

**Phoenix College
Biosciences
Department
Annual Report
2010-2011**



Mark Rosati, Department Chair

Overview of Biosciences Department Opportunities, Successes and Challenges

The Biosciences Department at Phoenix College was not reorganized and joined with other academic departments as a result of the campus instructional department reorganization plan and recommendations. However, our department has experienced another year of increasing enrollment, decreasing full time faculty due to retirements, and the continuance of the reassignment of our lab manager to campus business services. Our recent retirements include John Arle (2006 retirement), Phil Tate (2007 retirement), Phil Pepe (2009 retirement) and Mickie Bond (2011 retirement) with only one tenure track position awarded and three temporary full time faculty during this period. Additionally, due to our Lab Manager, James Neuenfeldt, continuing his reassignment as campus Fiscal Agent, our already-stretched lab technicians continue to add his duties to theirs as a result of this vacancy.

This academic year we have been very fortunate to have hired Amanda Chapman (Fall 2011 start) for our tenure-track faculty position and Dijana Music as our half-time department administrative assistant to replace a resigned secretary.

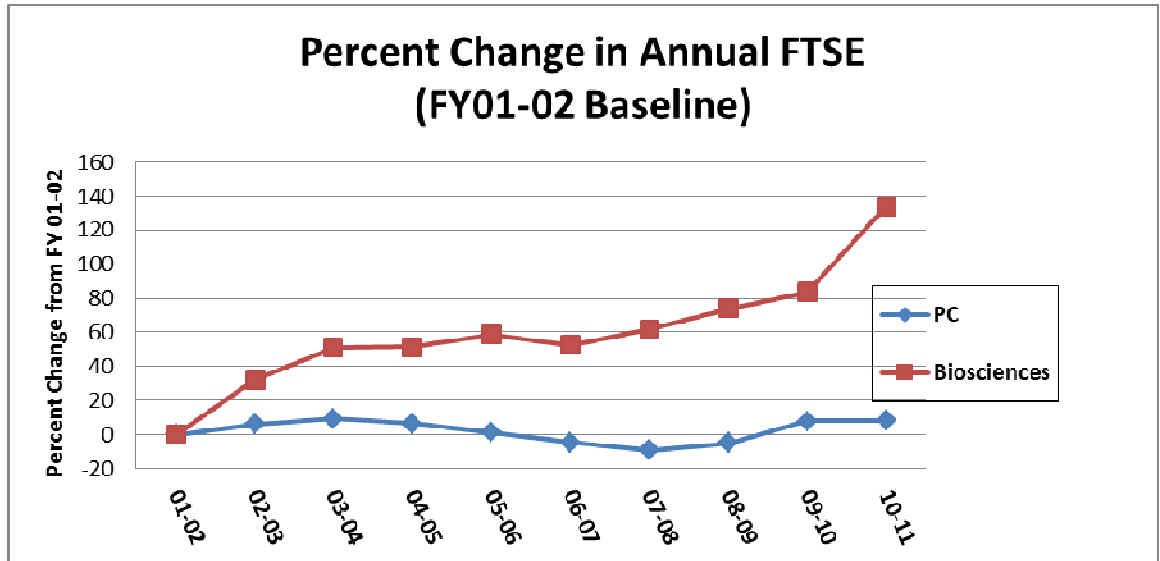
Despite our decreasing faculty and staff, we continue to be active in curriculum and instructional advancements to increase relevancy, currency, and student retention and success. We have added more online courses and increased the use of multi-media equipment and computer-based teaching tools in the classroom and student laboratories. All of our faculty and staff are engaged in grant and curriculum projects to improve student support and success. We again hosted three Bioscience High School seniors as interns in our labs and created four paid Phoenix College Biosciences student internships. Our activities and presence in the community is substantial with involvement in the Arizona Science Center teacher training activities, local high school student workshops in our cadaver and biotech labs, and student and community garden club activities at our greenhouse and campus gardens. Opportunities to increase our activities related to student success is our greatest interest. Biosciences faculty and staff are routinely sought after by college Administration to participate in and author various projects such as grants and new instructional initiatives.

Biosciences faculty also continue to receive awards and nominations for teaching excellence. This year, three full-time and two adjunct faculty were nominated for the PC Distinguished Teacher of the Year Award with Dr. Patricia Finkenstadt being awarded the Distinguished Teacher Award (Brava Patty!). Three past college Distinguished recipients include Dr. Robin Cotter, Dr. Phil Pepe, and Mickie Bond.

This year the MCCC Biology Instructional Council changed minimum hiring qualifications for biology faculty and placed a prerequisite competency for students enrolling in biology majors and allied health courses. These changes will affect the hiring process and enrollment trend changes in the assigned courses.

Department trend data analysis is essential for determining performance status and for forecasting future trends and areas for development.

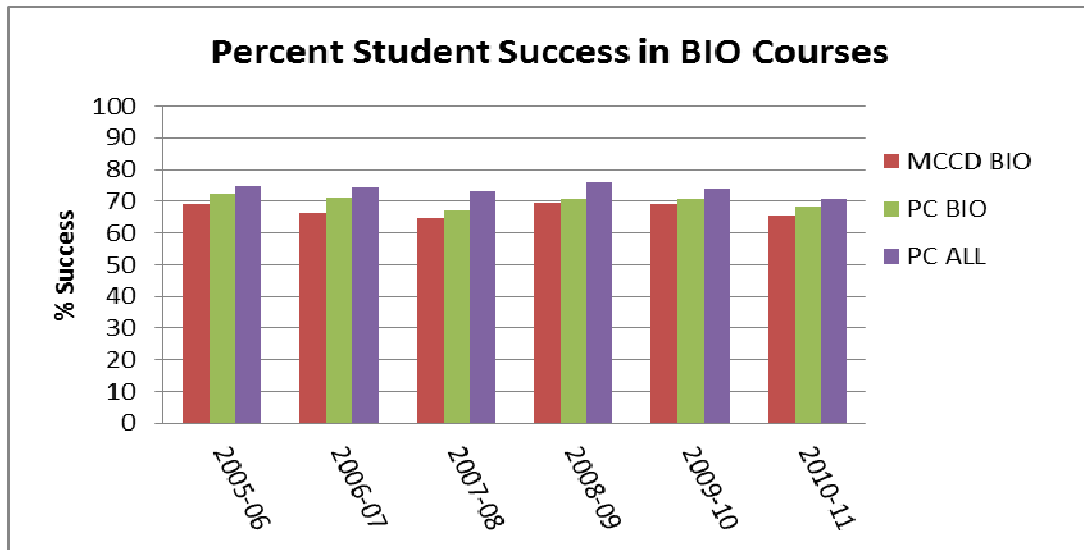
Enrollment in Biosciences at Phoenix College has steadily increased by an average of about 8% per year for the past decade surpassing this average increase trend in 10-11 year with an over 150 FTSE increase. As compared to all PC campus enrollment over the same decade at 1.8% per year, with some higher gains over the past two years indicating no significant change in overall enrollment.



