American Society of Biomechanics Annual Meeting, Providence, RI,

Assessment

The Physics Department constantly monitors its curriculum and courses using several assessment tools. Instructors in all of our courses continue to make modifications in response to both direct and indirect measures. Based on the assessment data the Physics Department is revamping its introductory calculus based physics courses (PHY 203 and 204) starting fall 2011. The traditional lecture-lab based course will be transformed into a lecture-lab integrated inquiry-based physics course.

UW-L Physics Department was approached by **the National Institute for Learning Outcomes Assessment (NILOA)** to submit its assessment practices for doing good work in assessing student learning outcomes at UW-L.