

**STUDENT OUTCOMES COMMITTEE OF THE
BOARD OF TRUSTEES**

MINUTES

Thursday, October 4, 2012

2:30 p.m. – M2-34

Presiding: Ms. Stacy Holland

Present: Dr. Stephen Curtis, Dr. Judith Gay, Dr. Samuel Hirsch, Mr. Chad Lassiter,
Dr. James Roebuck

Guests: Dr. Mary Anne Celenza, Ms. Kathy Harter, Dr. Barbara McLaughlin, Mr. John Moore

(1) Executive Session

An Executive Session was not held.

(2) Public Session

(a) Approval of Minutes of September 6, 2012

The minutes were accepted.

(b) Science Program Audit

Dr. Celenza provided an overview of the Science Program Audit. She stated that the Science Program serves a need for students as a transfer program and that students in the program do well academically. However, the issues that need to be worked on have to do with strengthening the pipeline of students who elect to pursue a course of study in the Science Program. A few years ago science faculty from all three departments (Biology, Chemistry and Physics) were engaged in discussions regarding what the next step for the College was regarding new science programs. As a result, the faculty designed a very innovative curriculum which is the Applied Science and Engineering Technology degree program (ASET). This Program complements the Science Program in that it is designed as a career program. Dr. Celenza indicated that the science faculty need to once again review the status of the science programs and outline a future direction. The Division is involved with a number of initiatives designed to strengthen both recruitment and retention efforts for students interested in science:

- Predominately Black Institutions (PBI) grant – The goals are to increase recruitment initiatives as well as retention in science classes.

- S-STEM grant – A proposal has been submitted to NSF with a focus on designing an undergraduate science course which will enable students to engage in actual research early in their academic career.
- ATE – BMET grant – A proposal is being developed to be submitted to NSF. The focus is to develop a Biomedical Equipment Technician proficiency certificate which will also include strategies to assist students entering the program develop stronger academic skills (e.g. contextualized learning, tutoring, mentoring, etc.).
- ATE – Nanotechnology grant – A proposal is being developed to partner with Immaculata University to increase students' knowledge of nanotechnology through bridge programs, summer camps, participation in College Connection for Science, Engineering and Technology (CCSET) and the development of an introduction to nanotechnology course.

In addition, efforts will continue with initiatives through the Center for Science and Engineering Education that foster student recruitment and retention. Examples include the establishment of a Science Club, participation in the Philadelphia Science Festival and connecting students to professionals working in the field of science.

Mr. Lassiter suggested that a wish list of equipment should be developed and sent to area universities to alert them to the College's needs in the event universities have available equipment for potential donation to the College.

Ms. Holland pointed out the under enrollment of the Science Program and the need to develop a plan for increasing enrollment. It was agreed that an enrollment plan would be developed to include strategy, timeline and projected outcomes.

Action: The Student Outcomes Committee recommends that the Board of Trustees accept the Science Program Audit.

(c) Nursing – Modified Academic Program Audit

Dr. Celenza provided an overview of the Nursing Program Audit. She stated the Nursing Program has a well-established history of being a quality program. Through the efforts of the nursing faculty the Program has extended its reach beyond Philadelphia out to a national audience. This has been accomplished by two recent grants with the Hartford and Hearst Foundation which focus on Geriatric Education. Faculty have shared their expertise with other schools of nursing through presentations at major conferences. They have also broadened their strong dedication to community service by sponsoring a trip to Merida Mexico. Last Spring 2012, some nursing students and two faculty members worked with the College's Center for International Understanding to travel to Merida Mexico to study a different health care system. They then presented their findings to their classmates to share their knowledge. Faculty in the

program continue to look for ways to connect with other organizations to promote nursing education.

Ms. Holland inquired about the culture of the Nursing Department and who is the driver for the Department to want to do innovative initiatives. Dr. McLaughlin responded by saying that the Nursing Department has had an established philosophical understanding that if new ideas are presented they should be supported. Beyond this, the nursing faculty view themselves as a community of learners including being open to learn from students. Dr. Curtis commented that the Nursing Department has had outstanding leadership over time and that has made a difference as well.

Ms. Holland questioned why completion of the Program is three years instead of two years. Dr. McLaughlin responded that the reason for this is that students typically need to take additional courses including pre-requisite courses and that since the Program has selective admissions requirements, such as a minimum GPA, students must first enroll in courses in order to establish an academic history and a GPA.

The Committee also had a conversation regarding the trend of employers requiring a bachelor's degree in Nursing and the implications for the associate's degree.

Action: The Student Outcomes Committee recommends that the Board of Trustees accept the Nursing Program Audit.

(3) **Next Meeting**

The next meeting of the Student Outcomes Committee of the Board is scheduled for November 1, 2012 at 1:30 p.m. in conference room M2-34.

Attachments

Minutes of September 6, 2012
Science Program Audit
Nursing – Modified Academic Program Audit

**STUDENT OUTCOMES COMMITTEE OF THE
BOARD OF TRUSTEES**

MINUTES

Thursday, September 6, 2012

1:30 p.m. – M2-34

Presiding: Dr. James Roebuck

Present: Dr. Stephen Curtis, Ms. Varsovia Fernandez, Dr. Judith Gay, Dr. Samuel Hirsch, Ms. Dorothy Sumners Rush

Guests: Dr. Mary Anne Celenza, Ms. Laura Davidson, Mr. John Moore, Dr. Sharon Thompson

(1) Executive Session

An Executive Session was not held.

(2) Public Session

(a) Approval of Minutes of May 3, 2012

The minutes were accepted.

(b) Liberal Arts – Social/Behavioral Science Option Audit

Dr. Sharon Thompson reviewed the audit findings. Of particular note was the potential impact of the new Psychology degree on enrollment in the Liberal Arts-Social/Behavior Science Option. The majority of students in this option are interested in psychology. Board members discussed the importance of students knowing which degree track is most appropriate for their goals. This should be a major consideration in any decision about whether to maintain this degree. Board members asked Dr. Thompson to convene a committee of faculty to discuss the options in the audit and to report back to the Student Outcomes Committee of the Board in one year.

Action: The Student Outcomes Committee recommends that the Board of Trustees accept the Liberal Arts – Social/Behavioral Science Option Audit and require a follow-up report by June 2013.

(c) Culture, Science and Technology Program Audit Update

Prof. Laura Davidson and Dr. Celenza reviewed the Culture, Science and Technology update. They emphasized the challenges involved in designing effective solutions to the problems detailed in the second follow-up report.

Board members commented on the use of the term “General Studies.” Dr. Gay and Dr. Curtis assured the Board members that that term is a place holder for a general concept – not the term that will be used for a program revision.

Board members stressed the importance of early identification of students as a way of assisting them in the selection of an appropriate academic and career pathway. Board members asked for a progress report on the initiatives detailed in the report by June 2013 with the recognition that some of the initiatives may take longer to implement.

Action: The Student Outcomes Committee recommends that the Board of Trustees accept the Culture, Science and Technology Program Audit Follow-Up Report and require a follow-up report by June 2013.

(d) Science Program Audit

This agenda item was not discussed and will be deferred to the October meeting.

(3) Next Meeting

The next meeting of the Student Outcomes Committee of the Board is scheduled for October 4, 2012 at 1:30 p.m. in conference room M2-34.

Attachments

Minutes of May 3, 2012
Liberal Arts – Social/Behavioral Science Option Audit
Culture, Science and Technology Program Audit Update
Science Program Audit

Community College of Philadelphia
Academic Program Audit: Associate in Science in Science
Division of Math, Science and Health Careers

Contributors: David Cattell
Mary Anne Celenza
Linda Hansell
Rachel Hammer
Kathleen Harter
Linda Powell

August 16, 2012

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I. Executive Summary

The Associate in Science degree in Science program at Community College of Philadelphia (CCP) offers a comprehensive science curriculum that prepares students to transfer to a baccalaureate institution to continue their studies in a variety of science-related fields. The program was created in 1976 and is housed in the Chemistry Department. The science curriculum consists of a minimum of four Natural Sciences electives each with a lab component, along with Calculus I and II (or a minimum of five natural sciences electives each with a lab component, along with Calculus I) and other required electives and general education courses in multiple disciplines.

Several revisions have been made to the curriculum since it was created in 1976, reflecting a strong commitment to students moving on to four-year institutions, focusing on both the needs of students and the expectations of transfer institutions. Recent curricular revisions have been made to incorporate the Fall 2009 College-wide general education requirements and program-level student learning outcomes have been developed. Program costs are higher than the College average.

Recommendations from this audit focus on increasing enrollment, retention and student awareness of program requirements, investigating future directions for science programs and the potential for increased on-line or hybrid courses, ensuring that lab-based resources meet student needs and addressing the availability of up-to-date technology to meet future needs.

II. Program & Curriculum

Major Goals of the Program

The goals of the Science curriculum are to educate students in major areas of science and provide a foundation for transfer to a four-year college or university. This degree program is designed for students who wish to pursue baccalaureate studies in biological or physical sciences or who plan to continue their education in a professional studies program, such as pre-pharmacy, pre-medical or pre-dental programs. This curriculum parallels the first two years of study offered in the science programs of other colleges and universities.

The Science program has the following student learning outcomes. Upon completion of this program graduates will be able to:

- Successfully transfer into a science-based program at a four-year institution.

- Demonstrate an understanding of scientific principles and concepts and be able to apply this knowledge to the solution of problems and performance of experiments in one or more of the natural science disciplines.
- Competently perform laboratory tasks related to their scientific discipline.
- Communicate information in a manner appropriate to their scientific discipline using verbal, written and graphical means.

History of the Program

The first catalog to show a curriculum for an A.S. degree in Science, independent from the A.S. degree in Engineering Science, was the 1976-1977 catalog. Then as now, the Science program was designed for students who wished to pursue baccalaureate studies in natural or physical sciences. The Science program paralleled the first two years of study offered in the sciences by major area universities (1976-77 CCP Catalogue, Volume XII, No.1). Therefore it was designed to incorporate numerous science courses that allow students to select a broad range of science courses to match their varied academic and career goals.

Description of the Curriculum

Like other A.S. degree programs at the College, the Science program (SCIP) is transfer oriented. The curriculum has a core of science courses that are designed to provide flexibility in course selection for students. To fulfill the curriculum requirements, the student must select a minimum of four Natural Science courses with a lab component. Thus, the program requirements allow students to choose science courses that will best meet their intended baccalaureate degree goal. Calculus I (MATH 171) and II (MATH 172) are also required program courses, although an additional laboratory science course may be substituted for Calculus II (MATH 172) (curriculum revision of Spring 2003). The following chart describes a typical sequence for completing the A.S. degree in Science.