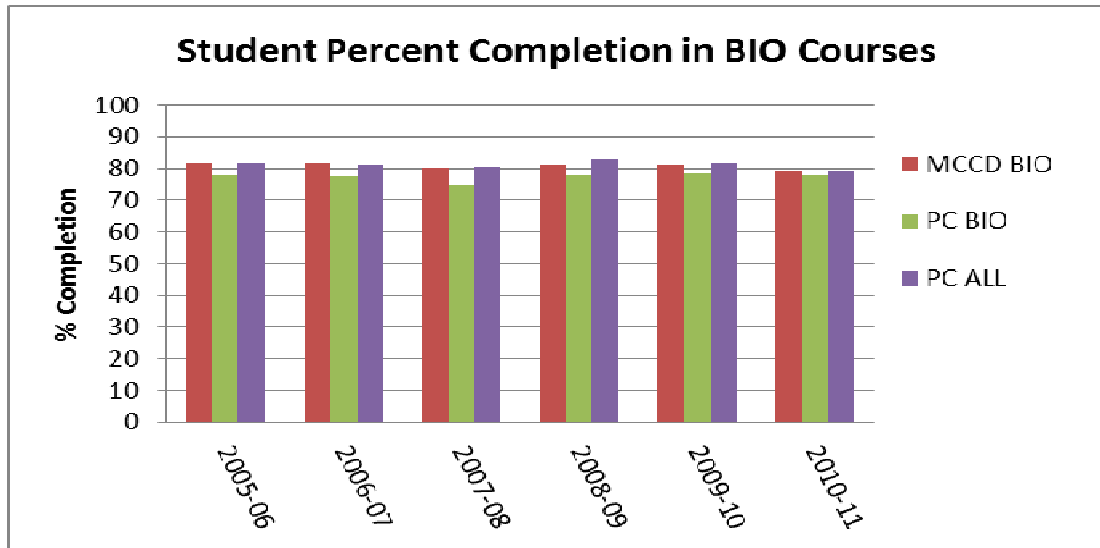
Average class size in Biosciences has increased over the past several years to 30 students, a 5 student increase. During the same period, PC campus average class size by 4 to an average of 16 students per class.



Percent student success is a measure of the percent of students completing a course that receive a C grade or higher. The PC Biosciences Department student success rates have been about 2% higher than the class average for all MCCCDCD Biology classes for the past several years and about 2% lower than the class average at Phoenix College. Science classes typically have lower success and retention rates as compared to all other classes of undergraduate disciplines due to the rigors of lab work and the integration of data analysis, advanced reading and writing and information literacy required to succeed. Faculty in the PC Biosciences Department have recognized these challenges for students and have developed and implemented many activities that train and prepare students for these skills in class.



Percent student completion is a measure of the percent of students completing or finishing a course with a grade. The PC Biosciences Department student course completion rate compares to similar rates of completion for all MCCCDCD biology courses and the Phoenix College campus class completion rate. PC Biosciences course completion are 1-2% lower than campus and other Biology courses in MCCCDCD. Anecdotally, faculty have reported that factors contributing to the lower completion maybe due to student withdraws resulting from family issues, changes in job schedules, and lower student preparedness for college-level science coursework.



Biosciences Department faculty and staff make many substantive contributions that they have reported for each section of this Annual Report. In this section faculty and staff have reported on their successes, opportunities, and challenges.

Mark Rosati – MS, Department Chair: As the Biosciences Department Chair, I work to promote maintain a student-friendly and student-support environment within the department. Importantly, my central roles include maintaining and growing enrollment, promoting and facilitating the professional growth of faculty and staff, and advancing curriculum to meet changing student needs. I also maintain a lecture and lab teaching load, and actively cultivate the Biosciences Department’s relationship with a variety of community organizations. I’m involved with service activities on campus such as I am a the campus Zone Senator for faculty association and in a leadership position in the Budget Review Committee. This year I was nominated by colleagues to be PC Faculty Senate President (I declined) and was nominated and received 100% support for faculty Department Chair representation on the Phoenix College Leadership Council. Lastly, the President asked for my representation on a Faculty Administrative Review process that was a valuable experience in RFP and Administrative processes.

Department Budget: The development and supervision of budget and finances are also key functions of a Chair. Annual college allocated funds for supplies and equipment for the Biosciences Department has been the lowest of the top 6 enrolling college departments at \$5,000 for many years. Consequently, we have successfully sought after and been awarded grants and utilized course fees for the modernization of capital equipment and supplies, basic operations supply and equipment purchases and maintenance for our more than 150 different student lab preparations per semester. Since becoming Chair of the Biosciences Department, I have substantially improved our budget and budgetary process as our lab budget structure required changes to reflect the increase in utilization and modernization, as we now use and maintain more than \$1.7 million of instructional laboratory equipment.

Department Class Scheduling, Strategy and Promotion of Biology Classes: As Department Chair, I am responsible for working closely with faculty and staff members to strategize on class offerings to determine class offerings and how best to promote the Phoenix College Biosciences Department classes. The Biosciences Department has continued to offer biology courses at times and days that meet the needs and interests of our diverse students for associate degrees, transfer baccalaureate degrees and MCCCCD occupational programs. This effort has supported our rapid FTSE growth and the very low class cancellations due to low enrollment. We continue to update our course delivery and instructional methodologies to include computer-based and student skill-based activities. One of my goals has been to promote the development and offering of an online version of each course offered in the classroom.

Patricia Finkenstadt - PhD, Tenured Full Time Faculty: Academic year 2010-11 has been a series of opportunities, challenges and successes for Dr. Patricia Finkenstadt. This past year, she began teaching a new course preparation (BIO156) fully online. This incorporated two new aspects to her teaching repertoire: teaching an online course and new course content. In the spring, she expanded her involvement in the BIO156 course by teaching a face-to-face lab. While her responsibilities to the college preclude her from further involvement in BIO156 during FY 2011-12, she is continuing to teach the online version of this course and expects to teach more in-person sections in the future. This year she continued to teach BIO201 and 202 and served as lead instructor and evening coordinator for these courses. This included responsibilities for hiring, training and evaluating adjunct instructors, as well as mentoring and advising students. She was honored to have her dedication and hard work recognized by her students and colleagues this year when she was awarded the Distinguished Teaching Award for 2010-11.

In the arena of faculty governance, Dr. Finkenstadt has assumed a significant leadership role on campus. This past year she served as Faculty Senate President-Elect and representative to the Faculty Executive Council, representing the needs of the faculty at both the college and district level. This role was both challenging and rewarding. She is continuing her leadership on campus as Faculty Senate President until May of 2013.

In a career that has resulted in extraordinary job satisfaction, Dr. Finkenstadt considers her work at LeaderShape to be one of the most rewarding. As a Cluster Facilitator at LeaderShape 2010, a nationally recognized student leadership conference sponsored by the Maricopa Community College District, she worked with students to expand and enhance their leadership skills. This conference provided an opportunity for student growth and development, unexpectedly, her own as well.

Robin Cotter - PhD, Tenured Full Time Faculty: During the 2010-2011 academic year, Robin was an active member of the PC Distinguished Teaching Award (DTA) committee, PC Learning College Committee, and SASS co-mentor for the Phoenix College Women's Soccer Team. Working together with bioscience faculty members, James Sinner and Amanda Chapman, she presented a workshop entitled, "Bugs, Brains

& Robots,” at the MEChA Student Leadership Conference hosted by Phoenix College. Robin also served as an organizer and presenter for the annual Sexually Transmitted Disease Awareness seminar hosted by Phoenix College. In addition to her involvement within Maricopa, she is also a member of the American Society for Microbiology (ASM) and serves as an external reviewer on TGen’s Institutional Biosafety Committee. To further her professional development and remain current in her field, she co-authored a peer-reviewed research article entitled, “CXCL8 protects human neurons from amyloid-induced neurotoxicity: Relevance to Alzheimer’s Disease.”

Anna Marti-Subirana - PhD, Tenured Full Time Faculty: In addition to teaching her regular load of three lectures and five labs of BIO 181, Anna served as Secretary of the Phoenix College Faculty Senate, and as member of both the English as a Second Language (ESL) Assessment Committee, and the Professional Rights and Responsibilities (PRRC) Committee. She also participated, along with other faculty members, in two learning communities (PCL); one of the PCL was concerned with the design of inquiry-based laboratories for BIO 181, while the other was committed to producing assessment tools for Biosciences online courses. Additionally, Anna was awarded an institutional e-Learning grant to develop a series of online case studies for BIO 181 courses.

