

Phoenix College Biology Department

Annual Report 2007-2008



Mark Rosati, Department Chair

The Phoenix College Biology Department has had an interesting year of changing enrollment patterns, new curriculum advancements and facility improvements. Our faculty continue to be active in the advancement of curriculum to increase relevancy, currency, and student retention and success. We have added more online courses and increased the use of multi-media equipment in the classroom and laboratory. Our partnerships are advancing to include teacher training, dual enrollment and greater community involvement in science education. Finally, it is a great pleasure for me to report on the outstanding achievements and high degree of motivation and dedication to our students that the Biology faculty and staff exemplify.

Focus on Mission

Student Success and Retention

Phoenix College Biology Department faculty strive to support the retention and success of our diverse student body in many ways. This report discusses our approaches to increase student success: an emphasis on skill development, the use of alternative technologies, the development of online and hybrid courses, creation of learning communities, and individual meetings with faculty,

Emphasis on skill development: All biology faculty employ student activities that encourage the development of skills in numeracy, analysis, data collection, writing, critical thinking, information literacy (such as the use of electronic and printed information resources), and use of science equipment. Biology student lab activities are collaborative and interactive by nature. PC biology science labs are an experiential application of science principles, engaging students individually and in groups in tasks that employ equipment, information, mathematics and analysis for skill development. All biology instructors use rubrics (evaluation matrices) to evaluate student work and for students to use for self-evaluation.

Use of alternative technologies: Biology faculty utilize the Internet in a variety of ways to enhance access and student support including web pages and student activities. Several faculty have received grants to advance student support in the form of computer software to develop Internet-based student access to course materials outside of class time and in-class applied technologies called student responders. For greater student engagement and interaction in the learning process, biology faculty have increased the use of oral presentations for greater engagement using, student electronic responder technology (clickers), non-invasive physiology data collection in labs, and oral presentations by students, just to name a few.

The Biology Department faculty also extensively use computer-based activities in three applications: 1) faculty and student in-class use of Internet-based and electronic information database resources to broaden available physical resources; 2) Internet delivery of courses (including hybrid courses, in which the lectures are done on the Internet, and the labs are in class); and 3) student in-class application of computers and software used in the biosciences industry, such as for real science data collection.

Development of online and hybrid courses: Our Department's goal for online course delivery has been to develop an online or hybrid version of each of our course offerings. Offering online courses reaches many nontraditional students that have a difficult time attending classes because of work, parental responsibilities or disabilities. We have increased the number of fully online and hybrid courses this past year including our first offering of fully-online BIO 100 and BIO 160 for Fall 08, and BIO 181 (majors biology).

Creation of learning communities: Biology faculty also collaborate with other faculty from other departments, including Chemistry, Math, English, Reading and the Library, for the development of student skills. Faculty have been funded for and created learning communities that integrate cross-curriculum based projects and activities in critical thinking, data analysis and critical reading and math skills. Biology faculty that teach biology majors collaborate with chemistry faculty from a learning community for science majors, and anatomy and physiology and microbiology faculty are collaborating for allied health care majors to ensure a comprehensive and cohesive connection between competencies and skills in each separate course.

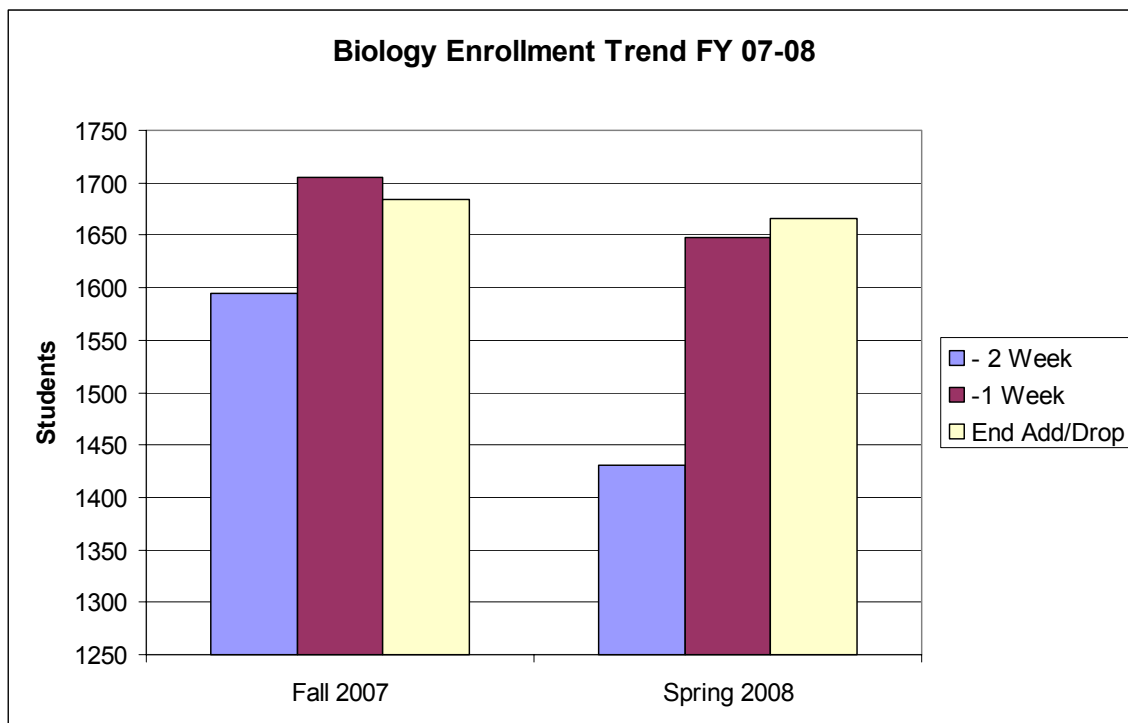
Individual meetings with faculty: As a new approach for retention and student success, many biology faculty are requiring students to have regularly scheduled individual meetings with the instructor. These meetings are used to review individual grades and performance in class and for advisement purposes. Several faculty require students to tour and meet with Learning Services staff, library resources and other student support amenities on campus to familiarize students with campus student success support facilities.