Associate of Science in Science

Sequence of Courses

Course Number and Name	Prerequisites and Corequisites	Credits	Gen Ed Req.
FIRST SEMESTER			
ENGL 101 – English Composition I		3	ENGL 101
MATH 171 – Calculus I –OR– MATH 165/166 – Differential Calculus I and II	MATH 162	4	Mathematics
Natural Sciences with Lab Elective		4	Natural Science
CIS 103 – Applied Computer Technology		3	Tech Comp
SECOND SEMESTER			
MATH 172 – Calculus II –OR– Natural Sciences with Lab Elective	MATH 171 or MATH 166	4	Natural Sciences with Lab Elective
ENGL 102 – English Composition II	ENGL 101	3	Engl. 102, Info Lit.
Humanities Elective		3	Humanities
Natural Sciences with Lab Elective		4	
Natural Sciences with Lab Elective		4	
THIRD SEMESTER			
Natural Sciences with Lab Elective		4	
Social Science Elective		3	
Humanities Elective		3	
General Elective		3	
Natural Sciences with Lab or General Elective		3 or 4	
FOURTH SEMESTER			
Natural Sciences with Lab or General Elective		3 or 4	
Social Science Elective		3	
General Elective		3	
General Elective		3	
MINIMUM CREDITS NEEDED TO GRADUATE		60	

Internal Program Coherence

Students can meet their goals within a two-year time span. The necessity of taking any developmental or pre-requisites courses prior to (and in addition to) the program courses will delay attainment of the degree. Independent of increasing the number of sections being offered, the three science departments seek to assure that the students can take multiple science courses in any given semester by paying attention to the timing of the offerings so as to avoid conflicts that would prevent students from being able to register for multiple science courses in the same semester.

In addition, College Chemistry I (CHEM 121) is now offered in a hybrid format supplementing the distance hybrid availability of General and Introductory Chemistry (CHEM 101, 102 and 110). Students in the program can also enhance their study of chemistry by taking the honors section of CHEM 121 and the honors section of CHEM 122. General Biology I (BIOL 106, distance) was also recently developed and is currently being offered in this on-line format. As

more instructors take the required training to be able to offer their courses in this format (distance or distance hybrid), the number of on-line sections available is expected to grow.

The curriculum is designed to create coherence by providing students with opportunities to

1. Select courses in a coherent manner around a common core that addresses their academic and career goals.
2. Combine theoretical scientific principles learned in lecture courses with experiential learning through laboratory exercises.
3. Prepare for science courses by taking the appropriate pre-requisite courses that provide a foundation for learning.
4. Select non-science courses (e.g. courses in mathematics or General Education courses) which will prepare them for transfer to a four year school by either matching the first and second year curriculum at those institutions or by providing them with skills (e.g. critical thinking, communication, writing, etc.) which will apply to future academic endeavors.

Revisions Since Inception of Program

The only revisions on record are those of Spring 2003 and Fall 2009.

- In Spring 2003, the program was revised to allow a four-credit laboratory science to replace Calculus II upon student need. At the time of the revision, Pre-Pharmacy at Temple University required only Calculus I (MATH 171) and many students in the Science program aspired to transfer into pre-pharmacy (see Appendix A).
- In Fall 2009, the program was revised to meet the College's new General Education requirements. A General Elective course was replaced with CIS 103: Applied Computer Technology to meet the Technology Competency requirement (see Appendix B).

Program Activities

The Science program, designed to provide a foundation in any of the natural sciences and/or prepare the student for pre-professional fields, has a very broad base of science courses that are integral and foundational to all these fields. Within that context, it is important to note that curricular innovations and supporting program enhancements within all the science departments have been ongoing and include software updates, new instrumentation, new laboratory experiments and expansion of courses into distance or hybrid format. As basic textbooks change to reflect an expanding knowledge base and new applications, the course content is amended and/or expanded to reflect these developments.

A partial list of recent program activities include:

- In the area of software and technology, use of publisher-provided course management systems and supplementary resources are being incorporated by an increasing number of instructors including *Wiley Plus*, Cengage's *OWL* and McGraw-Hill's *Connect Plus* homework and text resources. Additionally, most instructors are using the 'MyCCP; *MyCourses*' functionality to give students additional digital access to course information, supplementary material and the like.
- Physics has incorporated the use of Pasco equipment and software for data acquisition in the Conservation of Momentum Experiment M-9B and Boyle's Law Experiment H-2B (PHYS 140 and PHYS 111). For data acquisition and control in the Capacitors Experiment EM-3B and Induced Voltage Experiment EM-11B, they are using *LabVIEW* software (PHYS 241 and PHYS 112).
- Instrumentation acquisitions for Biology (such as incubators, microscopes, centrifuges and electrophoresis equipment) have allowed a large expansion of course offerings at the Northeast Regional Campus (NERC) and also on Main Campus, especially in the area of both General Biology I (BIOL 106 and 123) and Microbiology (BIOL 241) (see Appendix C for a full list of newly purchased biology equipment). A new Anatomy and Physiology Lab and a new Biotechnology/Microbiology Lab have been added at the NERC.
- Within the last two years, Chemistry was able to purchase a Fournier Transform Infra-red Spectroscopy (FTIR) (from Thermo-Fisher), an Ultra-violet Visible Spectrophotometer (UV-VIS) and a Gas Chromatograph (GC) (from Shimadzu) and was the recipient of a donated Biomini UV-VIS (from Centacor).
- In Physics, industry-standard software (*LabVIEW*) is used with the Hewlett-Packard equipment for both data acquisition and instrumentation control. Proprietary software packages from Pasco and Vernier are used with the respective equipment.
- New experiments incorporated into current courses include:
 - An 'Instrumentation Lab Experiment,' "Stress and Strain," was developed under the National Science Foundation Course, Curriculum and Laboratory Improvement (NSF CCLI) grant the physics department received in 1999. Real-time data acquisition of stress and strain is performed using National Instruments' *LabVIEW* software.

- Nanotechnology experiments were written under the auspices of a National Science Foundation subcontract issued by Penn State University (2007) to incorporate nanotechnology topics into the curricula of Community College of Philadelphia's natural science courses. As a result, the following laboratory experiments were developed and incorporated:
 - *DNA Microarrays: A Nanoscale Method for the Study of Gene Expression* has been incorporated into the regular laboratory schedule of Cellular and Molecular Biology (BIOL 123).
 - *Self Assembly of a Monolayer: Avogadro's Number and Molecular Size and Preparation of Colloidal Gold Nanoparticles* are a regular part of the laboratory schedule in College Chemistry I and II courses (CHEM 121-122).
 - *Measuring the Length of a Molecule and Measuring Atomic Mass* have been incorporated into the regular laboratory schedule of Survey of Physics (PHYS 105).
- New courses are being written and added to the College catalog in each of the science departments. For example, the Biomedical Technician Training Internship (BTTP 201) has been developed and Biotechnology I (BIOL 255) and Biotechnology II (BIOL 256) have recently been approved. A Biotechnology Proficiency Certificate was implemented in Fall 2011 and it is anticipated that a Biomedical Technician Training Proficiency Certificate will be implemented Fall 2012. These course additions will afford students the opportunity to add an additional credential to their Science degree.
- To strengthen offerings in physical and natural sciences and related technologies, the Center for Science and Engineering Education (CSEE) was created in 2008 to foster collaboration among the science departments and to establish contacts with funders and employers in STEM (Science, Technology, Engineering and Mathematics) related fields. The Center brings together faculty from all three science departments. It also has an active Advisory Board drawn from the College, other institutions of higher education, secondary schools and education-related organizations throughout Philadelphia and STEM industry representatives. A significant part of the CSEE mission is to increase student knowledge, exploration and interest in pursuing STEM careers (see Appendix D and E for CSEE Advisory Board and Bylaws).

Anticipated Revisions and Challenges

Continued good advising is needed to assure that students are taking the proper level and sequence of science courses to fulfill the freshman and sophomore level expectations of their anticipated transfer program and institution. Completion of the A.S. degree enhances transfer opportunities and should be strongly encouraged.

Relationship to College Mission and Strategic Plan

The Science program matches the goals outlined by CCP's mission statement in a number of key ways. The program strives to "provide a coherent foundation for college transfer, employment and life-long learning" and "prepare students for more advanced educational and training opportunities" through a flexible course structure, transfer agreements and overall skill-building. Science is a growing field (as illustrated in section VI) and thus gives students the training to "meet current and evolving labor market needs."

The science curriculum provides course selection flexibility to make coursework parallel to regional four-year degree programs. This supports the 2008-2012 Strategic Plan in that it allows for student planning "for the future through strengthened partnership efforts." CCP has dual admissions agreements through which a student can earn a science degree and transfer with junior standing at Cabrini College, Cheyney University, Temple University, La Salle University, Rosemont College, Chestnut Hill College and Drexel University. CCP also has a specific program-to-program agreement with Philadelphia University based on the science curriculum.

Likewise, there are several other areas where the Science program interfaces with and supports the Strategic Plan. Specifically:

- Goal A1. The College will enhance quality, innovation and effectiveness in the delivery of academic, administrative and student support services.
- Goal A2. The College will establish a more student-centered culture.
- Goal B1. The College will identify and implement improved strategies to support course and program assessment and renewal.

Relationship to Other Programs in the College

Currently, the A.S. degree in Science is one of four options in the Division of Mathematics, Science and Health Careers that students have for pursuing a degree in a scientific discipline. The other three options are the A.S. degree in Engineering Science, the A.A. S. in Chemical Technology and the A.A.S. degree in Applied Science and Engineering Technology. All four programs are alike in that they are overseen by a science Department Head from one of the current science departments, Biology, Chemistry and Physics. The Department Head of Chemistry oversees the Science Degree and the Chemical Technology degree. Full-time faculty

who teach courses in these programs are members of one of the three science departments. However, unlike the Engineering Science and Chemical Technology programs the Science, and the Applied Science and Engineering Technology programs have no discipline specific full-time faculty members who teach only in one department or program.

Both the Engineering Science and the Chemical Technology programs prepare students for a focused scientific area. In contrast, the Science degree and the Applied Science and Engineering Technology degree are broader in scope. The long-standing A.S. in Science, which has a direct focus on immediate transfer to a baccalaureate program, is an appropriate complement to the newly developed Applied Science and Engineering Technology Degree program which focuses on preparing students to enter the workforce directly upon graduation and possibly continuing their education at a later time.

In terms of student trajectory, students who are planning to transfer into a four-year institution to pursue a natural science or a pre-professional science-oriented degree are encouraged to enter this program when they have met the preliminary math criterion of passing Pre-Calculus I (MATH 161) with a C or better. Thus, students cannot enter the College with a degree code of 'science;' instead, they must request a change in curriculum no sooner than the completion of their first semester at the College. The mathematics requirement is necessary to keep students on track for transfer to four year colleges and universities who expect students to have mastered these courses in the first two years of college.

Most students who do enter this select program move into it from the Culture, Science and Technology Program (CSTP) or from Liberal Arts (LA) program. Students are unlikely to enter the Science program from other programs within the College unless they drastically change their career goals while here. Exiting from the Science program into other College programs is equally unlikely unless the student chooses to drastically change his/her career orientation. Other College programs into which students could exit should they want a more immediate career-oriented program, versus transfer, are Chemical Technology and the Applied Science and Engineering Technology (ASET) programs.

Future Directions in the Field and Program

Future directions in the science field are expanding and the foundational level science courses that constitute this two-year science program are expected to have increased demand. Fields which demand a strong scientific foundation continue to be biology, chemistry and physics (in all their subspecialties), as well as research, pre-medical, pre-dental and pre-pharmacy. Along with that, however, is an increasing number of emerging cross-disciplinary science fields such as biotechnology and nanotechnology (see the EMSI data on expected job growth in these areas in section VI and Appendix F).