Elena Ortiz - PhD, Tenured Full Time Faculty: This academic year, Dr. Ortiz continued the partnership between Phoenix College BIO 105, the City of Phoenix – Rio Salado Habitat Restoration Park, Arizona Audubon and Nick Lodato’s 5th grade class at Cardinals Academy in Washington Elementary School District, started in 2005. The partnership provides PC students a service learning opportunity, collecting data for the park and for the Audubon Society and teaching the 5th graders about the environment.

This academic year, Dr. Ortiz participated in the continued development of a Natural Resource Stewardship Certificate program together with faculty from the Liberal Arts Department and the Bureau of Land Reclamation. She also participated in part of the Title V Grant with other online science instructors in an Online Professional Learning Community. This group is working on best practices in teaching science in the online environment.

This summer Dr. Ortiz will continue development and teaching the second year of a pilot course in Climate Change and Human Health Effects for the Jr ACE Program. This work is in partnership with Dr. Sharon Harlan at ASU’s School of Human Evolution and Social Change. She was also a mentor for 3 new faculty in the New Faculty Academy.

This year Dr. Ortiz started a new student club. The Phoenix College Gardening Club grew quickly and the members are very active. They held their first vegetable and plant sale. They have also started a partnership with the Culinary faculty and plan to work on a joint garden for 2011-2012.

Dr. Ortiz also taught an honors section of her Environmental Biology course BIO 105.

Dijana Music – BS, Department Administrative Assistant: Dijana joined our department in September 2010. Dijana has worked at PC for a couple of years and has been in demand as her high level of skills and work ethic are recognized as invaluable. Dijana has diverse skills including finance and project coordination experience that has been vital for the Chair and manager support work she does. She pulls and analyzes data for the Biosciences Department Chair work in the Budget Review Committee Department, Annual Report as well as routine reports and data requested by the Chair for management purposes. Dijana has already contributed significantly to streamlining and increasing the efficiency of our office operations. Dijana works on various department and campus projects from faculty growth to managing the work hours of student interns. Dijana collaborated on various projects this semester which included: creating a Blackboard Course Competencies form for the Biosciences Department along with Amanda Chapman (Biosciences) and Kurt Chambers (CTLT).

Dijana is also a member of the Phoenix College Center for Teaching, Learning & Technology (CTLT) where she is working as a trainer and troubleshooter for Blackboard support as well as doing research and material creation for state online distance learning laws.

Dijana has been pursuing professional growth by completing bioscience coursework that will lead to her plans for a graduate degree in a health-care related discipline.

Joshua James – BS, Science Lab Technician: The Biosciences Department extended the opportunity to host interns from a local high school. The program was designed to give experience working in a science lab as well as giving the students the opportunity to do independent research. Working with Amanda Chapman, Mr. James helped the students develop and deliver power point presentations over they work experiences at Phoenix College. It was part of his job to ensure the high school interns had adequate resources - work space, training time, and supervision to enable them complete their learning objectives. Mr. James hopes that they also use the opportunity to develop skills and techniques directly applicable to their careers.

Mr. James also trained Phoenix College student workers, giving them the opportunity to test their interest in a particular career before permanent commitments are made. This opportunity also provided students with an in-depth knowledge of the formal functional activities of the Biosciences Department. The service was provided to students based on recommendations of their biology professors. This included the following classes: BIO 156, BIO 181, BIO 201, BIO 202, and BIO 205.

Mr. James administered a tour of the Biosciences Department labs to the Ursa Majors Science Club with the goal of motivating students to continue their education in one of the Life Sciences. In addition to the tour, a brief demonstration was presented. The demonstration dealt with effectiveness of hand washing against the spread of germs. Mr. James plan to enroll into graduate to school (NAU & MCCD cohort) to get a Masters In Educational Leadership in the hopes of taking a more active role in leadership on the Phoenix College campus and to eventually become a faculty member.

Matt Haberkorn – MS, Science Lab Technician: Matt continued in his position and the additional duties of lab coordinator along with lab technician Joshua James to make up for the reassignment of our full-time lab coordinator. Matt was assigned to purchase several high cost lab equipment replacements including microscopes and incubators. Matt also coordinated with faculty Elena Ortiz and technician Joshua James in developing the Phoenix College Garden Club. In addition, Matt co-mentored Bioscience High School interns.

In January 2011, The Arizona Native Plant Society published an article Matt wrote for their biannual publication “The Plant Press.” The article, “Ephemeral drainages: the quiet riparian plant community,” was a result of Matt’s presentation at an Arizona Native Plant Society conference in February of 2010. Matt has also developed the blog “Practical Biology” (<http://practicalbio.blogspot.com/>) in an effort to communicate some of the activities within the Phoenix College Biosciences Lab. Lastly, Matt maintained a professional relationship with the Desert Botanical Garden Research Department.

Amanda Chapman – MPH, Temporary Full Time Faculty: Amanda Chapman has spent the past year teaching Introductory Human Anatomy and Physiology (BIO160) both online and in the classroom and Biology Concepts (BIO100). During this time Amanda has worked to move both courses to a more student-centered, inquiry-based, research-supported approach to science. She has implemented notebooking and whiteboarding methods to help students to develop mental models of scientific concepts and express those concepts through both verbal and written means. She has also worked to provide online support for student learning by developing a supplemental blackboard site for both courses. Additionally, Amanda implemented a new BIO160 online curriculum (that she rewrote last year) to include interactive activities and simulated laboratory practical exams. After rewriting the online BIO160 course, her student completion rate went from 68% to 90% and her student passing rate (C or better) went from 60% to 85% as reported by the online PC DBase. Her efforts to improve class retention and success have also positively impacted Amanda’s student evaluations that are above both the campus and departmental average.

Amanda has also been involved in many professional and community partnership activities. These activities have included professional collaboration in the form of leading several Professional Learning Communities (PLCs) in science, working on the S-STEM grant rewrite, internship advising, student robotics mentoring and ILAC committee participation.

James Sinner – DC, Temporary Full Time Faculty: Over the past year, Dr. Sinner been very busy in both the classroom and in the department. His load hours over the past year have averaged 20.7 per semester, during which time he was also the lead instructor for BIO 201 which served approximately 700 students. This role involved setting up the lab schedule and lab exams, coordination of lab activities and helping other adjunct instructors/OYO instructor to become as proficient as possible. Dr. Sinner actively served on the Faculty Liaison Committee and the Numeracy Assessment

Committee. In the Numeracy Assessment Committee, we did the actual assessment portion during the spring of 2011, which involved the evaluation of student work in the area of math. He continued contributing to Title V grant involving "Second Life." He was the mentor for the Pre-Pharmacy club here on campus. Dr. Sinner was able to add to my video interviews, now a total of 7, for the BIO 201 students to include an interview with a soon be graduating dental hygienist student and a practicing pharmacist. He also served as the supervisor for the anatomy and physiology student workers in open lab. These open labs met on average 4 times per week over the course of this past semester. Dr. Sinner was an active member of SASS. He also helped to develop 4 new lesson builders for the BIO 201 labs and aided in the creation of the honor's project for BIO 201.