Development of dual enrollment classes: We are active in addressing community needs for career pathways, high school dual enrollment and teacher training. The high community demand for health care professionals has had a significant continuous impact on biology enrollment, especially anatomy and physiology courses, as several biology courses are pre- and co-requisites for healthcare programs in MCCC. We have two new dual enrollment agreements—one with Arcadia High School and the second with the new Bioscience High School in downtown Phoenix. Additionally, Maricopa County Educational Services was awarded monies to fund science teachers to enroll in Environmental Science 101 through the PC Biology Department in collaboration with the Arizona Science Center. We enrolled 7 teachers in its first semester for professional growth!

Factors Affecting Enrollment

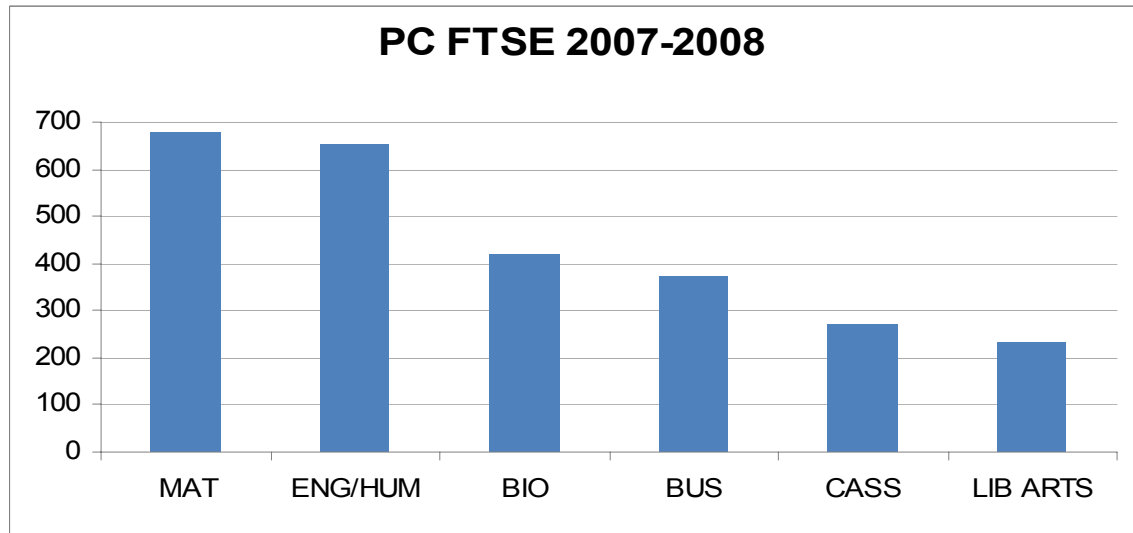
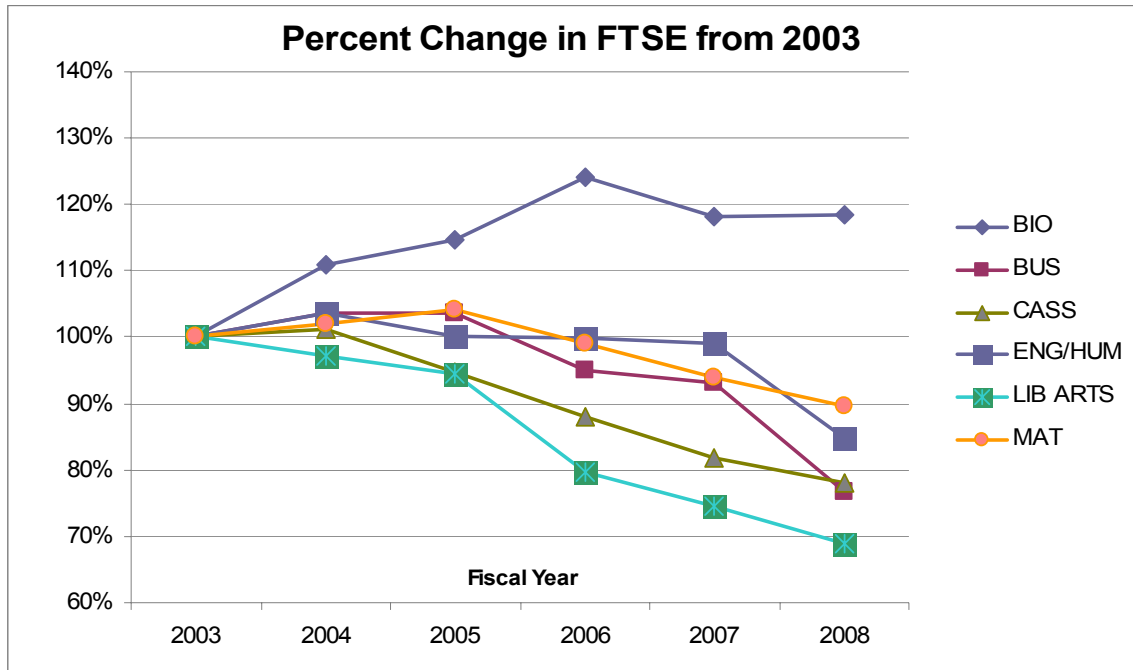
The Biology Department's overall enrollment has remained stable this year, although class registration for Fall 2007 and Spring 2008 semesters had substantial enrollment *trend* changes. In past years, student registration was robust during the first two months of open enrollment; we have observed a change to a pattern of slow enrollment followed by dramatic increases within the two weeks before the start of class.