III. Faculty

There are no faculty members specifically designated as “Science curriculum faculty.” Faculty members who teach students enrolled in the various science, mathematics and Liberal Arts courses reside in their appropriate academic departments. In fact, depending on their selection of natural science courses, students in the Science curriculum may take science classes with only a small percentage of all the faculty in the natural science departments.

All full- and part-time faculty members must meet the minimum educational and experiential requirements defined by the individual department/discipline as well as meeting the College requirement of Fall 2005, which requires that all full-time faculty members hold a Master’s degree in their discipline or discipline related area. Part-time faculty are required to hold a Master’s degree and 18 graduate credits in the discipline in which they teach. Each academic department has an approved faculty evaluation plan guiding both developmental and summative evaluation – helping to ensure that faculty members remain current in their discipline. In addition, individual departments hold discipline-specific professional development in-service days at least once a year.

The current (Spring 2012) composition of the three science departments is as follows:

- Biology has 27 full time faculty members (and approximately 29 adjuncts).
- Chemistry has 10 full time faculty members (and approximately 23 adjuncts).
- Physics has 4 full time faculty members (and approximately 6 adjuncts).

All full-time and part-time faculty members in the natural science departments have a degree in a science area. The university degrees of the faculty within each department vary and even with a given department, they are quite diverse. As new faculty members are hired, there is a strong emphasis on assuring that they can fulfill the needs of the department not only to teach current courses but also recently added or anticipated offerings.

Professional Development

The College requires all full-time faculty members to participate in two weeks and two days of professional development, one in the Fall semester and one in the Spring semester. The faculty of the three natural science departments (as well as the faculty college-wide) are expected to stay current with changes and research advances within their discipline and also with changing educational pedagogy and technology. Faculty (about 30%) from all three science departments have presented at national and regional conferences, during the College’s Professional Development Week and in the Teaching Center. Approximately 15% of the full-time Faculty in the Biology Department have recent publications in peer-reviewed journals. All faculty in the science departments have engaged in professional development activities within their own departments (e.g. Chemistry faculty have received training on a new HPLC instrument and on

the Wiley Plus on-line teaching/learning system; Biology faculty have received updated training in laboratory safety, and on-line learning systems).

Contributions to the Life of the College

Faculty from the science departments participate in the life of CCP by contributing to committee work, presenting at professional development days, working with faculty in other divisions and departments and organizing programs for high-school students and teachers and also for Community College of Philadelphia's own students. Examples of faculty engagement include but are not limited to the following:

- Two faculty members co-chair the Executive Committee of the Center for Science and Engineering Education.
- Six other faculty members serve on the Executive Committee of the Center for Science and Engineering Education.
- All full-time faculty in the Chemistry and Biology departments participate on departmental committees.
- Four faculty members from the Biology, Chemistry and Physics departments gave presentations to high school students as part of the College Connection for Science and Engineering Education (CCSEE).
- In Spring 2011, 15 faculty members had students who participated in the student poster session. These faculty assisted their students in researching and presenting current topics in a science area. In Spring 2012, 16 faculty had their classes participated in the poster session.
- One faculty member from the Biology department participated on the Assessment Committee for General Education.
- Faculty members from the Biology and Chemistry Departments have been members of the Curriculum Committee.
- Faculty members from the Biology, Chemistry and Physics Departments have run summer camps for high school students for the past two summers.
- Faculty from the Biology, Chemistry and Physics Departments have participated in College open houses and other recruitment activities.
- Faculty from the Biology, Chemistry and Physics Departments have participated in the Philadelphia Science Festival in Spring 2011 and Spring 2012.

- Faculty from the Biology and Chemistry Departments were members of a panel which presented information to the community at the opening of the new building at the Northeast Regional Center.

IV. Outcomes and Assessment

Program Documentation

There is no original Science curriculum document on file in the Curriculum Facilitation Office. There are two curriculum revision documents on file. Although the program was started in the 1976-77 academic year, there is no previous program audit on record. There is documentation, from 2003, of minor program changes and, in Fall 2009, further revisions were made due to changes in the College's General Education requirements.

An Assessment Plan for the Science Curriculum was completed in Fall 2011. The Quality/Viability Indicator (QVI) has been completed for the Science program in Spring 2011. The results of the QVI showed that the Science program had high quality (3.0/4.0) and average viability (2.0/4.0). Of the 5 viability measures used in this assessment, Fall to Fall retention was the lowest score.

Course-Level Evaluation

Although the Science program itself does not have program-specific science courses, each science course in the individual science departments is Chapter 335 compliant as of April, 2012 and contains documentation for course-level evaluation. For example, the Chapter 335 documentation (see Appendix G for full documentation of an example, based on CHEM 121) clearly states how the course relates to the College mission, is equivalent to similar courses at other institutions and adequately prepares students for the next course in the sequence. With an action plan to ensure compliance, this course documentation indicates the push for relevant and up-to-date materials.

The chemistry, biology and physics departments have completed course-level student learning outcomes for all science courses. Appendix H contains an example of the student learning course goals for CHEM 121. Assessment Plans for biology, chemistry and physics course student learning outcomes were completed in Fall 2011. To date the following science courses have completed an assessment of course student learning outcomes:

Course	Student Learning Outcomes	Data Collected
BIOL 106	1	Fall 2010, Spring 2011
	2	Fall 2010, Spring 2011
	3	Fall 2010, Spring 2011
	4	Fall 2010, Spring 2011
	5	Fall 2010, Spring 2011
	6	Fall 2010, Spring 2011
BIOL 110	1	Spring 2011
	2	Spring 2011
	3	Spring 2011
	4	Spring 2011
BIOL 123	1	Fall 2011
	2	Fall 2011#
	3	Fall 2011#
	4	Fall 2011#
	5	Fall 2011#
	6	Fall 2011#
	7	Fall 2011#
	8	Fall 2011#
	9	Fall 2011#
CHEM 101	1	Fall 2010, Spring 2011
	2	Fall 2010, Spring 2011
	3	Fall 2010, Spring 2011
	4	Fall 2010, Spring 2011
	5	Fall 2010, Spring 2011
	6	Fall 2010, Spring 2011
	7	Fall 2010, Spring 2011
	8	Fall 2010, Spring 2011
	9	Fall 2010, Spring 2011
	10	Fall 2010, Spring 2011
	11	Fall 2010, Spring 2011

Course	Student Learning Outcomes	Data Collected
CHEM 102	1	Spring 2011, Summer 2011
	2	Spring 2011, Summer 2011
	3	Spring 2011, Summer 2011
	4	Spring 2011, Summer 2011
	5	Spring 2011, Summer 2011
	6	Spring 2011, Summer 2011
	7	Spring 2011, Summer 2011
	8	Spring 2011, Summer 2011
	9	Spring 2011, Summer 2011
	10	Spring 2011, Summer 2011
CHEM 203	1	Spring and Summer 2011
	2	Spring and Summer 2011
	3	Spring and Summer 2011#
	4	Spring and Summer 2011#
	5	Spring and Summer 2011#
	6	Spring and Summer 2011#
	7	Spring and Summer 2011#
	8	Spring and Summer 2011#
	9	Spring and Summer 2011#
	10	Spring and Summer 2011#
	11	Spring and Summer 2011
CHEM 203	12	Spring and Summer 2011
	13	Spring and Summer 2011
	14	Spring and Summer 2011
	15	Spring and Summer 2011
	16	Spring and Summer 2011
	17	Spring and Summer 2011
PHYS 101	1	Fall 2011
PHYS 108	1	Fall 2011
PHYS 125	1	Spring 2011

The Science degree, is composed of a course sequence that permits students to customize their choice of science courses. From Fall 2008 to Fall 2010, the most frequently taken science courses from each discipline as taken by a sample of Science program students (N = 270) is presented in the following table:

Table II.1: Three Most Common courses taken by Science students in Each Discipline

Course	Student Count	% Earning Grades of A, B and C
Chem 121	117	89.7
Chem 122	108	79.6
Chem 221	73	91.8
<i>(totals 298 of the 467 students taking Chem courses)</i>		
Biol 109	91	89.0
Biol 123	80	71.2
Biol 106	61	95.1
<i>(totals 232 of the 437 students taking Biol courses)</i>		
Phys 111	40	77.5
Phys 140	32	100
Phys 241	22	86.4
<i>(totals 94 of the 146 students taking Phys courses)</i>		

As the data shows, overall success rates were high for students in all courses cited above as shown by the average percent success rates for Chemistry (87.03%), Biology (85.1%) and Physics (87.9%).

Program Outcomes

The program attributes that were assessed by this audit to determine the success of the program in meeting its stated goals are:

- Number of students in the program who successfully complete the program and graduate.
- Time frame to graduation.
- Number of students who successfully transfer into a science-based program at a four-year institution.
- GPA of graduating Science program students
- Retention data

Enrollment

Enrollment in the Science program over the last 12 semesters has fluctuated moderately (table IV.D.1). The average number of enrolled students is approximately 141 students per semester. The highest credit FTE enrollment was in Fall 2010 at 148 FTEs and the lowest enrollment was in Fall 2006 at 89 FTEs (table IV.D.2).

Table IV.D.1: Student Credit Headcount

	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Program	152	147	119	150	124	147	132	151	123	113	186	146
College-wide	16,236	16,978	16,871	17,019	17,334	17,661	17,327	18,023	19,047	19,965	19,503	20,170

Table IV.D.2: Credit FTE Headcount

	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Program	119	113	89	109	95	113	104	114	97	92	148	120
College-wide	11,017	11,329	11,523	11,296	11,881	11,823	11,883	12,128	13,361	13,784	13,697	13,863

Graduates

With the exception of 2009, the number of graduates in the Science program has remained somewhat consistent. The average number of graduates in the Science program over the last six academic years is 53 students per year (table IV.D.3).

Table IV.D.3: Number of Program Graduates, 2006-2011

2006	2007	2008	2009	2010	2011
39	46	52	84	45	57

Data from a random sample of 120 Science students enrolled from Summer II 2006 to Fall 2010 showed that students in this sample typically took an average of 2.19 years (median of 2.35 years) or approximately seven semesters to complete the program. It is difficult to use this average time frame as typical, as students are able to apply to the Science program either at the end of their first CCP semester or the day they apply to graduate.

Student Profile

The Science program enrolls a diverse student body. Table IV.D.4 indicates that the Science program has consistently enrolled more females than males every semester. Over the last 11 semesters, the program has enrolled an average of 6.5% fewer female students but 5.9% more male students than are enrolled in the college as a whole.

Table IV.D.4: Program Enrollment by Gender as Compared to College-wide Enrollment (Percent)

Gender		Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Female	Program	59.9	68.1	61.3	62.1	57.8	56.8	57.6	53.7	58.4	58.1	58.9
	College	66.5	66.5	66.8	66.6	66.4	66.3	65.8	65.3	65.3	64.6	64.2
Male	Program	38.8	30.3	36.7	36.3	40.8	40.9	39.1	44.7	40.7	41.4	41.1
	College	32.2	32.3	32.1	32.3	32.7	32.9	33.1	33.8	33.9	34.8	35.3
Unknown	Program	1.4	1.7	2.0	1.6	1.4	2.3	3.3	1.6	0.9	0.5	0
	College	1.2	1.2	1.1	1.1	.9	.9	1.1	.9	.8	0.6	0.5

Tables IV.D.5 and IV.D.6 indicate that Black, Non-Hispanic, and White, Non-Hispanic students represent the largest racial/ethnic groups in the program. The Science program has seen a slight increase of Hispanic students enrolled in the program from semester to semester. In addition, the program enrolls nearly three times as many Asian students as are enrolled in the College as a whole.