Jon Hayashi - PhD, Temporary Full Time Faculty: Jon has made advantageous use of the willingness of the Biosciences faculty to provide practical advice and counsel on the teaching environment at Phoenix College. Drs. Finkenstadt and Sinner were instrumental in helping him develop my teaching style to better fit the student population in Anatomy and Physiology I (BIO 201) through formal critiques as well as through frequent informal discussions. In his second semester at PC, Jon completed the on-line course 'Teaching and Learning in the Community College' (EDU250) that laid out the theoretical background of contemporary teaching techniques and approaches and these ideas served as the foundation to the techniques he was developing in practice. Through the New Faculty Orientation Program, Dianne Miller served as his teaching mentor and discussions with her, because of their open ended and frank nature, were invaluable resources because it gave him a clear view how to excel in his career path. Taken together, these opportunities enabled Jon to develop classroom and electronic approaches to communicate better with his students.

Mark Rosati prepared Jon to teach 'Introductory Biology for Allied Health' (BIO 156) and showed him how to build the competencies that are necessary for professional success into a student over the course of a semester. In so doing, these students are better prepared for their upper level courses.

Jon measures success in the classroom by assessing the level of comprehension of the students, both by scores on examinations and by the quality of the questions they ask in class. In a given class, it is readily apparent when teaching has been successful and he can then build on that success. It is also clear that classes differ and that one approach does not work for all situations. Consequently, Jon seeks to expand his armamentarium to meet these challenges in student development.

Jon has also had the opportunity to serve on a Professional Learning Committee for the development of a teaching modules for Anatomy and Physiology I (BIO 201). This committee is developing an independent forensic learning lab in which students identify skeletal remains by morphology and measurements (numeracy) of the samples they are given.

Department Learning Assessments and Outcomes

Several faculty have developed student lecture and lab activities that align with campus academic assessments and include writing, oral presentations, and information literacy. These assessments have served as pilots for a larger application to more courses and more sections of each course. Bioscience courses currently using writing, information literacy, and oral presentation assessed activities are BIO 100, 105, 108, 156, 160, 181, 201, 202, and 205.

A significant change in prerequisite for students enrolling in biology for majors and biology and anatomy and physiology courses for health-care programs will impact biology student success and retention. These courses require successful completion or testing for college entry level critical reading (CRE 101 equivalency) to enroll starting for Fall 2011 as was unanimously voted in favor by the MCCC Biology Instructional Council. Textbooks for the Biosciences are written at college-level sentence structure and grammar and course content involves complex instructions for equipment use, data interpretation and analysis and technical writing and information use. The level of preparedness for college-level lab sciences is more demanding than MCCC college admission requirements thus producing a significant level of science and biomedical enrolling students to be less prepared and having lower retention and success than those that are prepared. It is anticipated that this will impact student success and retention positively by increasing college-prepared student enrollment.

The results of our application of campus assessments to our classroom activities this past year indicate the need for student improvement in each assessment area and consequently, we plan to increase the number of student activities that align with assessments and student success and retention.

Student Evaluation of Biosciences Faculty: The Biosciences Department uses several data sets to examine student learning and teaching effectiveness. We use student retention and student success data from campus research office and district office Decision Support System reports to help make decisions about classroom activities and student success strategies. We also pay close attention to student evaluations of instructors as student experience in the classroom is fundamental to the success of the student and the department. Instructors are evaluated each year by students from all of their class assignments. Biosciences student evaluations of faculty have always accounted for a large percent of all campus student evaluations. This past year BIO evaluations account for over 18% of all campus evaluations, thus underscoring our commitment to student success by the use of student evaluations for faculty development in effective teaching.

We work actively to maintain our student success rates. We use a variety of data sources, from college advisement trends to student evaluations, to promote a higher quality experience for students while ensuring course offerings meet student schedule

needs and alternative forms of delivery (such as Internet-based access). Students with important personal issues that may affect their performance and attendance in Biosciences classes are handled as quickly as possible by their instructors, and when necessary by the department chair and other appropriate campus resources.

Many of the Biosciences Department faculty and staff employ and have reported specific assessments that are important to the Annual Report.

Patricia Finkenstadt - PhD, Tenured Full Time Faculty: Students in Dr. Finkenstadt's BIO156, 201 and 202 courses completed numerous assignments and projects that required a variety of assessment techniques. All assessment tools were designed either by Dr. Finkenstadt or in conjunction with other Biosciences faculty. These include, but are not limited to, content-based exams (free response, multiple choice, short answer and essay) and written and oral projects with standardized grading rubrics. Most rubrics are provided to students in advance to ensure that students are aware of assignment expectations. It is expected that all instructors teaching Anatomy and Physiology (A&P) will utilize a campus-wide assessment in one of the identified assessment areas.

Given the challenging nature of the content in biology courses, content-based exams are considered a necessity. These help ensure that students are gaining an appropriate knowledge base that can continue to be expanded upon as they advance their educational and career goals. The curriculum also includes a variety of other assignments that utilize less-traditional assessments, including oral and written presentations. While providing for alternate student assessment that often increases student success, these projects also allows students to gain proficiency in written and oral communication.

Robin Cotter - PhD, Tenured Full Time Faculty: is in the process of redesigning her BIO 181 and 205 courses to focus on case-based instruction in order to help her students improve their critical thinking skills. As part of this work, she is working with colleagues in the Bioscience Department to develop interactive lab tutorials and online lab simulations for the Introduction to Biology (BIO 181) and Microbiology (BIO 205) courses. These online tutorials consist of multi-media lessons that combine videos, animations, audio narrations, and interactive activities to help students understand key biological concepts and self-assess their learning on a more frequent basis. To further improve student retention and success, she continues to host a weekly, 3-hour open lab for general biology and microbiology students. The open lab tutoring sessions enable students to receive one-on-one tutoring from both their instructor and a peer tutor.

Anna Marti-Subirana - PhD, Tenured Full Time Faculty: Dr. Marti-Subirana's BIO 181 course assignments targeted specifically the following campus assessments:

Numeracy: Results obtained through experiments conducted in the department lab facilities had to be collated and presented as a complete assignment. Such

assignments involved graphing, calculations, and the use of mathematical equations, all of them fundamental tools for biology majors.

Written Communication: Students had to turn in bi-weekly a reading and writing assignments, which involved reading and extracting information from course sources (textbook and other technical literature) and responding to a set of questions related with course competencies. Such assignments were designed to improve both reading and writing comprehension of technical information.

Information Literacy: Students were required to complete assignments (scientific papers and case studies) that involved database search. Such assignments were designed to refine students' ability to recognize reliable sources, as well as to expose students to advanced technical databases and search tools.

Critical Thinking: All of the assignments above mentioned target, additionally, areas of critical thinking, as students had to interpret results, to determine what information was appropriate, and to discern the credibility of information sources.

Elena Ortiz - PhD, Tenured Full Time Faculty: In her lecture courses, Dr. Ortiz employs active learning techniques to engage students in daily learning. Lectures are interactive; throughout the lecture students answer questions and solve problems in collaborative learning activities. She also assigns essays and one oral presentation. For all major assignments Dr. Ortiz uses rubrics for student use and as assessment tools. The rubric she uses for oral presentations was developed by the Oral Presentation Assessment Committee. This year as part of the Online Professional Learning Community (Title V Grant), Dr. Ortiz helped develop a formative assessment tool for student evaluations of their online courses. In the next academic year the group will pilot the assessment and develop an intervention to improve any deficiencies in their online courses as identified by the students.

Mark Rosati – MS, Tenured Faculty and Department Chair: In developing lecture and lab classroom activities for students in BIO 156 and 205, I place great emphasis on information literacy and student engagement through a set of routine activities through a semester. I have developed a set of student activities including problem sets and quizzes for each class meeting and learning module. These modules and quizzes develop a student's skill and knowledge base for each writing assignment and exam. In collaboration with a library faculty, we train students on how to access, retrieve and search valid biomedical information from the Internet-based databases and in other printed and computer resources. To assist the students in improving writing skills, I also use writing assignments with self-evaluative rubrics that give students the ability improve in basic science writing skills.