This change in enrollment trend has made it difficult to effectively strategize the number of class section offering per course. In developing class schedules, our primary goal is to meet the demands of students using enrollment trends and program needs. We have instituted a change in course offerings that best ensures full time faculty load and FTSE ratio by offerings and times and days that meet the changing demands of student enrollment trends.



Our enrollment is being positively affected by our new dual enrollment agreements. Arcadia High School has had five sections of 28 students enroll for the first year offering of Introductory Anatomy and Physiology (BIO 160) and Bioscience HS will have at least 30 students to start in Fall 2008.

The Biology Department has maintained stable enrollment this year as compared to a continuous decline in other large department enrollment at PC. We have not experienced the substantial enrollment growth of previous years, which we believe reflects the greater trend of decreased enrollment at Phoenix College and MCCC colleges due to legislation that has increased the restrictions on student registration and other trends in the economy. Biology enrollment however, remains within the top three enrolling disciplines at Phoenix College.

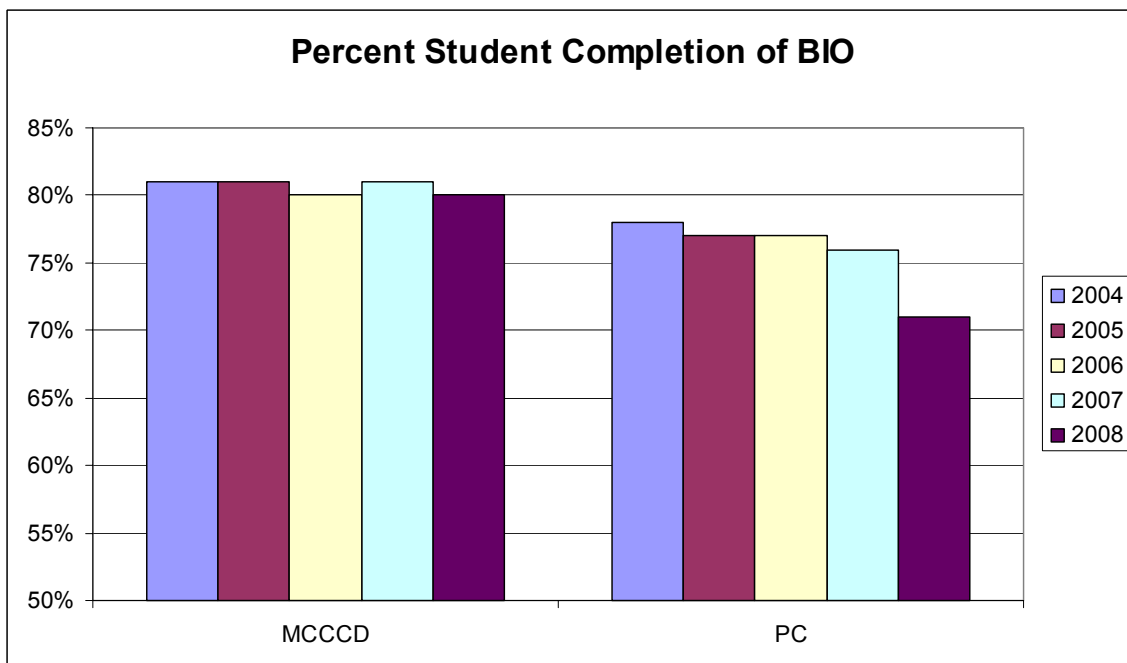
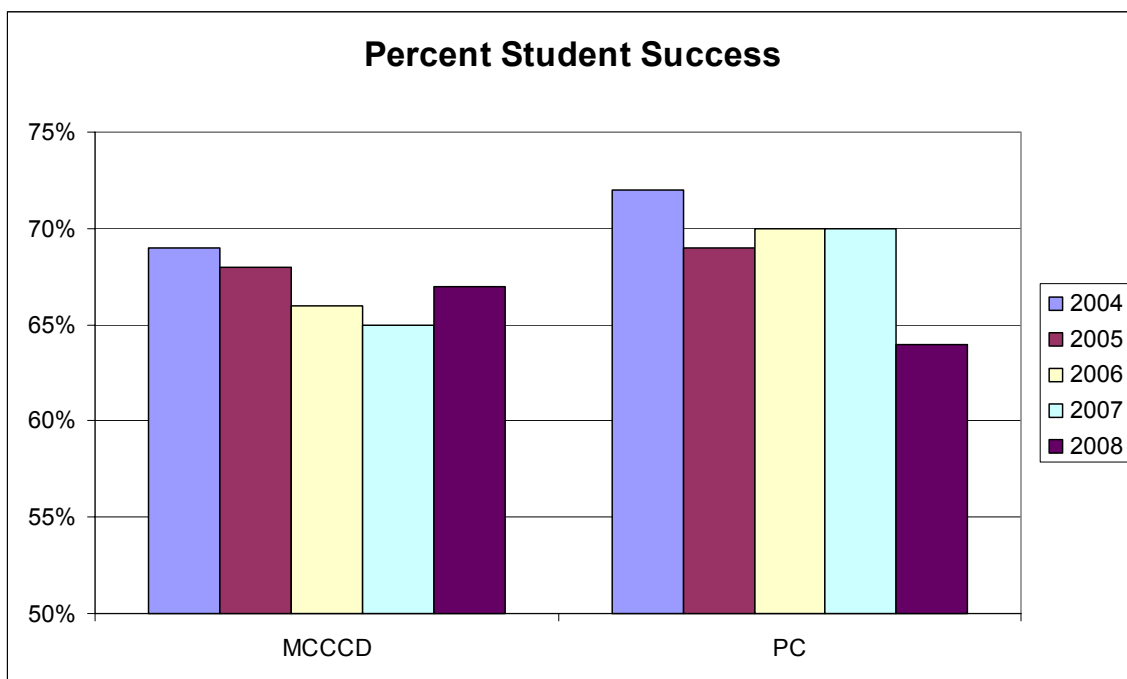