Table IV.D.5: Program Enrollment by Racial/Ethnic Background

Race	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Amer Indian or Alaskan Native	1	1	1	2	2	2	2	2	0	0	1	1
Asian	35	25	40	30	30	38	27	31	23	23	31	35
Black, Non-Hispanic	49	46	51	47	49	56	46	51	36	28	59	38
Hispanic	4	2	2	4	4	5	9	12	10	11	14	8
Other	15	8	15	10	9	8	9	8	8	8	15	17
Unknown	12	9	12	9	8	13	19	16	15	12	18	10
White, Non-Hispanic	31	28	29	22	20	25	25	31	31	31	48	37

Table IV.D.6: Program Enrollment by Racial/Ethnic Background as Compared to College-Wide Distribution (percent)

Race		Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Amer Indian or Alaskan Native	Program	0.0	0.7	0.8	0.7	1.6	1.4	1.5	1.3	0.0	0.0	0.5	0.7
	College	0.5	0.6	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.5	0.5
Asian	Program	27.6	23.8	21.0	26.7	24.2	25.9	20.5	20.5	18.7	20.4	16.7	24.0
	College	7.4	7.3	7.7	8.1	8.3	7.9	7.2	7.1	6.9	6.8	7.2	6.9
Black, Non-Hispanic	Program	30.9	33.3	38.7	34.0	39.5	38.1	34.8	33.8	29.3	24.8	31.7	26.0
	College	46.7	47.8	46.9	47.4	47.1	48.0	46.8	47.4	47.2	48.0	47.7	49.1
Hispanic	Program	3.9	2.7	1.7	1.3	3.2	3.4	6.8	7.9	8.1	9.7	7.5	5.5
	College	5.9	5.8	6.1	6.2	6.5	6.4	7.0	6.6	7.0	7.2	6.6	6.1
Other	Program	9.2	10.2	6.7	10.0	7.3	5.4	3.0	5.3	6.5	7.1	8.1	11.6
	College	5.0	4.8	4.6	4.6	4.2	4.3	4.1	3.9	4.2	4.3	4.0	3.8
Unknown	Program	8.6	8.2	7.6	8.0	6.5	8.8	14.4	10.6	12.2	10.6	9.7	6.8
	College	6.1	6.5	6.8	6.9	7.4	7.5	8.4	9.2	9.1	8.8	9.2	9.1
White, Non-Hispanic	Program	19.7	21.1	23.5	19.3	17.7	17.0	18.9	20.5	25.2	27.4	25.8	25.3
	College	28.4	27.3	27.4	26.3	26.1	25.5	26.1	25.4	25.4	24.4	24.8	24.4

This table (IV.D.7) indicates that the largest percentage of students is between the ages of 22 and 29, most of the last 12 semesters with the exception of Fall 2010 where students in the 16-21 age range represented the largest percentage of students in the program. Compared to the College as a whole, the science program enrolls 8 to 15 percent fewer students aged 40 years and older.

Table IV.D.7: Enrollment by Age as Compared to College-wide Enrollment (Percent)

Years		Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
16-21	Program	35.5	26.5	31.9	24.0	29.8	23.1	34.1	21.2	32.5	24.8	44.1	27.4
	College	33.8	28.3	35.8	30.0	36.9	30.7	36.6	29.7	35.5	26.9	36.0	29.4
22-29	Program	47.4	55.1	49.6	53.3	55.6	57.1	50.8	60.3	52.8	54.9	37.1	48.6
	College	30.2	33.6	30.0	34.2	30.3	35.1	30.7	36.1	33.0	37.3	33.6	38.1
30-39	Program	11.8	15.6	12.6	17.3	9.7	12.9	11.4	14.6	8.1	15.0	11.8	17.1
	College	17.2	18.1	16.2	17.4	15.9	16.8	15.9	17.4	16.2	17.8	16.5	17.7
40+	Program	3.3	1.4	2.5	1.3	0.8	4.1	3.0	2.6	4.1	3.5	4.3	4.8
	College	14.6	15.6	14.2	14.9	13.8	14.6	14.3	14.6	13.7	14.0	12.6	13.7
Unknown	Program	2.0	1.4	3.4	4.0	4.0	2.7	0.8	1.3	2.4	1.8	2.7	2.1
	College	4.1	4.4	3.8	3.6	3.1	2.8	2.5	2.2	1.6	1.3	1.3	1.1

Table IV.D.8. shows that, with the exception of Fall 2009 and Spring 2010, slightly more students in the science program consistently tend to be part time students (average = 53.7 students) than full time students (average = 46.3). This finding is comparable to the overall pattern college wide where more students tend to be part time students (average = 68.3 students) than full-time students (average = 31.7). However, the science program tends to enroll slightly more full-time students than the college as a whole.

Table IV.D.8: Program Full-Time/Part-Time Enrollments as Compared to College-wide Enrollments (Percent)

		Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
FT	Program	44.7	43.5	42.0	37.3	44.4	41.5	50.0	47.7	51.2	52.2	47.8	53.4
	College	31.8	30.0	33.3	29.0	32.8	29.2	32.7	30.0	35.3	32.2	34.2	30.5
PT	Program	55.3	56.5	58.0	62.7	55.6	58.5	50.0	52.3	48.8	47.8	52.2	46.6
	College	68.2	70.0	66.7	71.0	67.2	70.8	67.3	70.0	64.7	67.8	65.8	69.5

Retention Data

The following table (IV.E.1) indicates that two-thirds to three-quarters of Science students enrolled in the Fall semester are likely to return to the same program the subsequent Spring semester. Fall 2010 is the exception with a little less than a half of the students returning to the science program and more students returning to other programs. The average percentage of students who did not return to the Science program is slightly lower (22.2%) than that of the college overall (27.8%). In addition, Science program students are two to nine percent more likely to graduate than the entire student body. This may be due to the flexible nature of the program and students' strong desires to transfer upon completion of the program requirements.

Table IV.E.1: Students who returned to the same Program or a different program in the subsequent Spring Semester (Percentage)

Status		Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011
Returned Same Program	Program	64.5	69.7	66.1	76.5	61.8	48.9	73.4
	College	65.6	64.3	64.2	64.6	68.4	66.9	65.3
Returned Different Program	Program	3.9	2.5	2.4	1.5	3.3	22.0	1.6
	College	3.6	4.1	5.2	5.1	4.8	4.9	6.2
Graduated Fall	Program	5.9	10.1	8.1	3.8	8.9	4.3	5.4
	College	1.9	1.7	2.1	1.8	2.0	2.2	2.0
Did not return Spring	Program	25.7	17.6	23.4	18.2	26.0	24.7	19.6
	College	28.9	29.9	28.6	28.5	26.4	25.9	26.5

On average, a slightly higher percentage of Science program students (53.8%) enrolled in the Spring semester are likely to either return to the same program in the subsequent Fall semester, or graduate from the College than the overall College student (44.8%). . The average percentage of students who did not return to the Science program is somewhat lower (40.3%) than that of the college overall (47.2%). (Table IV.E.2).

Overall, the retention rate for students in the Science Program is slightly better than the overall College's rate and thus could be improved.

Table IV.E.2: Students who returned to the same Program or a different program in the subsequent Fall Semester (Percentage)

		Fall 2005	Fall2006	Fall2007	Fall 2008	Fall 2009	Fall2010
Returned Same Program	Program	32.9	33.6	34.7	28.8	39.0	19.9
	College	36.0	36.2	35.0	37.1	38.5	37.0
Returned Different Program	Program	3.9	7.6	3.2	0.8	2.4	17.2
	College	7.2	7.5	8.2	8.5	7.6	9.1
Graduated	Program	15.8	24.4	22.6	29.5	23.6	18.3
	College	7.7	8.1	8.1	8.3	8.1	8.5
Did not return Fall	Program	47.4	34.5	39.5	40.9	35.0	44.6
	College	49.1	48.3	48.8	46.1	45.8	45.3

Academic Performance

Science program students are academically successful, as evidenced by course completion, average GPA, academic standing and success at departure. On average, Science program students complete 93.7 percent of college-level credits they attempt, which is slightly more than the average percent the College as a whole completes (88.1 percent). In addition, the majority of students are in good standing graduating on average with a GPA of 2.99 as compared to a College-wide average GPA of 2.63. The majority of the students are in good academic standing (average = 92%) at a rate that is slightly higher than the College as a whole (average = 85%). Most students enrolled in the Science program either graduate or experience long-term success at departure from the College at a higher rate than the overall rates for the College. (Tables IV.E.3, IV.E.4 and IV.E.5).

Table IV.E.3: Student Course Completion and Average GPA (percent)

		Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Percent of college-level credits attempted/completed	Program	92.0	94.5	92.1	94.8	92.3	93.1	94.7	95.3	95.5	91.6	95.4
	College	88.9	88.7	87.1	88.5	87.6	89.4	88.2	87.1	86.7	88.8	87.7
Average GPA	Program	2.88	2.9	2.94	2.94	2.96	2.9	3.01	3.07	3.12	2.91	3.31
	College	2.64	2.62	2.59	2.64	2.61	2.67	2.65	2.60	2.59	2.67	2.63

Table IV.E.4: Student Academic Standing (percent)

		Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011
Good Standing	Program	98.0	93.2	95.0	92.0	87.9	87.8	86.4	90.1	90.2	94.7	92.5	95.2
	College	90.8	88.1	88.8	86.2	83.8	82.2	85	83.0	85.6	83.2	84.4	84.1
Dropped insufficient progress/poor scholarship	Program	1.3	0.0	1.7	1.3	1.6	2.0	0.8	4.0	0.8	0.0	0.5	0.7
	College	2.6	3.8	3.0	4.3	3.4	5.5	3.7	5.7	1.2	1.7	1.9	1.9
Probation - FT/PT/Prov.	Program	0.7	4.8	3.4	4.7	8.9	7.5	12.2	3.9	4.1	1.8	7.0	4.1
	College	6.5	8.2	8.1	9.5	12.7	12.2	11.2	11.5	13.3	15.1	13.7	14.0

Table IV.E.5: Levels of Student Success at Departure (percent)

Status		Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007	Spring 2008	Fall 2008	Spring 2009	Fall 2009
Graduated	Program	16.7	27.1	31.3	21.5	25.0	33.9	15.0	42.9	25.8
	College	5.8	12.1	5.2	13.9	6.5	14.0	6.0	14.4	7.2
Long-term success	Program	77.8	57.6	50.0	63.1	67.9	48.4	60.0	44.3	54.8
	College	38.3	38.4	35.5	35.3	33.6	35.6	35.9	35.5	36.9
Short-term success	Program	5.6	1.7	12.5	3.1	3.6	8.1	1.0	4.3	16.1
	College	17.4	16.9	18.1	16.4	19.0	17.1	18.4	17.3	18.2
Unsuccessful	Program	0.0	13.6	6.3	12.3	3.6	9.7	1.5	8.6	3.2
	College	38.4	32.6	41.1	34.4	40.9	33.4	39.8	32.8	37.7

- Long term success is defined as departure with a GPA of 2.0 or greater and 12 or more cumulative hours earned
- Short Term success is defined as departure with GPA of 2.0 or greater with 11 or fewer cumulative hours earned.
- Unsuccessful is defined as all departing students not otherwise classified including students who never completed a college-level course

Transfer Data

Over the last six years, an average of 82.5% of students responding to the Institutional Research (IR) Graduating Student survey transferred to another institution shortly after graduating from the college which is a higher rate than the overall college average of 58.9%. With the exception of the graduating class of 2009, all students responding to the Graduating Student survey believed that their preparation for transfer was either excellent or good. (See table IV.E.6 and IV.E.7).