Amanda Chapman – MPH, Temporary Full Time Faculty: implemented a peer evaluation component to the rubric that she uses in both BIO 160 and BIO 100 laboratories. This rubric requires them to check off each area for themselves, then have a peer evaluate their writing, and finally re-evaluate their work themselves addressing any issues that their peer identified. This is the first year in which she requires all three

components of the rubric to be completed and submitted before she will give them a grade for the laboratory.

Amanda has also continued to implement whiteboard oral group presentations for assessment purposes in the laboratory. Groups must collaborate to prepare these presentations of their claim, evidence and reasoning for data collected during that session.

It became apparent to her that many of the students in BIO1 60 and BIO 100 are underprepared in the areas of verbal and written expression. The rubric and peer evaluations have helped to clarify both my expectations of students for clarity in written communication as well as the importance of clarity in written communication when communicating ideas to peers. Additionally, in order to prepare an effective whiteboard presentation it is necessary for students to employ organizational skills as well as good written and oral communication techniques to effectively communicate with their peers. Students can compare class data or the entire class can collaborate on different parts of an experiment in this manner thus reinforcing the necessary skills in verbal and written expression that most employment situations require.

James Sinner – DC, Temporary Full Time Faculty: Dr. Sinner focuses on the area of critical thinking in his classes. He tried to introduce pathologies to different units to compel students to connect the dots and better understand the physiologic mechanisms behind how different organs or organ systems interact. In BIO 202 for example, it might involve interpreting a CBC and correlating what they see on the report to what is happening physiologically. Dr. Sinner feels that focusing on critical thinking for his students, most of who are going into some allied health profession, is vital. He then takes the scores from this portion of the exam and compare them to scores of prior students.

Jon Hayashi - PhD, Temporary Full Time Faculty: Jon has focused on two aspects of student learning assessment during my first year at PC. The first assessment is one that evaluates the level of in class intellectual engagement and the level of comprehension of the material. The second aspect of student learning concerns the student's ability to independently evaluate the classroom knowledge and to then use that knowledge to synthesize a logical response to a novel question. The cultivation of basic academic skills is a necessary part of being able to assess active learning.

Jon's assessment of cadaver study in anatomy and physiology on sessions following his instruction is to allow students to identify structures on a section of the cadaver to the rest of the class. The level of retention of the class has improved, perhaps due to the performance aspect for the student.

Jon assesses a student's ability to synthesize a logical answer using the written communication and critical thinking assessments. The criteria for the assessments are set and the students are given the questions that they will be responsible. The questions often appear on examinations and students are encouraged to converse by e-mail about their answers to check for completeness.

Written communication and critical thinking assessments are also evaluated by giving the class an extra credit assignment in which they are to read a paper of my selection from the professional literature and write a critique of that paper. Jon assesses student's oral presentation ability by giving topics that students must, as a group, research using internet resources. The group returns to class and must orally present their findings to the class. These sessions are typically a teaching opportunity to teach the student on how to deliver an interesting talk that relays the facts relevant to the audience. This skill will be essential to them in their working lives.

In addition to refining the above techniques, in the Fall 11 semester Jon plans to build in numeracy assessment. The object of this aspect will be to manipulate numbers or to plot data onto a graph. In either case, the goal will be to have students develop the mathematical skills necessary to interpret data and to form conclusions. The above assessment tools measure student skills in areas that they are required to have in the working world of a health care professional. In addition, writing competency, critical thinking, and numeracy skills are essential to them in every upper level class they will take. Students are also assessed by the quality of the logic of their answers and by their ability to ask good and relevant questions during the lecture.

Department Goals, Objectives, and Plans

Phoenix College Biosciences Department faculty support the retention and success of our diverse student body in many ways. We have multiple approaches to increase student success: an emphasis on skill development, the use and continuous development of a variety of teaching technologies for in-class and off-campus applications, the continuing development of online and hybrid courses, creation of learning communities, and the collaborative involvement of faculty and staff to work together for greater student success.

Emphasis on Skill Development: All Biosciences 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, internet-based, and printed information resources), and use of science equipment in labs. Biosciences student lab activities are collaborative and interactive by nature. PC Biosciences student laboratories 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 Biosciences instructors use rubrics (evaluation matrices) for students to use for self-evaluation and to evaluate student work.

Use of Instructional Technologies: The Biosciences Department faculty extensively use computer-based teaching and learning 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 that includes 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.

The Biosciences Department faculty extensively use computer and Internet-based activities and pedagogy. The Internet as a learning platform allows for greater student access to class support and activities materials on a continuous basis. Several faculty have again this year received grants to advance student support by developing Internet-based student access to course materials outside of class time and in-class applied technologies. One example of a continuing cutting-edge project uses the internet-based Second Life platform to teach basic lab skills virtually. Dr. Robin Cotter with help from other Biosciences faculty Dr. Patricia Finkenstadt, Dr. James Sinner, and Amanda Chapman have developed a virtual lab environment where students assign avatars (virtual self) to navigate around a lab and perform lab activities.

Development of Online and Hybrid Courses: Offering online courses reaches students that have a difficult time traveling to campus and live out of the Phoenix area. We've had great success in our department's goal for online course delivery has been to develop an online or hybrid version of each of our course offerings. In 2008-09 our online FTSE was 206.1, 2009-10 was 211, and 10-11 year 244.63. Currently, we offer fully-online BIO 100, 145, 156, 160, 201, 202 and hybrid BIO 181. This year a hybrid version of BIO 201 and 205 were completed by faculty and offered in our schedule adding more delivery mode options to each course. We have plans to develop BIO 108 and 109 as fully online.

Creation of Learning Communities: Amanda Chapman has received campus Title V STEM funding to create Professional Learning Communities (PLCs) with Biosciences Department faculty and other STEM Department faculty such as Chemistry, Physics and Math. These PLCs bring together faculty that teach STEM courses considered gateways to science degrees to coordinate teaching approaches and content. 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. Library and Reading faculty have contributed the most substantively to bioscience student success through developing classroom materials and activities in collaboration with Biosciences faculty. Biosciences faculty collaborate with campus health care program faculty to increase the success of students applying to health care programs.

Student Tutoring and Internships: Biosciences faculty have begun a program to recruit students that have completed our courses successfully as tutors for the courses they completed. Our tutoring is set up in our lab classrooms to train students in study skills and practice with lab techniques. This program is very successful and we have increased the number of tutors and hours offered to accommodate greater student demand. PC student interns are hired as lab aids for our instructors and lab technicians to develop workforce skills and their interests in STEM careers.

Expansion of Dual Enrollment Classes and High School Outreach: We are active in addressing community needs for career pathways, high school dual enrollment and teacher training. Our dual enrollment FTSE has increased over the past several years as a result of department outreach with local high school science faculty. This year we began offering BIO 160 online as a dual enrollment course at Bioscience High School.

Curriculum Development and Advancement: The success of the Biosciences Department relies on continuous substantive curriculum development to enhance the student experience and increase success and retention.

Student success and retention rates can be increased by the implementation of student activities that actively engage students in skill development. 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, math, data analysis, oral presentation, reading and writing. They are working together and with faculty and staff from other areas and disciplines on campus to maintain consistency between disciplines with respect to student coursework.

Student familiarity with campus learning support services are an important factor in student success. Several courses 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.