Focus on Student Learning and Teaching Effectiveness

Measurement of Department and Faculty Success

The Biology Department uses several data sets to examine student learning and teaching effectiveness. We use student retention and student success data from PIRE and DSS reports to help make decisions about classroom activities and student success strategies. We also pay close attention to student evaluations of instructors. Instructors are evaluated each year by all of their class sections to allow for a robust sample from

different class preps. Although all of our faculty have implemented active learning activities and increased student tutoring and learning support efforts we have had a decrease in student retention and grades. Student completion of biology courses and the attainment of a ‘C’ grade or better has decreased from past years. This decline has been localized to this past academic year. We do not have information on the changing demographics in terms of student educational backgrounds and preparedness to fully understand why this decline has occurred in the face of our increased efforts to support students.



Our Department consistently meets with campus student advisors to discuss optimizing class schedules for students and class offerings. We also ask advisors for student feedback regarding their experiences with biology classes at Phoenix College so that we may use this form of data for quality considerations. We have used all of these sources of information to promote a higher quality experience for students while ensuring course offerings, meeting times, and alternative forms of delivery (such as the Internet) meet student needs. Students with important issues that may affect their performance and attendance in biology classes are handled as quickly as they are reported by their instructors, and when necessary by the Department Chair.

Curriculum Review, Revision and Development

Phoenix College Biology faculty are among the most active in curriculum review, revisions, and development of all biology faculty in MCCC. Philip Pepe created the multidisciplinary Environmental Science curriculum with the first four courses ENV 101, 119, 273 and 295. This year was the first offering of Environmental Science 101 as a class for science teachers, in collaboration with the Arizona Science Center, in which the Science Center Education Services Manager Dianne McKee served as an instructor. Dianne designed the course delivery for teachers as a hybrid course with blackboard format for lecture and maintaining lab activities at Phoenix College and the Arizona Science Center. During the Spring 2008 semester ASU accepted ENV 101 as a fully transferable lab science course for undergraduate degrees.

Our faculty are actively engaged in revising each of our course offerings to include activities that engage students in campus student assessment areas critical thinking, information literacy, numeracy (data analysis), oral presentation, reading and writing. They are working together and with faculty and staff from other areas and disciplines on campus.

Several Biology faculty, including Department Chair Mark Rosati and Patricia Finkenstadt, have been pursuing course-type changes from academic to occupation for courses that terminate in allied health programs and are not intended for academic science majors. This year we worked on curriculum changes to anatomy and physiology BIO 201 and 202 and microbiology for change of course type to occupational. We have not succeeded in convening other college biology department leadership to change the course type to occupational.

Use of Alternative Delivery Technologies and Courses

The Biology Department faculty extensively use computer-based activities in three applications: 1) faculty and student in-class use of Internet-based and electronic information database resources to broaden available physical resources; 2) Internet delivery of courses (including hybrid courses, in which the lectures are done on the Internet, and the labs are in class); and 3) student in-class application of computers and software used in the biosciences industry, such as for real science data collection.