Table IV.E.6: Percentage of Science Students who transfer shortly after Graduating from the College

	2005	2006	2007	2008	2009	2010
Program	90.0	75.0	100.0	80.0	87.5	62.5
College	58.2	53.2	58.0	65.7	61.5	57.1

Table IV.E.7: Percent of Students who Felt Their CCP Preparation for Transfer was either Excellent or Good

	2005	2006	2007	2008	2009	2010
Program	100.0	n/a	100.0	100.0	85.7	100
College	93.8	88.3	96.9	91.3	92.8	92.5

Student Survey Results

Surveys were mailed and/or emailed to current, former and graduated students in the science program. Surveys were sent to:

- 167 current students in the Science program
- 342 former students of the Science program
- 264 graduates of the Science program
- (773 total surveys)

Students currently enrolled in the Science program were emailed a link to an electronic survey on the Survey Monkey platform through their CCP-based email. Hard copies of the survey were mailed to graduates and former students of the Science program. Survey questions focused on student's academic demographics, attitudes about preparation by the Science program and how this is related to their current employment status.

The survey return rate was 8.0 percent overall, with 62 of the 773 surveys returned. Thirty (18%) current student surveys were returned; 12 (3.5%) former student surveys were returned and 20 (7.6%) graduate surveys were returned]. Caution should be used in interpreting the data, as this is a moderate to low return rate.

When asked about their initial reason for enrolling in the Science program, the majority of survey respondents noted transfer to a four-year institution as an important reason for enrolling at CCP. All former student respondents (12 respondents) alongside 90 percent of current students (27 respondents) and graduates of the Science program (17 respondents) stated this as a reason for enrolling, in areas such as pharmacy, physics and biology. In terms of earning an A.S., 47

percent of current student respondents (14 respondents), more than 50 percent of graduates of the Science program (10 respondents) and one third of former students (33 percent, four respondents) noted this as an important motivator. Additionally, respondents noted that gaining skills for a current or future job and taking courses that interested them were motivators in enrollment.

Former students are a unique case, as this category includes those who were no longer in the Science program at the time of the survey, but had not graduated the Science program – this includes those who transferred to another institution before completing the Science program or moved into an alternative program. When asked what factors led these students to leave the Science program, a majority of former students left CCP in order to transfer to another college (67 percent, eight respondents), which indicates that ‘former’ students are not necessarily unsuccessful. Additionally, former respondents left due to a conflict with work, academic difficulties, loss of interest in the field of science or a change of major (one respondent each).

As transferring is important to over ninety percent of all respondents, many noted that they had received high levels of preparation in the Science program. Twenty-seven percent (eight respondents) of current students felt that the preparation they are receiving for transferring to another college or obtaining a job in their desired field was excellent. Another 30 percent (9 respondents) of these respondents felt the preparation was good, 27 percent (eight respondents) felt the preparation was fair and 3 percent (one respondent) felt it was not helpful (former students were not asked this question).

Since leaving CCP, almost eight in ten (79 percent, 15 respondents) graduates of the Science program have transferred to another institution, with 74 percent (14 respondents) attending or graduating from a four-year college and 21 percent (four respondents) attending or graduating from a graduate school. A majority of graduates of the Science program had their full course-load transfer (87 percent, 13 respondents) and felt as though preparation for transfer was either excellent or good (67 percent/10 respondents and 27 percent/four respondents, respectively), where another six percent felt it was fair preparation for transfer. Graduates remarked on this preparation as very positive, with notes about “excellent professors” and the science program offering “a solid foundation” (see Appendix I for full comments). Additionally, many former student respondents (67 percent, eight respondents) have attended a four-year college part time, with an additional 25 percent (three respondents) having attended a graduate school, at institutions including Temple University, Widener University, Philadelphia University, American Public University, Rutgers University and Columbia University. In terms of employment, 74 percent (14 respondents) of graduates and 34 percent (two respondents each) are employed part- or full-time (current students were not asked this question).

Overall, student respondents were asked about their level of satisfaction with the instruction at CCP. All of the graduate respondents were satisfied with their instruction from CCP. Former student respondents were very positive about their experience with the Science program: all

respondents (100 percent, 12 respondents) felt satisfied with the course instruction and 92 percent (11 respondents) were satisfied with overall support they received from academic advising, course professors, financial aid, and other support services at CCP.

Students were asked about the strengths of the Science program. Current students noted a “well informed” and supportive faculty with “great transfer options.” One current student noted that the Science program is “similar to programs at four year institutions which means students won't be intimidated by the curriculum if they choose to complete a four-year degree,” where another focused on the flexibility “between general electives and natural science.” Graduate respondents noted the strengths of clear connections between course curriculum and transfer to four-year institutions, good selection of courses and also remarked positively on non-science program elements such as course professors and the financial aid support. Lastly, former students saw instruction as an area of strength for the CCP Science program, with tutoring noted as a benefit.

In turn, students were also asked what could be changed or added to improve the Science program. Students from each category remarked that more modern or technologically advanced lab equipment would serve as a benefit. Current students indicated that more mentoring, career or transfer oriented advising, connections between lab and lecture sections and changes to course offerings or requirements would add to the usefulness of the program. Graduates of the Science program had several suggestions for improvement: more tutoring for struggling students, connections to employment through internships or a co-op, courses in Latin, peer study groups, field trips, connections with local companies and seminars by experts in scientific fields (doctors, a post-doc, a Boeing employee, Merck employee, etc.). Former student improvement suggestions included additional diverse courses (including histology and immunology), transfer options and information, one-on-one academic counseling and more academic advising support towards degree completion rather than just a set of courses.

V. Resources

Facilities and Equipment

There are no facilities or items of equipment specifically dedicated for the sole use of those enrolled in the Science curriculum. Science laboratories and equipment are under the auspices of the respective science departments of Biology, Chemistry and Physics.

The facilities of the Biology, Chemistry and Physics departments from which the science courses originate are all used to support this program. Each department has developed a facility maintenance plan. These plans were incorporated into the College's previous 1997 Facilities Master Plan.

The most recent additions to the facilities are the two new biology laboratories just opened at the NERC following its campus expansion and the planned Microbiology/Biotechnology lab that will be built at the Main campus.

In addition, the natural science departments all monitor their immediate needs on an annual basis and appropriate requests are placed in their capital budget requests. Although they manage in the best way possible with available resources, some attention needs to be paid to outdated equipment and laboratory renovations in some areas are needed. The College is in the midst of developing a new Facilities Master Plan and science laboratories will be included. Even before the new Facilities Master Plan will be completed, science faculty have begun to work with the College Administration on designing two new laboratories and renovating a third laboratory.

How Well Current Facilities Support Program Needs

In academia, the laboratories in particular have undergone a transformation in design that allows for a quick transition from bench work to lecture/discussion areas. At the bench, the newer configurations allows for more easily accomplished group work. In addition, the technology capabilities of these spaces have been greatly enhanced to permit Internet access, image and information storage, instrumentation-based measurement, etc. CCP's Facilities Master Plan does have requests for this type of upgrading but the reality of the expense involved has continually delayed implementation.

On the main campus, Biology currently has two Microbiology Labs and five additional labs that are utilized for General Biology, Anatomy and Physiology I and II, Cellular and Molecular Biology, Organismal Biology and Genetics labs. A new microbiology/biotechnology lab will be created at the Main campus and is expected to operational for the Spring 2013 semester. New biology lab spaces were necessitated by the increasing demand for course offerings and to accommodate the implementation of the biotechnology program at Main and NERC campuses. Chemistry maintains four laboratories plus an instrumental lab on Main campus. Physics has one laboratory.

There is a single Chemistry laboratory space at the NERC, which is shared with Physics, and a laboratory at NWRC that is shared with Biology. With the exception of the lab at NWRC, these labs seem to fit the current needs of the program, though updates based on changes in technology will be necessary to meet future needs.

Chemistry and Physics laboratories at the Main campus, while adequate, need renovation. The Chemistry instrumentation room is poorly designed with many permanent benches and no sight lines to the room from other laboratories. In addition to the large number of instruments and their ancillary components (computers, printers, etc.) which are positioned on the benchtops, some of the area is taken up by a desk for one of the lab aides and much of the cabinetry is used for additional equipment and supply storage. As a result of its poor physical layout, it does not allow much space around the individual instruments for instruction. This space was particularly addressed in the Facilities Master Plan to overcome these impediments to instruction, student access and student supervision.

As mentioned above, at the NWRC, there is a single shared Biology-Chemistry laboratory. This shared lab space at the NWRC is inadequate for both Biology and Chemistry courses. Although the design of the laboratory adequately meets the needs of a Biology lab it is lacking in many ways as an appropriate Chemistry lab. Specifically, all the lab benches are around the perimeter of the room so that the instructor does not have good sightlines for oversight, there is no central area where necessary equipment and chemicals can be made easily available to the students so much is placed on carts and rolled into and out of the room each lab period, there are no natural gas outlets in the room and very limited ventilation hood space which has necessitated modifications to the performance of fairly common laboratory experiments and techniques. There is not instructor's demonstration bench or area to place the chemicals for an experiment except to use the perimeter benches which then makes the remaining available benchtop space very crowded. These benchtops are the wrong height for chemistry labs and are designed more for biology labs where students typically sit at the bench whereas chemistry students are more likely to stand during experiments. Chemistry Faculty had implemented procedures designed to compensate for the inadequacies of the laboratory but the situation is not the optimal one for student learning. Thus the space is not capable of fully supporting biology's or chemistry's current and future needs. There is a dire need to add space and to retrofit space at this campus to alleviate this situation. One way to address these concerns would be to add a separate chemistry lab area at NWRC and allow Biology to completely utilize the current lab space with additional renovations.

Lastly, at the West campus, only biology courses are offered.

What Future Needs Can Be Identified

Future needs revolve around reconfiguration of laboratory space for these three natural science course areas and enhancing technological capabilities throughout. A re-thinking of how the space should be designed and utilized should be given serious consideration when the time comes for renovation of these laboratory facilities.

Technology

Technology capabilities of the laboratory spaces in biology, chemistry and physics need to be greatly enhanced to permit internet access, image and information storage, instrumentation-based measurement, etc. White boards, projection systems, computers and access along with additional electrical capacity should be embedded. Future needs of science labs will require the enhanced technology so that students will benefit from the incorporation of video broadcasts, virtual demonstrations and access to on-line teaching materials.