One important challenge to the success of innovative multidisciplinary curriculum development in academic areas is the need for Administrative support at key decision making meetings. Recently, a Bioindustry workgroup and Environmental Science workgroup were created to address the multidisciplinary nature of current workforce directions. Both groups were disbanded as several vocal faculty and campus departments objected to their development. Such cases require college and District Office administration to support new programs to break through traditional faculty discipline silos. In the future, we would like to see more consistent follow-through from administration in support of multidiscipline curriculum development efforts to ensure that Phoenix College is able to compete with interesting and timely curriculum that meets the needs of our community.

Enrollment Trends and Factors Affecting Enrollment: PC Biosciences Department enrollment has been most affected by many years of understaffing and the lack of campus classroom space to accommodate our larger classes. Despite these chronic limitations, we have increased the number of our online classes and adjunct faculty to maintain our robust enrollment.

Hiring Science Faculty: The most important asset of the Biosciences Department is our faculty and staff and their contribution to a substantial student and community reputation. Our overall faculty and staff reputation in the community and with students

relies on the fact that we are all trained scientists that have substantive experience in the entire scientific process such as lab and field work, data analysis and the rigors of producing research papers and original research. A science background is essential for the training of students for STEM and biomedical careers. Consequently, we have changed the MCCCDC hiring qualifications for Biosciences faculty now requiring science degrees and 24 hours of upper division undergraduate or graduate course credits in a biological science.

The following is a compilation of individual faculty and staff goals, objectives, plans and challenges.

Robin Cotter - PhD, Tenured Faculty: During the 2010-2011 academic year, Robin attended several district-wide MCLI and nationally sponsored conferences that focused on improving student retention and success. In the fall of 2010, she attended the National Case Study Conference in Buffalo, New York where she learned how to write and implement case studies student coursework. In the spring of 2011, Robin attended several workshops to help enhance her knowledge of current biological topics and online technologies. In February, she attended the iPlant DNA Workshop hosted by the Dolan DNA Learning Center at Cold Spring Harbor Laboratory in order to learn how to incorporate gene sequencing and analysis in the course she teaches. In March, Robin attended both the Mastering Leadership Conference for biology instructors in New Orleans and the 2011 Microbiology Symposium in Dubuque. She also attended the MCLI-sponsored workshop, "Maricopa Virtual Worlds Project" conducted by James Abraham and Nancy Burke. In May, she served as a facilitator at the 2011 MCLI-sponsored Arizona Master Teacher Seminar in Prescott, Arizona.

As part of the Phoenix College Title V STEM funded grant entitled, "Biology Boot Camp," Robin worked with colleagues from the Counseling, Library Instruction and Student Success areas to create online learning modules to help students in the biological sciences develop basic study and time management skills, become proficient in information literacy and scientific writing, and improve their critical thinking skills. In another Title V STEM project, she is working with other Bioscience Department faculty, Patricia Finkenstadt, James Sinner and Amanda Chapman to create an interactive online biology laboratory in the virtual reality world known as Second Life (www.secondlife.com). For the project employing Second Life, students will be able to interact with both instructors and students in a virtual laboratory setting. The goal of this work is to promote collaborative learning and application of critical thinking skills in an online environment. Use of online lab tutorials and virtual lab exercises will also enable students in both the face-to-face and online courses to access laboratory materials at their own pace from anywhere internet access is provided.

Patricia Finkenstadt - PhD, Tenured Faculty: Dr. Finkenstadt had two primary objectives for the academic year 2010-11: to continue to design and develop the curriculum for BIO156, 201 and 202, and to improve her leadership skills. Both these

goals were fostered and promoted by attendance at several professional development workshops and collaboration with colleagues.

To achieve her discipline-specific aim, she attended the annual Human Anatomy and Physiology Society Conference in Denver, CO. The variety of workshops offered resulted in the incorporation of several innovative projects into the course curriculum. The formation of an A&P Professional Learning Community (PLC) at Phoenix College has also begun to enhance the laboratory curriculum.

To fulfill her goal as a faculty leader she completed the Leadership Academy this May and attended the Summer Institute sponsored by the American Association of University Professors (AAUP) in San Diego last summer. The Leadership Academy fostered networking with other faculty within the district as well as significant exposure to leadership strategies and methodologies. The AAUP conference provided essential groundwork in the resolution of conflict and grievances, an integral component of her responsibility as Faculty Senate President. These opportunities will increase her ability to serve as a faculty advocate and to foster shared governance at PC.

Dr. Finkenstadt continues with her two primary objectives for the academic year 2011-12 and expects to work towards these by attendance at professional development workshops and collaboration with her colleagues.

The annual Human Anatomy and Physiology Society conference will be held in Tulsa, OK, and she expects to attend this conference. Furthermore, the National Science Teachers Association (NSTA) and the National Biology Teacher Association (NBTA) conferences will encourage curricular development in the general biology course (BIO156). The formation of the A&P PLC at Phoenix College may necessitate attendance at workshops focused on developing successful PLCs.

The Summer Institute sponsored by the AAUP is an excellent conference where faculty can gain experience and knowledge related to enhancing shared governance at the college and district level. Additionally, the Maricopa Faculty Association has offered informal training sessions for faculty leaders. These opportunities will increase her ability to serve as a faculty advocate and to foster shared governance at PC.

Dr. Finkenstadt has increased her involvement in the Student Life and Leadership arena this past year. She continues to participate in the annual Sexually Transmitted Diseases seminar and is a SASS Mentor for Women's Soccer. This year she was an Honors faculty and participated in the Honors trip to San Francisco. These experiences allow her to encourage students from a variety of disciplines to be successful in their chosen career path. She has begun to foster student leadership at PC, most prominently by her participation as a Cluster Facilitator at LeaderShape 2010. These experiences have expanded her interest in student life and she hopes to continue being involved in Student Life and Leadership in the coming years.

Anna Marti-Subirana - PhD, Tenured Faculty: Dr. Marti-Subirana's teaching objectives for 2010-2011 were to develop online case studies and to design inquiry-based laboratories for BIO 181 courses. Case studies target specific BIO 181 course competencies, and are designed to improve student information literacy, reading and writing comprehension, and critical thinking. Inquiry-based laboratories engage

students in an integral fashion, making them responsible for their experimental design, results, and conclusions. There is a significant amount of data demonstrating that inquiry-based learning promotes and refines a wide variety of cognitive skills such as problem-solving, analysis and data evaluation, and the like.

Anna's teaching objectives for 2011-2012 are to implement in BIO 181 courses the two activities previously mentioned that were developed during 2010-2011 (case studies and inquiry-based laboratories).

Elena Ortiz - PhD, Tenured Full Time Faculty: In her teaching, Dr. Ortiz stresses information literacy, critical thinking, numeracy and writing skills by assigning library research exercises and essay writing in her courses. In the laboratory portion of her courses, she also teaches students to analyze data and practice basic math and statistics literacy skills. She also promotes the use of library resources through library instruction sessions that are part of the course.

Originally Dr. Ortiz had planned to work on improving success and retention in her online course. With the retirement of Mickie Bond and the large gap left in our schedule, she has taken on more in person teaching in order to maintain the enrollment in Ms. Bond's very popular course, BIO 108. Dr. Ortiz will instead be working on improving the Bio 108 Plants and Society lab course. The course will be updated to include more information literacy, critical thinking, numeracy and writing skills.

This year Dr. Ortiz attended trainings on improving student interactions in the online classroom and on mentoring. Next year, she would like to attend the annual conference of the National Association of Biology Teachers in October.