We also are developing online course delivery has been to develop an online or hybrid version of each of our course offerings. We have been offering several courses fully online for the past several years including anatomy and physiology for Allied Health programs, BIO 201 and BIO 202, an introductory biology course BIO 156, and marine biology BIO 145. We have increased the number of fully online and hybrid courses this past year including BIO 181 (majors biology) as a hybrid, BIO 160 fully online our first offering of fully on line BIO 100 for Fall 08. Our enrollment in fully online courses over the past year has been over 200 students per semester including the summer. We continue to develop hybrid and fully online versions of more courses in the coming year.

Dual Enrollment

We have two new dual enrollment agreements: one with Arcadia High School and the second with the new Bioscience High School in downtown Phoenix. Arcadia has enrolled almost 150 students in the first offering! Additionally, Maricopa County Educational Services was awarded monies to fund science teachers to enroll in Environmental Science 101 through the PC Biology Department in collaboration with the Arizona Science Center. We enrolled 7 teachers in its first semester for professional growth!

Analysis and Development of Course Offerings

Course offerings and scheduling are always of primary importance to Biology Department management and operations. Successful course schedule optimizes enrollment trends in time and day offerings, courses offered, online delivery options, and substantive student support in each course offered.

In developing class schedules, our primary goal is to meet the demands of students using enrollment trends and program needs. We have instituted a change in course offerings that best ensures full time faculty load and FTSE ratio by offerings and times and days that meet the changing demands of student enrollment trends. Biology class registration for Fall 2007 and Spring 2008 semesters have had substantial enrollment trend changes. In past years student registration was robust during the first two months of open enrollment that has changed to a pattern of slow enrollment followed by dramatic increases within the two weeks prior to the start of class. This change in enrollment trend has made it difficult to effectively strategize the number of class section offering per course. Our overall enrollment has remained stable, while the overall Phoenix College class enrollment has been steadily declining for the past several years. Last year a State proposition increased tuition rates for undocumented students to out-of-state rates thereby decreasing overall college enrollment.

Focus on Promoting a Life of Learning

Faculty Professional Growth

Biology Department faculty and staff are a very active group that are always involved in activities that are substantive to both our students' educational needs and faculty professional growth. As each Department member contributes significantly to our mission and goals, I will include a separate narrative for each.

Mickie Bond M.S., faculty: Ms. Bond has been active and contributed in the campus Earth Day with talks on organic agriculture and a campus wide tour of Medicinal Plants of Phoenix College for the third year. Ms. Bond was nominated and awarded the PC Basics Exceed Expectations category presented by President Solley. Ms. Bond continues to be one of our most popular instructors with students. Her classes are among the first to fill completely.

Guadalupe Candanedo A.A., Administrative Secretary: Guadalupe Candanedo's dedication to the smooth efficient and organized operations of the Biology Department is of the highest quality. Ms. Candanedo does an incredible job at introducing adjuncts to the process of our Department and the campus. Her work with adjuncts produces a high quality of student experience as new adjunct employees are highly familiar with lines of communication and department organization. In the Fall 2007 Ms. Candanedo was presented the PC Basics award for 'Seek Solutions' by college President Solley for her amazingly helpful work with student instructor communication and all interoffice communications.

In addition to her outstanding work with our department, Ms. Candanedo has been working with graphic design and has designed a DVD cover for the Raul Castro Institute at PC, as well as a number of other designs used for campus and community related activities. Some of her work from this past year includes the creation of an altar dedicated to her cousin David exhibited through the City of Phoenix celebration of *El día de los muertos*. Her design was one of ten that was chosen to be displayed in the gallery at the Barr Burton Library. She was also working on typesetting and layout design of an anthology, *Border on Stage: Plays Produced by Teatro Bravo*, (Sandoval); the book is due to be printed at the end of July 2008. As a result of her graphic design work, Ms. Candanedo was offered and accepted work in PC's Institutional Advancement to cover a temporary vacancy by the campus graphic designer.

This year, Ms. Candanedo graduated with an Associate of Arts from Phoenix College with highest distinction (bravo!).

Robin Cotter Ph.D., faculty: During the 2007-2008 academic year, Dr. Cotter was an active member of the PC Curriculum and Employee Development committees, and co-chair of the PC Critical Thinking Assessment Committee. During the fall of 2007 Dr. Cotter also served as a member of the MCCCDC Bioindustry Curriculum Task Force, which is an interdisciplinary committee working to standardize bioindustry curriculum

guidelines for the district. In order to remain current in the field of science education and help promote awareness of the Phoenix College Biology Department programs, Dr. Cotter both attended and was a booth presenter at the “APS Back to School Resource Fair and Reception” at the Arizona Science Center in September of 2007. In January of 2008, Dr. Cotter, along with two other Biology Department faculty members, helped develop and conduct a PC “Day of Learning” workshop entitled, “Let’s Get Engaged” focusing on the incorporation of Active Learning techniques in the classroom.