The implementation of science courses through an on-line venue has proceeded cautiously due to the belief that hands-on laboratory experiences are essential for student learning. Currently there are only two Biology courses (BIOL 106: General Biology and STS 101: Introduction to Science, Technology and Society) which are offered via distance education. Chemistry offers

six courses on-line (CHEM 101-102: General Chemistry I and II, CHEM 103-104: General Chemistry I and II (without lab), CHEM 110: Introductory Chemistry, and CHEM 121: College Chemistry I). CHEM 101, 102, 110 and 121 are offered through a hybrid format in order to provide in-class laboratory experiences for students.

Other Resources

Equipment and instruments should be maintained, replaced and purchased as needed for the science classes that are most frequently taken by the “Science program” students. Very limited capital expenditures have severely impacted this ability. If the average useful life-span of an instrument is considered to be 10 years, most of the instruments in the three science departments have well-exceeded this threshold. Not only does this lead to a need for a large “repair budget,” but it also impacts the students who are being trained on less-than state-of-the-art instruments thus limiting their operational knowledge of the newer models and their exposure to newer instrumental methods found in industry.

Access to professional journals through the library should be enhanced as the College moves towards implementing undergraduate research experiences. Subscriptions to the online versions of journals such as the American Chemical Society’s Chemical and Engineering News (C&EN), Chemical Abstract Service (CAS) and *SciFinder* would be beneficial to students.

VI. Demand and Need for the Program

Since Fall 2005, demand for the program has been moderate as compared to the college as a whole (see table IV.D.2 and IV.D.3). The median number of students in the Science program has been 139, with 152 and 113 students serving as the high and low counts, respectively. This serves to be approximately two to four percent of the total Math, Science and Health Careers population at CCP. Enrollment has dipped in the last two semesters and while it too early to know if it is a trend, the Spring 2010 enrollment represents a 25 percent drop from the Spring 2009 enrollment (see Section IV.D and IV.E for further statistics).

In regards to the current and future job market, the Science program is needed, as illustrated by growth statistics published by the Occupational Outlook Handbook (OOH)¹ and the Bureau of Labor Statistics (BLS)². The OOH, published through the BLS, projects that “scientific and medical research—particularly research related to biotechnology—will be the primary driver of employment growth, but the development and production of technical products should also

¹ Source: Solis, Hilda L. and Keith Hall, 2010. “*Occupational Outlook Handbook* Index.” *Occupational Outlook Handbook, 2010-11 Edition*, Bureau of Labor Statistics / U.S. Department of Labor. Retrieved September 26, 2010 from http://www.bls.gov/oco/ooh_index.htm#P

² Source: Bureau of Labor Statistics, 2010. “Current Employment Statistics Highlights October 2010.” *Bureau of Labor Statistics*, November 5, 2010. Retrieved November 21, 2010, from <http://www.bls.gov/ces/#publications>

stimulate demand for science technicians in many industries”². For more traditional science-based areas, issues of the aging workforce are responsible for a great majority of employment opportunities, rather than creating new jobs in these fields.

The OOH focuses both on demand for training in certain fields, projections for demand and required education levels for a variety of occupations. “Job opportunities are expected to be best for graduates of applied science technology programs who are well trained on equipment used in laboratories or production facilities.”²

- Many health occupations are based in either health service fields or have a research / laboratory focus, including Physicians, Dentists, Pharmacists, Veterinarians and a variety of technicians or assistants for these occupations.
- Overall, admission into these specialized programs requires at least two years of prior undergraduate coursework. Physicians and Surgeons are required to complete a bachelors degree, where many dental, pharm.d., and veterinary programs will take students prior to the completion of their bachelor’s degree.
- By 2018, the BLS projects above national average increases in positions for these occupations (from a 16 percent increase for Dentists, depending on the specific specialization and up to 33 percent increase for Veterinarians).
- Additionally, environmental science and conservation technicians are seen as having the highest levels of growth (29 percent nationally from 2008 to 2018), with an “increased emphasis on specific conservation issues.”²
- High levels of growth are expected in areas which require cross-disciplinary backgrounds, including bio- and nanotechnology, especially in areas of research and development: environmental scientists have an expected eight percent increase and physical scientists have an expected 11 percent increase from 2004 to 2014 (see Appendix F for a selection of more detailed ESMI reports).³

Although the BLS does not address careers in ‘science’ by name, it notes recent job growth rates in the ‘healthcare’ area (ambulatory health care services, offices of physicians, outpatient care centers, home health services, hospitals and other health-related areas) with 8,000 or more jobs added each month since January 2008.

According to Pennsylvania Work Stats (PWS)⁴, there are several occupations that are projected to have total growth in Pennsylvania and nationally by 2016 (see figures in Table IV.1 below),

³ Source: Economic Modeling Specialists, Inc.

⁴ Source: PA Work Stats, 2010, based of figures from the PA Dept of Labor and Industry. “Occupational Employment & Projections.” Center for Workforce Information and Analysis. Retrieved October 1, 2010 from

based on 2006 figures. Significant levels of growth are projected for Life Scientists, Biological Technicians and Biomedical Engineers. PWS also projected moderate growth for Chemical Technicians and Chemists. Positions for Biological Scientists were projected to have moderate growth nationally, but see a moderate decline in job creation for the Pennsylvania workforce, due to no job growth and very little job replacement. In terms of Physicists, there are a consistent number of jobs for Pennsylvania residents and moderate growth nationally, also due to issues of replacement occurring rather than new job creation (see table VI.1 for specific values).

Table VI.1: PA Work Stats, Occupational Employment and Projects (2006)

Occupation	Pennsylvania Expected Change; Total Percentage Change 2006-2016	Nationally Expected Change; Total Percentage Change 2006-2016
Biological Scientists	Moderate Decline; -3.1 percent	Moderate Growth; 3.7 percent
Biomedical Engineers	Significant Growth; 23.2 percent	Significant Growth; 15.9 percent
Chemists	Moderate Growth; 6.4 percent	Moderate Growth; 9.1 percent
Dentists (General)	Moderate Growth; 8.2 percent	Moderate Growth; 9.2 percent
Life Scientists (various positions)	Significant Growth; 12.5 percent	Significant Growth; 15.3 percent
Pharmacists	Significant Growth; 15.5 percent	Significant Growth; 21.7 percent
Physicians and Surgeons	Significant Growth; 13.6 percent	<i>No Information Available</i>
Physicists	Steady/Constant; 0 percent	Moderate Growth; 6.8 percent
Veterinarians	Significant Growth; 30.1 percent	Significant Growth 35 percent

Source: PA Dept of Labor and Industry

VII. Operating Costs and Efficiency

Although the program has no budget code, program cost is determined by Full Time Equivalents (FTEs) within the program code through the College's Office of Planning and Finance.

2009-2010 statistics show the following:

- **Direct cost of program = \$444,261**
- **FTEs in program = 122.7**
- **Direct Cost program cost per FTE = \$3,620.47**

These statistics puts the Associate in Science program slightly above the median cost for all college programs (\$3,243.46) for the 2011 fiscal year. A year by year breakdown in the following charts indicate that Science program's direct cost per FTE and total cost per FTE have consistently been close to, but slightly higher than, the College-wide average.

Table VII.1: FTEs generated by the Science program and program's direct cost per FTE compared to average program direct cost per FTE

Fiscal Year	FTEs generated by the program	Program's direct cost per FTE	Average College-wide program direct cost per FTE
2003-2004	191.1	\$2,940.65	\$2,490.69
2004-2005	177.7	\$3,125.71	\$2,786.84
2005-2006	146.9	\$3,457.93	\$3,051.99
2006-2007	127	\$3,609.37	\$3,309.45
2007-2008	132.1	\$3,677.24	\$3,495.88
2008-2009	139.4	\$3,788.70	\$3,494.41
2009-2010	122.7	\$3,620.47	\$3,400.11

Source: Office of Finance and Planning: Table 30

Table VII.2: Annual Total Program Costs Per FTE

	2005-2006	2006-007	2007-2008	2008-2009	2009-2010
Program	\$6,946.64	\$7,269.92	\$7,7679.17	\$7,579.04	\$7,411.05
College-wide Average	\$6,666.82	\$7,019.64	\$7,486.11	\$7,343.31	\$7,190.51

Source: Office of Finance and Planning: Table 30

VIII. Findings and Recommendations

The goals of the Science program support the mission of the College by providing “a coherent foundation for College transfer, employment and life-long learning,” through a program that has built in course selection flexibility, specifically for transfer to a four-year institution. Dual admission agreements with Cabrini College, Cheyney University, Temple University, La Salle University, Rosemont College, Chestnut Hill College and Drexel University illustrate the clear trajectory students can follow in order to complete their coursework and transfer.

With national emphasis on the study of Science, Technology, Engineering and Mathematics (STEM), the Science degree is significant in its objective to meet the transfer needs of students. On the whole, students in the program do well in science courses as shown by the overall success rates of students in the three most common courses taken by students in all three disciplines and by the higher course completion rates, GPA, academic standing and success at departure as compared to the College as a whole. Most of the students who graduate from the Science program believe their preparation for transfer was either excellent or good and at least two-thirds to 100% per year transfer to another institution shortly after graduating from the College. Results of student and graduate surveys document that overall, students are very satisfied with the level of instruction received in the Science program. They particularly cite a “well informed” and “supportive faculty”

While all current science laboratories seek to update equipment as needed, capital funding has been limited over the years. Thus some key laboratory equipment has become dated and needs to be replaced. This was also noted by some of the students responding to the audit surveys.

The College has increased the availability of technology in the classroom but the availability of technology in the laboratory to increase student learning has not been as readily addressed. Thus the ability to bring the most current information to students can be hampered. Given that students have choices among different science-oriented degrees at the College, the message about which degree may be more or “the most” appropriate for the student may not always be clear. This is especially true in aligning career goals with program outcomes. It is especially important for students to have pertinent information early in their academic career. This may be a factor in the current retention rates for the program and the decreases in enrollment.

Recommendations

1. Increase enrollment in the program by developing a Recruitment/Retention Plan (Spring 2013) which will contain the following information:
 - a. Review of the curriculum to determine if new directions or alternative teaching strategies (i.e. hybrid courses) are warranted.
 - b. Course management schedule to assist students in selecting the correct sequence of courses in a timely manner
 - c. Plan to better utilize the Center for Science and Engineering Education as a vehicle to support recruitment of students
 - d. Analysis of retention issues and potential solutions so as to develop strategies to increase retention and provide stronger connections between students and the Science program.
 - e. Review of current and future mechanisms to increase the effectiveness of advising efforts related to the Science Program.

2. Review equipment and facilities needs (Fall 2012) in order to fully participate in the following initiatives:
 - a. New Facilities Master Plan discussions
 - b. Renovation and creation of new laboratories
 - c. Need for additional technology in the current and new laboratories

IX. APPENDICES

Appendix A – Program Revision, Spring 2003

Associate in Science

Minor Program Revision

Written by: Kathleen Harter

Chair, Department of Chemistry

Facilitator: Deborah D. Rossi

Date: July 7, 2003

Associate in Science (AS) Curriculum: Minor Revision

During discussions held in the Chemistry Department's faculty meetings over the past year, a need was recognized to revise the Associate in Science curriculum to increase students' eligibility to meet graduation requirements for the AS degree. Students who choose this select curriculum plan to transfer to a four-year institution and major in one of the natural sciences, engineering, pre-medicine or pre-pharmacy. As a result of anecdotal information garnered through faculty advising experiences for this curriculum, a significant number of students have left the College without being eligible for their AS degree, primarily because they have opted not to take MATH 172, Calculus II. Instead they have taken an additional laboratory science course. Many of the students leaving the College are pre-pharmacy majors and MATH 172 is not a required course for this very popular program. (Attached are the recommended course requirements and CCP equivalencies for Temple University and for several programs at the University of the Sciences in Philadelphia, including their pharmacy program). This minor revision to the AS Curriculum would require that the current MATH 172 core requirement be amended for students to have the option to take MATH 172 or another Laboratory Science course. Adding this course option will positively impact the College's graduation rate in the Science curriculum.