This year Dr. Ortiz started a new student club. The Phoenix College Gardening club grew quickly and the members are very active. They held their first vegetable and plant sale. They have also started a partnership with the Culinary faculty and plan to work on a joint garden for 2011-2012. Dr. Ortiz also taught an honors section of my Environmental Biology course BIO 105.

Mark Rosati – MS, Tenured Faculty, Department Chair: As a biology instructor, my responsibilities are the creation and implementation of course work and student activities for BIO 205, (Microbiology) and BIO 156 (Introductory Bio for Allied Health), including lecture and lab materials to improve student success. I have incorporated online student support and resource materials for student access in all of the classes I teach. I also include reading, writing, and information literacy activities for student skill development.

Through the creation and implementation of Blackboard-based class course resources, I have been able to provide my students with 24-hour access to all course materials including study guides and quizzes that enable students to self-assess their learning at their convenience. Incorporation of these online interactive study aids and other web-based learning tools have served to enhance overall student engagement, comprehension, and retention within the course.

I keep up an active teaching load for a Chair, teaching overload to support the department during an extended period of understaffing. I was again nominated by

students in Who's Who in North American Education (2010-2011 Edition) and the Who's Who in America and continues to have one of the highest student evaluation rates in the Biosciences Department.

College Service. I have served on college committees, initiatives and grants such as Budget Review, Phoenix College Title V STEM Advisory Group. Last year, College Administration and Faculty Senate Presidents requested that I serve on Budget Review and Department Reorganization due to the effective management of the Biosciences Department, my familiarity with the use of databases and the effective use of data in department management, and the effective promotion of actualizing data-based changes. This year I was a part of the Budget Review Committee leadership that proposed an underutilized building closure program to save HVAC costs and a progressive department funding model that will save the college in operational expenditures. This proposal was accepted by the committee and adopted by the college Administration the following semester.

On Budget Review, I was involved in an important step to propose substantive cost-saving measures due to a decreased budget from state sources and revenues. I helped to develop and promote a proposal for underutilized building closures during hot summer months and condensing class offerings to fewer more efficient buildings that was adopted by college Administration. I also promoted and co-lead a comprehensive review of all campus Departmental operational budgets for supplies, equipment and part-time wages to develop and establish a campus-wide budget process based on actual utilization trends and needs versus the rolling over past budget lines with no oversight or evaluation. The budget group of myself and Budget Review Committee co-chairs, Vice president Paul DeRose and Legal Studies Department Chair Scott Hauert co-lead 39 meetings with separate department managers and chairs to advise and help them develop their areas budget based on actual uses. Further, we created and developed an annual request process for managers and Chairs to apply for part time wages based on detailed needs for work in their area. These two important budgetary process measures have resulted in the savings of more than \$300,000 of the college operational and discretionary budget.

Amanda Chapman – MPH, Temporary Full Time Faculty: BIO 160 FTF – Continue to collect prospective data on unit assessments, lab practicals, final exam and student evaluations. Also, continue to add improvements/modifications to the curriculum based upon researched best practices including learning college ideals.

BIO 100 FTF – Continue my collaboration to further update curriculum based upon researched best practices including learning college ideals. Collect final exam and student evaluation data to evaluate these updates.

BIO 160 Online Course – Continue to improve this course to more effectively build a classroom community that reflects what students experience in a FTF course. Go back and obtain data on retention and success rates from the past and use this to evaluate the rewritten course. Also include student survey data in this evaluation.

Bioscience High School Internships – Continue to mentor high school interns through their senior capstone projects as requested by high school faculty and administration.

PC Internships – Mentor appropriate PC students who are interested in exploring an interest in science/biology allowing them to acquire laboratory experience and skills to help them make an informed career choice.

Dual Enrollment – Provide support to the three BIO 160 DE teachers we currently have working in the high schools including allowing them access to the Blackboard support materials she developed and loaning laboratory equipment as appropriate.

James Sinner – DC, Temporary Full Time Faculty: Dr. Sinner's goal is not only to increase the percentage of students that pass his class, but to increase the amount of material retained by the students that do. He hopes to achieve this by incorporating a comprehensive final at the end of the class. The goal of this was to change the student's approach to learning the material. Knowing that they had this last comprehensive final at the end of the semester hopefully forced them to commit this information to their long term memory. It also allows him to gauge the amount of material the students retained at the end of the class.

If he continues working full-time in 2011-2012, he plans to work in collaboration with Dr. Finkenstadt to put together a pre-assessment test for our BIO 201 students. This assessment would be to help identify any deficiencies that our students may have with respect to general biology that impedes their success in BIO 201. This information would be beneficial to not only the instructors but the students as well and could help pinpoint the cause of their struggles.

Dr. Sinner is very active with respect to student support services, none of which are any more important than the supervision of the open labs. These labs offered extra time for the students to work on a multitude of assignments, projects and exam preparation with the aid of student workers. In the Fall of 2010, he was also very diligent in his work as part of the SASS program. This program seeks to mentor some of our underprepared students that make up the athletic teams here on campus. Dr. Sinner is also in charge of the Pre-Pharmacy Club.

Jon Hayashi - PhD, Temporary Full Time Faculty: Jon's current teaching goals are summed up by his description:

- A. To be prepared for all lectures and laboratory assignments
- B. To enrich lectures with diverse teaching approaches and techniques to increase student comprehension and academic success. Enrichment tools include, but are not limited to, interactive teaching techniques between instructor and students, use of 5 minute video clips to illustrate abstract concepts, and using the Campus assessments of student learning.
- C. To coach the middle of the pack students that are working hard, have the ability to succeed, but are not yet at A level because of inadequate preparation or poor study skills

D. To become familiar with the terminology and approaches of contemporary educators and to apply those approaches in a thoughtful and productive way into my teaching style

Overall, these goals align the College's strategy in that the above goals are designed to increase retention and academic success of students, particularly students that are temporarily limited by poor high school preparation or by a misunderstanding of the kind of work ethic that is required to excel in the health care profession.

Jon's future teaching goals are to develop assignments that require students to critically read articles from the professional literature, make a logical deduction on the material, and write a cogent analysis on their conclusions on the topic based on the data. He also plans to develop numeracy assessments that require students to interpret numerical data and to form a cogent, logical conclusion based on these data in line with the College's Strategic Plan of developing critical thinking and active learning.

Community Relationships and Activities

Promoting STEM careers and the success of our students by maintaining and developing relationships with prospective employers and community institutions are central to our mission and goals. We have working relationships with non-profit science and biomedical organizations to accept our students as interns and be involved in our classes as instructors and curriculum advisors. Our faculty and staff serve in an advisory capacity and also teach for several of these organizations. We serve and have relationships with the Arizona Science Center, Audubon Arizona, TGen, Barrow Neurological Institute, Science Foundation Arizona, and the Desert Botanical Garden.

Some of our activities and relationships with individual faculty and staff are discussed in some detail in the following contributions.

2010-2011 High School Student Interns at the Phoenix College Biosciences Department

Amanda Chapman mentored several Bioscience High School student intern senior capstone projects in our department labs. The Bioscience High School students included:

Jimmy Phan
Miguel Dittrich
Torrie Sterns
Juan Magana
Priscilla Sallizar

2010-2011 Phoenix College Student Interns working as tutors and lab aids for the Biosciences Department

Jennifer Taylor – tutor and lab aid
Breanna Prinzhorn – lab aid, instructional developer
Kelly Criswell - tutor
Caitlin Wendland - tutor
Richard Legislator - tutor
Courtney Goff - tutor

Daniella Serrano - tutor

Laura Loncosky - tutor

Marie Monroe – tutor and lab aid (Summer 2011)

Patricia Finkenstadt - PhD, Tenured Faculty: Dr. Finkenstadt has been involved in a variety of community and college partnerships. She taught a professional development workshop to middle school teachers at the Arizona Science Center. This is a continuation of a partnership established in 2006 and is expected to continue for the foreseeable future. At the high school level, she was a judge for the Bioscience High School Connection Endeavors Project Day. Several Bioscience High School students completed internships at Phoenix College and she represented PC at this celebration of science at our local high school.