In February of 2008, Dr. Cotter was a co-coordinator and presenter for the annual Sexually Transmitted Disease seminar presented at Phoenix College. In February, Dr. Cotter also attended the district-wide Native American Health Science Dialogue Day hosted by Scottsdale Community College. In May, Dr. Cotter served as co-organizer of the Phoenix College Pre-Graduation Employee Reception sponsored by the Employee Development committee. This coming July, Dr. Cotter will be representing Phoenix College at the 28th Annual International Conference on Critical Thinking in Berkeley, California. In addition to these activities, Dr. Cotter remained an active member of the American Society for Microbiology and the MCCC Faculty Association and was elected to serve as an At-Large representative on the PC Faculty Senate. In addition to this work, Dr. Cotter also served as a weekend volunteer for the Phoenix College ACE (Achieving a College Education) Program.

In collaboration with other biology department faculty members, Dr. Cotter also helped co-author a capital funds request, which was funded this spring and will be used to purchase several desktop computers for use by students within the biology department. In addition, Dr. Cotter was involved with collaborators from the University of Nebraska Medical Center in the preparation of a peer-reviewed research manuscript submitted to the Journal of Neuroscience Research entitled, “CXCL8 protects human neurons from amyloid- β ($A\beta$)-induced neurotoxicity: Relevance to Alzheimer’s disease (AD).”

Patricia Finkenstadt Ph.D., faculty: This year Dr. Finkenstadt participated in several Day of Learning and Professional Development events at Phoenix College and MCCC. These include presentations addressing the challenges facing Native Americans who enter the health care fields, a Student Services progressive lunch, a webinar aimed at identifying red flag behavior in students, and a tour of the new PC Department of Nursing patient simulation room. Dr. Finkenstadt also co-presented three sessions of ‘Let’s Get Engaged’, a workshop aimed at providing instructors with the tools to introduce active learning strategies into their classroom.

In collaboration with other biology faculty, Dr. Finkenstadt, piloted a project where students were presented with patient case studies that challenged them to apply critical thinking skills in order to solve disease-related problems. These case studies enhanced and expanded the material discussed in both anatomy and physiology and microbiology courses by incorporating aspects of pathophysiology, infectious diseases and treatments into student-centered projects. Expansion of this project is expected to include the Nursing Department Simulation Room and additional clinical pathologies. These

assignments increase student understanding of the integrated nature of the human body and the fields that study it.

Dr. Finkenstadt utilizes Student Response Technology and presented at the MCLI-sponsored Teaching and Learning with Technology Conference. Dr. Finkenstadt demonstrated how this technology is being incorporated into the current anatomy and physiology curricula at Phoenix College. This presentation was well-attended by faculty from across the Maricopa District.

Further, her continued involvement in the preparation and presentation of PC's annual Sexually Transmitted Diseases seminar provides a unique learning environment for all PC students that goes beyond the boundaries of the traditional classroom. Dr. Finkenstadt also continued her involvement with the Arizona Science Center's Institute for Teaching as the instructor for "Discover the Mysteries Under Your Skin". Additional community partnerships have been developed with area middle and high schools. These include several field trips to PC to view the A&P facilities by students, teachers and parents and the establishment of Dual Enrollment programs with two area high schools.

Dr. Finkenstadt participates in meetings of the American Physiological Society to address the changing needs of physiology students resulted in a publication in *Advances in Physiology Education* (2007) that chronicles the challenges that face physiology instructors at different educational levels. Additional professional involvement includes active membership in the Human Anatomy and Physiology Society and the Maricopa Community College District Faculty Association.

Matt Haberkorn M.S., Lab technician: Mr. Haberkorn has worked hard to create and maintain partnerships with the Phoenix Desert Botanical Garden (DBG) as a contributing researcher in ephemeral drainage geomorphology and plant ecology research. He has co-authored several research projects with DBG researchers including his most recent co-authored presentations "Sonoran Desert Ephemeral Drainage Plant Communities" and Sonoran Desert Ephemeral Drainage Plant Communities of the White Tank Mountains, AZ presented at the Arizona Riparian Council Annual Meeting Prescott, AZ April 11, 2008. Mr. Haberkorn also is a part of the Native Seed Search Gardeners Network as a contributor to their database for Phoenix growing conditions.

Mr. Haberkorn has gained certification in wet and dry mapping at the Agua Fria National Monument and conducts data collection for the Agua Fria National Monument Post Fire research. He has also co-taught the AZ Rivers Workshops for the past two years funded by an NSF grant awarded to the University of Arizona Hydrology and Water Resources Department.

Joshua James B.S., Lab technician: Mr. James is a highly motivated member of our staff and has helped several faculty come up with solutions to better deliver lab content and to significantly improve lab protocols for teaching. Mr. James has completed four EPA's Air Pollution Training Institute (APTI) courses to better understand pollutants and their monitoring and the ways in which the EPA measures, reports, and determines

standards for air quality. Mr. James has been forward thinking to become trained in valid skills for air quality measurement as our department has acquired air quality and basic meteorological measuring equipment. Our faculty are eager to collaborate with Mr. James for the development of teaching lab activities for our students.

Anna Marti-Subirana, Ph.D.: Dr. Marti-Subirana was on sabbatical this year. Her sabbatical focuses on the development of outreach to local high schools and science teachers for biotechnology skill development and teaching. Dr. Marti-Subirana has developed hybrid online biology for majors that is currently being offered and is developing an introductory biotechnology lab course for dual enrollment at local high schools as a part of her sabbatical.