Program revision in order to comply with General Education requirements

College-wide general education requirements go into effect in Fall 2009. This information documents that the program is in compliance with the new general education requirements. The General Education Requirements are as follows:

Social Science (3 cr.)
Humanities (3 cr.)
Mathematics (3/4 cr.) – at or above MATH 118
Natural Science (3/4 cr.)
English 101
English 102 or 112
Writing Intensive (3 cr.)
Interpretive Studies (3 cr.)
American/Global Diversity (3 cr.)
Information Literacy (Engl 102)
Technological Competency (CIS 103)

Description of Program Compliance

Program: Science

Previous Number of Credits Required for Graduation = 60

Number of Credits Required for Graduation with General Education incorporated into the program = 60

Provide a brief explanation of the decision(s) made to comply with the General Education Requirements and complete the following chart. Indicate how your program meets the General Education Requirements. In the last column show which General Education Requirement each course fulfills.

- A *General Elective* has been replaced with CIS 103 to meet the *Technology Competency* requirement

Science

Course Number and Name	Prerequisites and Corequisites	Credits	Gen Ed Req.
FIRST SEMESTER			
ENGL 101 - English Composition I		3	Composition
MATH 171 – Calculus I Or MATH 165/166 – Differential Calculus I and II	MATH 162 or Dept. Head Approval or placement	4	Math
Natural Science with Lab Elective		4	Science
CIS 103		3	Tech Comp
SECOND SEMESTER			
ENGL 102 - English Composition II	ENGL 101	3	Composition & Info Lit
MATH 172 - Calculus II Or Natural Science with Lab Elective	MATH 171 or 166 or Dept. Head Approval	4	
Natural Science with Lab Elective		4	
Humanities Elective		3	Humanities
Natural Science with Lab Elective		4	
THIRD SEMESTER			
Natural Science with Lab Elective		4	
Social Science Elective		3	Social Science
Humanities Elective		3	
General Elective		3	
Natural Science with Lab or General Elective		3/4	
FOURTH SEMESTER			
Natural Science with Lab or General Elective		3/4	
Social Science Elective		3	
General Elective		3	
General Elective		3	
MINIMUM CREDITS NEEDED TO GRADUATE		60	

GENERAL EDUCATION REQUIREMENTS

All General Education requirements are met through required courses (as indicated above) except for the **Writing Intensive** requirement, the **Interpretive Studies** requirement and the **American/Global Diversity** requirement. Therefore, in order to graduate, students in this program must choose one course that is designated Writing Intensive, one course that is designated Interpretive Studies and one course that is designated American/Global Diversity. The same course may be used to fulfill more than one of these requirements. A list of courses that fulfill these requirements and a more detailed explanation of the College's general education requirements appears elsewhere in this catalog and on www.ccp.edu.

For More Information Contact:

The Division of Math, Science and Health Careers Room W2-7, 1700 Spring Garden Street, Philadelphia, PA 19130, Telephone (215) 751-8430; or the College Information Center (215) 751-8010.

Program Learning Outcomes

Regional accreditors now require that the College lists learning outcomes in the catalog. Please list learning outcomes for your program exactly as you wish them to appear in the catalog.

Upon completion of this program graduates will be able to:

- Successfully transfer into a science-based program at a four-year institution
- Demonstrate an understanding of scientific principles and concepts and be able to apply this knowledge to the solution of problems and performance of experiments in one or more of the natural science disciplines
- Competently perform laboratory tasks related to their scientific discipline
- Communicate information in a manner appropriate to their scientific discipline using verbal, written and graphical means.

Appendix C – NERC Biotechnology/Microbiology Lab Equipment Budget

Ordered as of March 19, 2010, PREP ROOM 317

<i>COMPANY</i>	<i>ITEM</i>	<i>QUANTITY</i>	<i>UNIT COST</i>	<i>TOTAL COST</i>
Cole-Parmer	Shaker, Digital	1	\$3,000	\$3,000.00
Fisher	Microcentrifuge	1	\$1,500	\$1,500.00
Fisher	Isotemp Freezer	1	\$1,000	\$1,000.00
Fisher	Bunsen Burners	21	\$1,430	\$30,030.00
Gettinge	Autoclave	1	\$100,000	\$100,000.00
Adorma	Digital Camera	1	\$300	\$300.00
Fisher	UV illuminator	2	\$475	\$950.00
I Miller	Microscopes	48	\$1,000	\$48,000.00
Fisher	Electrophoresis set-up	11	\$6,000	\$66,000.00
R & S Sales	Ice Machine	1	\$2,400	\$2,400.00
Fisher	Slide Warmer	1	\$690	\$690.00
Fisher	Water Baths	2	\$1,100	\$2,200.00
Fisher	Incubator	2	\$4,700	\$9,400.00
Millipore	Water Still	1	\$5000	\$5,000.00
Total		94		\$270,470.00

Appendix D – CSEE Advisory Board

The Center for Science and Engineering Education Advisory Board

Spring 2011

Dr. Joseph Bordogna, Alfred Filter Moore Professor of Engineering; Dean Emeritus of the School of Engineering – University of Pennsylvania

Jennifer Cardoso, Program Director Philadelphia Academies
230 South Broad Street, Suite 1300 Philadelphia PA 19102
JBCardoso@academiesinc.org
215-546-6300 ext. 122

Steve Cox, Associate Director Philadelphia Alliance for Minority Participation and Advisory to the Drexel University Chapter of the National Society of Black Engineers – Drexel University

Carol Fixman, Executive Director Philadelphia Education Fund, Philadelphia Math Science Coalition

Pat Hecht, Coordinator Philadelphia Tech Prep Consortium, CCP

John Lucas, Vice President of Academic Affairs, Wistar Institute

Velda Morris, Robotics Education Specialist, School District of Philadelphia, Division of College Readiness
Office of Secondary School Reform, 440 N. Broad Street, Suite 212, Philadelphia, PA 19130
vmorris@philasd.org
(215) 400-4130

Eric Nelson, Executive Vice President, Philadelphia Workforce Investment Board

Sara Snell, President of the National Society of Black Engineers (NSBE), CCP Student

Marcella Stokes, Project Engineer, General Services Administration

Steven Tang, President and CEO University City Science Center

COMMUNITY COLLEGE OF PHILADELPHIA

Bylaws of

The Center for Science and Engineering Education

August 2010

Article I. Mission

Section 1.1 – General Purpose

Subsection 1.1.1 – The Center for Science and Engineering Education (CSEE) will support the development of partnerships and synergistic relationships with science and engineering related employers to further critical College goals. For example, seminars and workshops in high growth employment areas could provide Corporate Solutions with opportunities to reach out to, and build relationships with, new corporate partners. New partnerships could, in turn, provide Institutional Advancement and the Division of Communications and Government Relations with opportunities for additional corporate support, in the form of corporate giving, partnering with the College in grant applications, and in the College's dealings with governmental entities.

Subsection 1.1.2 – The CSEE will create a strong base from which to seek Federal and State grants, as well as other funding that is science and STEM related.

Subsection 1.1.3 – The CSEE will increase scientific literacy in the community by offering seminars and/or conferences highlighting the societal impact of science and engineering, as well as exploring current trends in science and technology education.

Subsection 1.1.4 – The CSEE will assist in effectively marketing science and scientific technology program offerings and services to current and potential students inside and outside the College, including outreach to secondary schools and to industry.

Subsection 1.1.5 – The CSEE will showcase faculty expertise and offerings in the College's science areas and provide a forum for students to present their research projects.

Subsection 1.1.6 – The CSEE will provide a venue for students to obtain information related to different careers and research opportunities in a scientific field.

Section 1.2 – Specific Purpose

Subsection 1.2.1 – Enhance opportunities for students to explore career options in a science-related field.

Subsection 1.2.2 – Improve student retention and address parity issues by providing a focal point for students whereby they can obtain accurate and timely information regarding science and technology programs. A special emphasis will be placed on student groups that have faced the most significant barriers to success and, that have traditionally been underrepresented in science and engineering disciplines including low-income students, women and minority students.

Subsection 1.2.3 – Work to enhance diversity in the science related careers by increasing minority student recruitment, retention and involvement in science and scientific research via programmatic initiatives that build on existing programs, such as Alliance for Minority Participation (AMP), a program designed to increase the number of underrepresented graduates in science, engineering, and mathematics, and Bridges to the Baccalaureate degree initiative, which provides support to help minority students make the transition at a critical stage in their development as scientists. The program is aimed at helping students make the transition from a community college to a four year institution with significant and intentional academic supports and research opportunities.

Subsection 1.2.4 – Promote interdisciplinary collaboration to strengthen offerings in physical and natural sciences and related technologies.

Subsection 1.2.5 – Facilitate efficient and effective communication among departments regarding areas of mutual interest.

Subsection 1.2.6 – Highlight the new areas/fields where it would be important for Community College of Philadelphia to respond quickly to changes in technology and technology-related workforce needs by providing support for the development of appropriate academic and workforce development programs.

Subsection 1.2.7 – Promote a broader understanding of science and emerging technologies and their impact on society to a wider audience.

Subsection 1.2.8 – Promote the importance of science and the scientifically based technology programs at the College to a wide range of audiences.

Subsection 1.2.9 – Provide professional development opportunities for faculty both in scientific content areas and in pedagogy.

Article II. Membership

Section 2.1 – Composition

Subsection 2.1.1 – All faculty in the Biology, Chemistry, and Physics departments, and any future science/technology departments established by the Division of Math, Science and Health Careers in the sciences and/or engineering fields, constitute the members of the CSEE. Full time and visiting lecture faculty have voting rights should the necessity of a vote be required.

Section 2.2 – Annual Meeting

Subsection 2.2.1 – There will be an annual meeting to be held during the professional development week in the Spring semester, the time, date and location of which to be announced in the PD booklet. Preference will be given to the time slot prior to departmental meetings, should this be available.

Section 2.3 – Special Meetings

Subsection 2.4.1 – On the occasion that additional or special meetings are required, these will be announced at least 2 weeks prior to the meeting through an email announcement. Time and date will be established in an attempt to maximize the number of faculty who can attend.

Section 2.4 – Meeting Agenda

Subsection 2.4.1 – A written agenda will be forwarded to faculty by the secretary through email at least 3 days in advance of any meeting.

Subsection 2.4.2 – The agenda will be established by the co-chairs of the CSEE in consultation with the executive board.

Section 2.5 – Voting

Subsection 2.5.1 – Passage of a motion requires a simple majority (i.e., one more than half the members present) should a quorum exist.

Subsection 2.5.2 – Faculty who are unable to attend a meeting may send a written proxy vote through a member of the executive board.