Anna Marti-Subirana - PhD, Tenured Faculty: Anna is involved in a number of activities related of the Phoenix College Faculty Senate as a Secretary and as Zone 4 representative. She is also participating in the 2011-2012 Arizona Chair Academy Leadership Program.

Elena Ortiz - PhD, Tenured Full Time Faculty: This academic year, Dr. Ortiz continued the partnership between Phoenix College BIO 105, the City of Phoenix – Rio Salado Habitat Restoration Park, Arizona Audubon and Nick Lodato's 5th grade class at Cardinals Academy in Washington Elementary School District, started in 2005. The partnership provides PC students a service learning opportunity, collecting data for the park and for the Audubon Society and teaching the 5th graders about the environment. This academic year, Dr. Ortiz participated in the continued development of a Natural Resource Stewardship Certificate program together with faculty from the Liberal Arts department and the Bureau of Land Reclamation.

This summer Dr. Ortiz will continue development and teaching the second year of a pilot course in Climate Change and Human Health Effects for the Jr ACE Program. This work is in partnership with Dr. Sharon Harlan at ASU's School of Human Evolution and Social Change.

This coming year, Dr. Ortiz will be on the advisory board for the Arizona Association for Environmental Education helping implement their new certification program for instructors.

Mark Rosati – MS, Tenured Faculty and Department Chair: I am a board member of several community organizations, including a board member of the Environmental Fund for Arizona, Advisory Board member of Science Foundation Arizona STEM, Advisory Board member for PUHSD Biosciences High School, and Audubon Arizona Nina Pulliam Education Center Advisory Board member. In my capacity as board member to these organizations, I promote and facilitate student internship pipelines with non-profit organizations including Audubon Arizona and Liberty Wildlife. I have served as a judge evaluating capstone projects for students at Bioscience High School. I am also a member of the American Society for Microbiology.

My college discipline service activities include being a faculty senator, a member of the Budget Review Committee in a leadership capacity, and MCCCCD Biology Instructional Council representative.

Joshua James – BS, Science Lab Technician: Mr. James collaborated with Amanda Chapman on materials acquisitions and club meetings for the Phoenix College Robotics Club with the overall goal of helping students develop attitudes conducive to effective interpersonal relationships as well as increasing the student's sense of responsibility.

Additionally, he worked with Elena to assist her with getting the PC Garden Club started. The club grew flowers and vegetables and sold them this semester in sophomore square.

Amanda Chapman – MPH, Temporary Full Time Faculty: BHS Internships – Mentored three Bioscience High School interns, who serve on our PC campus, for the full year through their senior capstone projects.

TPHS Strategic Planning and Advisory Committee – Amanda serves on this committee to assist Teacher Prep High School. She contributed substantively to the development of its new vision, mission and strategic plan and goals and is currently assisting with the NCA accreditation process.

Science Project Judge – She served as a judge evaluating capstone projects for students at Bioscience High School.

BHS Robotics – Served as a mentor for the Bioscience High School Robotics team who were awarded a Silver Medal as Finalists in the 2010 Arizona Regional.

Science Foundation Arizona's STEM Advisory Council – She participated in the Advisory Board meetings.

MECHA Conference - Presented activities to high school students visiting PC regarding science, college readiness and accessibility in collaboration with other Biosciences Department Faculty.

PC Bioscience Dual Enrollment – Amanda networked with local high schools to evaluate and recruit three more highly qualified dual enrollment instructors. She is currently mentoring these instructors by answering questions, providing course materials and loaning out appropriate and necessary laboratory equipment.

James Sinner – DC, Temporary Full Time Faculty: This past year Dr. Sinner has made community connections with his work on his video interview project which required me to speak to several of the local hospitals. He participated in MEChA by showing off our cadaver lab. He also conducted four other tours of our cadaver and bioscience labs. Those four tours brought in 200 high school students from four different area high schools. Lastly, Dr. Sinner orchestrated a visit by the New Life Society who came in and give 3 talks on organ donation and transplant awareness.

Jon Hayashi - PhD, Temporary Full Time Faculty: Jon served as a judge for high school science posters at the Arizona Science and Engineering Fair. In addition to being

personally satisfying, this event provides Phoenix College with an opportunity to promote Phoenix College to promising students in our area.

Jon has a professional working relationship with the Department of Neurobiology at the University of Arizona, Tucson. He keeps current with the ongoing work there on invertebrate neurons and glial cells that use *in vivo* and *in vitro* electrophysiological and molecular biological approaches. Often these examples are used in his classes. Additionally, Jon recommends that students from PC who would be a good fit into that program apply for admission.

Community Partnerships and Advisory Groups

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

- Science Foundation Arizona – STEM Center
 - Department Chair, Mark Rosati serves as an Advisory Board member for the Arizona STEM Center
 - Jon Hayashi served as a judge for high school science posters at the Arizona Science and Engineering Fair
 - Partner contact:
 - Darcy Renfro – STEM Center Executive Director
- PUHSD Bioscience High School, Maryvale, 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
 - Partner and advisory contacts:
 - Bioscience High School Principal – Deedee Falls
 - Science Project Judges – Amanda Chapman and Mark Rosati served as a judges evaluating capstone projects for students at Bioscience High School
 - Bioscience High School Robotic Team advisor - Amanda Chapman
 - Arcadia High School Science faculty Amy Bell
- Arizona Audubon
 - Nina Pulliam Education Center educational specification collaboration
 - Mark Rosati: Education Center Board member
 - Important Bird Areas Project grant proposal collaboration
 - Student internships
 - Partner and advisory contacts:
 - Sam Campana – Executive Director
- Native Seeds of Tucson Arizona
 - Matt Haberkorn – faculty collaborator

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- Collaboration with horticultural research
- Student internships
- Partner and advisory contacts:
 - Bryn Jones – Executive Director
 - Jules Richelson – Volunteer Coordinator

- Phoenix Desert Botanical Garden
 - Matt Haberkorn – Biosciences Department collaborator
 - Collaboration with horticultural research
 - Student internships
 - Collaborators and advisory contacts:
 - Dr. Joe McAuliffe, DBG Director of Research
 - Dr. Kimberlie McCue, DBG Program Director, Conservation of Threatened Species and Habitats
 - Dr. Charles Butterworth, DBG Botanist

- Environmental Fund for Arizona
 - Mark Rosati Board Member
 - Non-profit charitable organization for local Arizona conservation and Wildlife groups
 - Provides student internship connections for science students
 - Partner and advisory contacts:
 - Laine Seaton – Executive Director

- Arizona Science Center
 - Biosciences faculty as AZ Science Center teachers for exhibitions
 - Student internships
 - Environmental Science instruction for 7-12 grade science teachers
 - Partner and advisory contacts:
 - Dianne McKee - Director of Educational Services

- University of Arizona
 - Biology Network at the University of Arizona - student internships
 - Department of Hydrology and Water Resources – Arizona Rivers Project
 - Partner and advisory contact:
 - Dr. Martha P.L. Whitaker – Primary Investigator
 - Dr. James Washburne – Primary Investigator

- TGen
 - Student internships
 - Partner and advisory contact:
 - Brandy Wells – TGen Science Education & Outreach Director
 - Dr. Dave Duggan – Research Scientist