James Neuenfeldt M.S., M.Ed., Lab Supervisor: Mr. Neuenfeldt has and continues to contribute significantly to the safety of our teaching labs, effective and efficient use of equipment and supplies, and management and stewardship of our assets. He has applied for and been awarded campus capital funding for an instructor podium station in one of the biology teaching labs in an effort to facilitate more effective teaching. Mr. Neuenfeldt has also been very active in professional growth activities including; completing an M.Ed. in Higher Education Leadership, graduating with distinction, and starting an MBA through Colorado State University. Significantly, Mr. Neuenfeldt was elected as his employee group's MAT President at PC, was a representative of the campus PCLC, BRC, SPC and served on the PC Core Indicators Committee. Mr. Neuenfeldt has been elected as President of the MAT employee Executive Council for 2008-2010.

Elena Ortiz Ph.D., faculty: Dr. Ortiz created lab curriculum for BIO 100, a core course that requires constant updating. Dr. Ortiz participated as a member of a hiring committee for a one-year-only. Dr. Ortiz also worked with community partners at Ignacio Conchos Elementary School to develop a service learning partnership and curriculum, called the Science Mentor program. The 5th grade class joined her Environmental Biology class on field trips and learned from the college students, reinforcing for her students what they learned in class. Dr. Ortiz worked on the second year of a new program called Arizona Rivers funded by the Science Foundation Arizona in partnership with Northern Arizona University and University of Arizona to develop and present K-12 teacher workshops in environmental biology. Dr. Ortiz developed curriculum for a biology course for the Junior ACE (Achieving a College Education) program. Dr. Ortiz also developed and presented a workshop in partnership with colleagues Dr. Cotter and Dr. Finkenstadt for PC faculty on active learning techniques. Dr. Ortiz implemented new BIO 100 and BIO105 laboratories activities during Fall 2007 and Spring 2008

This year Dr. Ortiz will be an invited speaker at the 93rd Annual meeting of the Ecological Society of America in August to present findings of an environmental educational research project. Dr. Ortiz was also invited to review papers for the online journal Teaching Issues and Experiments in Ecology. This summer Dr. Ortiz was awarded a Summer Project Grant to research K-12 teacher science training options including effective online teaching.

Philip Pepe Ph.D., faculty, Director of GIS/GPS Program and Environmental Science curriculum: Dr. Pepe has consistently been the single greatest contributor to Biology Department curriculum, alternative methods of delivery and grant proposals that impact the entire department. This past year Dr. Pepe facilitated campus and District level curriculum meetings to advance the Environmental Science curriculum he initiated, and then created and developed collaboratively with faculty from disciplines related to the environment. Dr. Pepe put in an enormous amount of time and effort in this endeavor.

Dr. Pepe has continued to act a co- primary investigator of the Arizona Rivers Project funded by an NSF grant with Dr. Ortiz in cooperation with the University of Arizona Department of Hydrology and Water Resources to train teachers and mentors in water quality science. In addition to curriculum advancement activities and teacher training, Dr. Pepe is creating a fully online version of BIO 100.

Heather Rheinfelder M.H.S., adjunct faculty: Ms. Rheinfelder has been an integral part of curriculum and student support for anatomy and physiology classes she teaches. She has developed hands-on interactive digestive system lab for 1st graders and developed hands-on interactive respiratory lab for 2nd graders at Benchmark Elementary School in Phoenix. Ms. Rheinfelder has co-authored a project with the campus Math and Science Center and the Counseling Center to develop a self-paced online tutorial featuring study skills and time management strategies to improve the retention of students taking Biology 201 Anatomy and Physiology I.

Mark Rosati M.S., faculty, Department Chair: Mr. Rosati has again been very active in conducting outreach to community organizations and other educational institutions. He established two dual enrollment agreements. Arcadia High School is now dual-enrolling 5 sections of 28 students for Fall 2008 and the Bioscience High School in downtown Phoenix will begin with about 30 dual enrolled students for the first semester. He has established and facilitated partnerships with the Maricopa County Educational Services Agency Director Beth Hoyer to develop science teacher training classes. Environmental Science 101 was offered to teachers in collaboration with the Arizona Science Center Education Services Manager Dianne McKee. Mr. Rosati maintains communication and an active role in creating and maintaining partnerships with the organizations listed in the Focus on Engagement and Service section of this report, including Arizona Audubon, PUHSD Bioscience High School and many others.

Recently, Mr. Rosati has facilitated a science teacher workshop program where faculty in our department will develop a set of professional growth workshops that will be offered to teachers at their school during teacher professional growth days.

John Schampel, M.S.: Mr. Schampel was awarded grant monies for his project to create a single online resource for Phoenix College biology students and faculty, to effectively connect biology students with available funding opportunities, biology-related course offerings at both the PC and university level, biology-relevant internships and

research experiences to enhance biology education, and possible career options in the field of biological sciences. In addition to his teaching responsibilities, Mr. Schampel was a presenter for the annual Sexually Transmitted Disease seminar presented at Phoenix College.

Philip Tate D.A.: Dr. Tate has made important contributions during his tenure at Phoenix College including the design and implementation of our anatomy and physiology cadaver lab. He also is coauthor of a widely used college anatomy and physiology textbook series. Dr. Tate has retired at the end of this academic year after 24 years of full time teaching at Phoenix College.

Strategies to Address Resource Needs

Since our curriculum has a strong science skill development component that requires the extensive use of current laboratory equipment and computers, Mr. Neuenfeldt and I have structured student fees to meet the needs of student activities in both lecture and lab portions of biology classes. Fee amounts reflect the cost of expendable supplies and equipment purchases and maintenance.

Our faculty and staff have also applied for funds to enhance existing curriculum in skill development or to develop new student activities. Several faculty have received grants to advance student support in the form of computer software to develop Internet-based student access to course materials outside of class time and in-class applied technologies called student responders. Our Lab Supervisor, Mr. Neuenfeldt received internal capital finding for a new multimedia teaching podium for one of our biology teaching labs.

This year our Vice President of Administrative Services and VP of Academic Affairs helped Department Chair Mark Rosati in his long term efforts to request the addition of a larger classroom space for physically disabled faculty. Biology classroom Dalby 224 was expanded to hold up to 60 students! This project will be finished in time for the Fall 2008 semester. Another important facilities project is the approval of the greenhouse renovation, which Chair Mark Rosati has requested for the past 7 years. Our greenhouse will now be used efficiently for all BIO 108 lab students (400-500 per year), and activities with community partner Native Seeds Search for the propagation of ethnically significant heirloom food and medicinal plants. In addition to the renovation of our greenhouse, a plot of 11th avenue grass will be converted into student garden space, thereby freeing the classroom building flower beds being currently used for student garden lab projects. This is wonderful progress after years of unfunded proposals!

Focus on Engagement and Service

Community Partnerships

The Biology Department has established a number of partnerships and community activities:

- PUHSD Bioscience High School and Arcadia High School
 - High School student dual enrollment
 - Science curriculum collaborative development
 - Equipment and supply sharing for high school student science labs
 - Science teacher workshops for professional growth
- Audubon Arizona
 - Rio Salado Education Center educational specification collaboration
 - Important Bird Areas Project grant proposal collaboration
 - Student internships
- Native Seeds/Search and the Phoenix Desert Botanical Garden
 - Collaboration with horticultural research
 - Student internships
- Arizona Science Center
 - Biology faculty as AZ Science Center teachers for exhibitions
 - Student internships
 - Environmental Science instruction for 7-12 grade science teachers
- Maricopa County Educational Services
 - Grant collaboration for science teacher education
- University of Arizona
 - Biology Network at the University of Arizona - Student internships
 - Department of Hydrology and Water Resources – Arizona Rivers Project
- TGen and Sun Health
 - Student internships

Focus on the Future

Hiring Faculty

The most important asset of the Biology Department are our faculty and staff. The past, current and future success of the Biology Department relies on classroom activities and courses offered. Thus, faculty and staff that create, develop and implement class activities and curriculum play the most central role in success. Every full time faculty and several adjunct faculty routinely improve the classroom environment and activities related to the delivery of curriculum in substantive ways. With retirements not being replaced, the Biology Department requires additional faculty to achieve our goals.

In addition, I have found over years of recruiting faculty that, in order to be competitive with other colleges and universities in Arizona and across the country, we

must advertise and interview for new position during the fall semester. We have lost outstanding candidates again and again to earlier offers. This seems to be an “easy fix” that would enable the Biology Department to continue to hire excellent faculty.

Curriculum

As discussed in this report, the Biology Department faculty is one of the most active biology departments in the review, revision and development of curriculum in the District. Unfortunately, the MCCC process for officially revising and creating new curriculum is very lengthy and bureaucratic, and the process is subject to a small minority vetoing excellent and progressive new curriculum and curriculum changes. For example, Dr. Pepe put together a new multi-disciplinary curriculum in Environmental Science, through a widely inclusive process that included all interested science departments. The curriculum did not pass because of a failure of the Phoenix College and District administration to champion and support the curriculum in the face of controversy from one department. In the future, we would like to see more consistent follow-through from administration in support of curriculum development efforts to ensure that Phoenix College is able to compete with interesting and timely curriculum that meets the needs of our community.

Online and Hybrid Courses

To increase and maintain student enrollment and retention, the Biology Department is increasing the number of fully online and hybrid online course offerings. This attracts students that have limited access because of work, parental responsibilities and disabilities, and also give us the potential to reach new markets outside of Phoenix (and outside of Arizona). We have increased the number of fully online and hybrid courses this past year, including our first offering of fully on line BIO 100 for Fall 08, BIO 181 (majors biology) as a hybrid and our first offering of BIO 160 fully online.

We use enrollment trends, campus advisement Department advice, all of these sources of information to promote a higher quality experience for students while ensuring course offerings, meeting times, and alternative forms of delivery (i.e., internet) meet student demands and expectations.

Student success and retention rates can be increased by the implementation of student activities that actively engage students in skill development. Some new approaches for retention and student success used by faculty are to require students to have regularly scheduled individual meetings with their instructor. These meetings are used to review individual grades and performance in class and for advisement purposes. Several faculty require students to tour and meet with Learning Services staff, access library resources and other student support amenities on campus to familiarize students with campus student success support facilities.