Section 2.6 – Quorum

Subsection 2.6.1 – A quorum will be considered to exist if at least 1 voting faculty of the three departments are represented at the meeting.

Section 2.7 – Conduct of Meetings

Subsection 2.7.1 – The co-chairs of the CSEE will preside over all meetings and the Secretary shall keep the minutes with the current edition of Robert’s Rules of Order governing the conduct of the meeting.

Article III. Executive Board

Section 3.1 – Number and Qualification

Subsection 3.1.1 – Current Department heads are ex officio members of the executive board.

Subsection 3.1.2 – Two additional members of each department are appointed to serve on the executive board. Each department will establish its own criteria for selection (see Appendix A).

Subsection 3.1.3 – Secretary: The Secretary shall be responsible for the minutes of the Board, keep all approved minutes in a minute book, send out copies of minutes to all, and send out the agenda for the annual meeting.

Section 3.2 – Election and Term of Office

Subsection 3.2.1 – Co-chairs: Volunteer/Selected/Elected from the pool of members of the Executive Board.

Subsection 3.2.2 – Secretary: Volunteer/Selected/Elected/Designation from the pool of members of the Executive Board

Subsection 3.2.3 – Terms of office for appointed members of the Executive Board are 2 years, the terms of which are to be staggered.

Section 3.3 – Delegation of Powers

Subsection 3.3.1 – Co-chairs shall preside at all Board meetings, appoint committee members, and perform other duties as associated with the office.

Section 3.4 - Removal or Resignation of Members of the Executive Board

Subsection 3.4.1 – Resignation of a member of the Executive Board must be provided in writing to the Department Head.

Subsection 3.4.2 – The Department Head may remove a member of the Executive Board as outlined by department policy. (See Appendix A)

Section 3.5 - Vacancies

Subsection 3.5.1 – Departments will fill vacancies in accordance with their established written policies. (See Appendix A)

Section 3.6 - Regular Meetings

Subsection 3.6.1 – The executive board will meet monthly or as necessary.

Section 3.7 - Special Meetings

Subsection 3.7.1 – A meeting of the CSEE Advisory board will be conducted at a minimum of once per year.

Section 3.8 - Quorum of the Executive Board

Subsection 3.8.1 – All departments must be represented for a vote to be binding. Voting is by consensus except in the case of these By-laws. (See section VI. Amendments to the By-laws below)

Section 3.9 - Conduct of Meetings

Subsection 3.9.1 – An agenda shall be provided at least 2 days in advance of any meeting.

Article IV. Committees

Section 4.1 – Roles of committees

Subsection 4.1.1 – Planning: propose the long term plans of the CSEE.

Subsection 4.1.2 – Fundraising: work with Institutional Advancement in grant writing and identifying potential sources of funds the CSEE and the events we sponsor.

Subsection 4.1.3 – Events: oversee CSEE events; these should occur at a minimum of once per semester.

Section 4.2 – Other committees to be constructed by the Executive Board as needed.

Article V. Conflict of Interest

Section 5.1 – No decision by the Center can abrogate the Union contract.

Section 5.2 – The Center cannot take any action which infringes on the individual rights of any department.

Article VI. Amendments to the By-laws

Section 6.1 – These by-laws may be amended by a two-third vote of members of the Executive Board present at any meeting, provided a quorum is present and a copy of the proposed amendment(s) are given to each Board member at least one week prior to said meeting. A proxy vote may be presented to either the secretary or one of the co-chairs if an individual cannot attend the meeting.

Appendix A: Departmental Procedures for Determining Representation on the Executive Board

Each department will establish their own procedures.

Biology Department

Appointment of member to the executive board
Removal of member of the executive board
Vacancies

Chemistry Department

Appointment of member to the executive board
Removal of member of the executive board
Vacancies

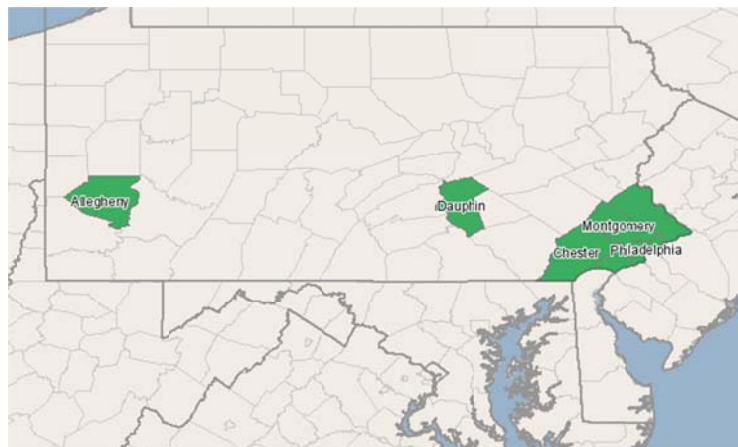
Physics Department

Appointment of member to the executive board
Removal of member of the executive board
Vacancies

Community College of Philadelphia

1700 Spring Garden Street
Philadelphia, Pennsylvania 19130
215.751.8350

Occupation Report



Region Info

Region: Pennsylvania

County Areas: Allegheny, Pennsylvania (42003), Bucks, Pennsylvania (42017), Chester, Pennsylvania (42029), Dauphin, Pennsylvania (42043), Delaware, Pennsylvania (42045), Montgomery, Pennsylvania (42091), Philadelphia, Pennsylvania (42101)

Occupation	Education Level
Environmental scientists and specialists, including health (SOC 19-2041)	Master's degree

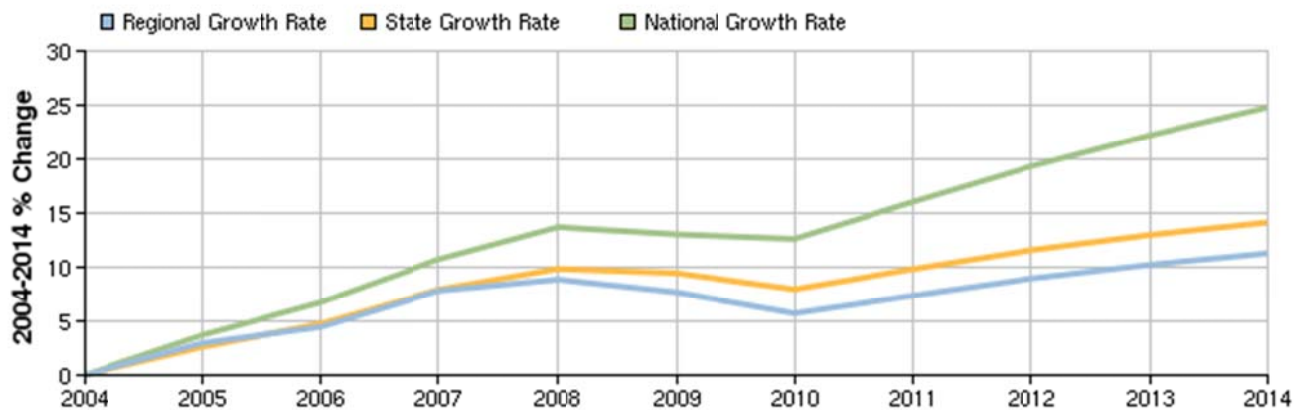
Executive Summary

Basic Information	
2004 Occupational Jobs	1,139
2014 Occupational Jobs	1,268
Total Change	129
Total % Change	11.33%
Openings	534
2010 Median Hourly Earnings	\$29.97

Economic Indicators	
2004 Location Quotient	0.72
2014 Location Quotient	0.66

Source: EMSI Complete Employment - 4th Quarter 2010

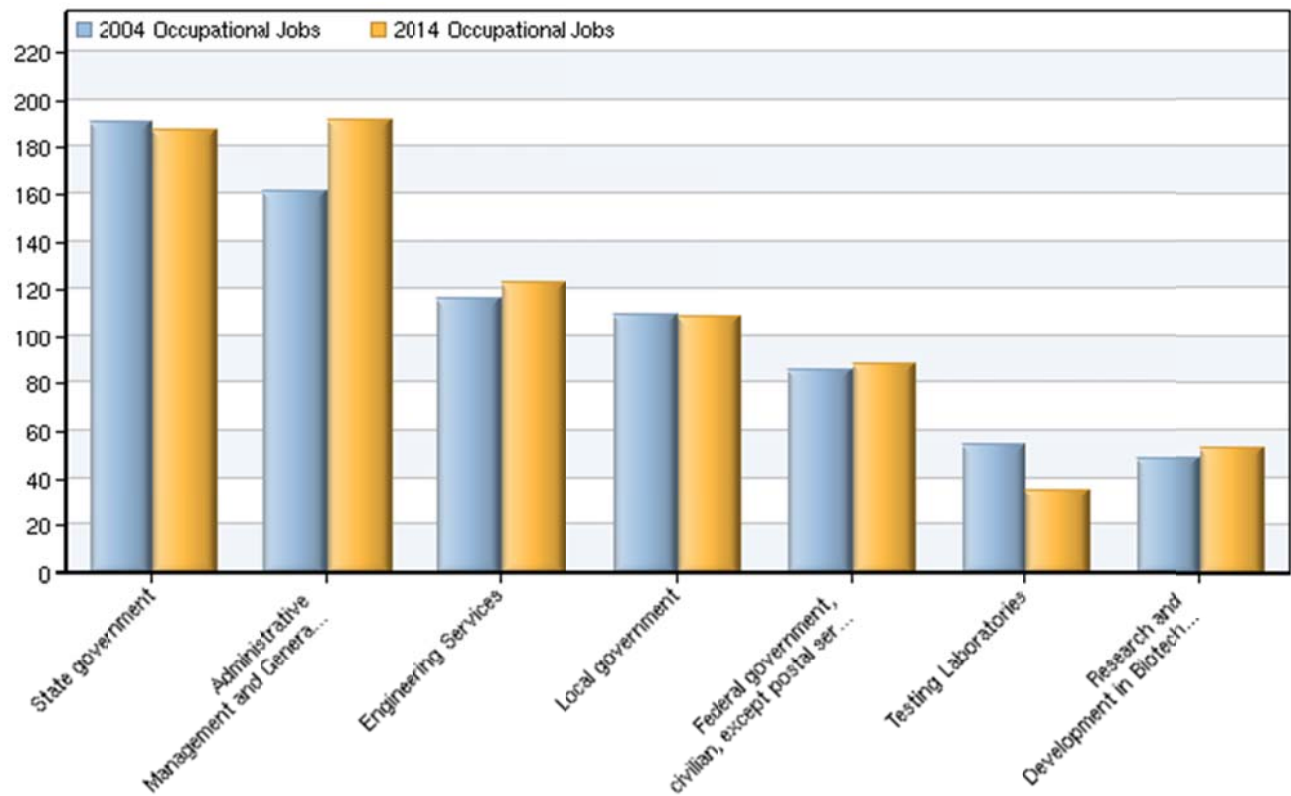
Occupational Change Summary



Region	2004 Jobs	2014 Jobs	Change	% Change	Openings	2010 Median Hourly Earnings
Regional Total	1,139	1,268	129	11%	534	\$29.97
State Total	1,870	2,134	264	14%	934	\$27.21
National Total	80,210	100,099	19,889	25%	49,349	\$28.07

Source: EMSI Complete Employment - 4th Quarter 2010

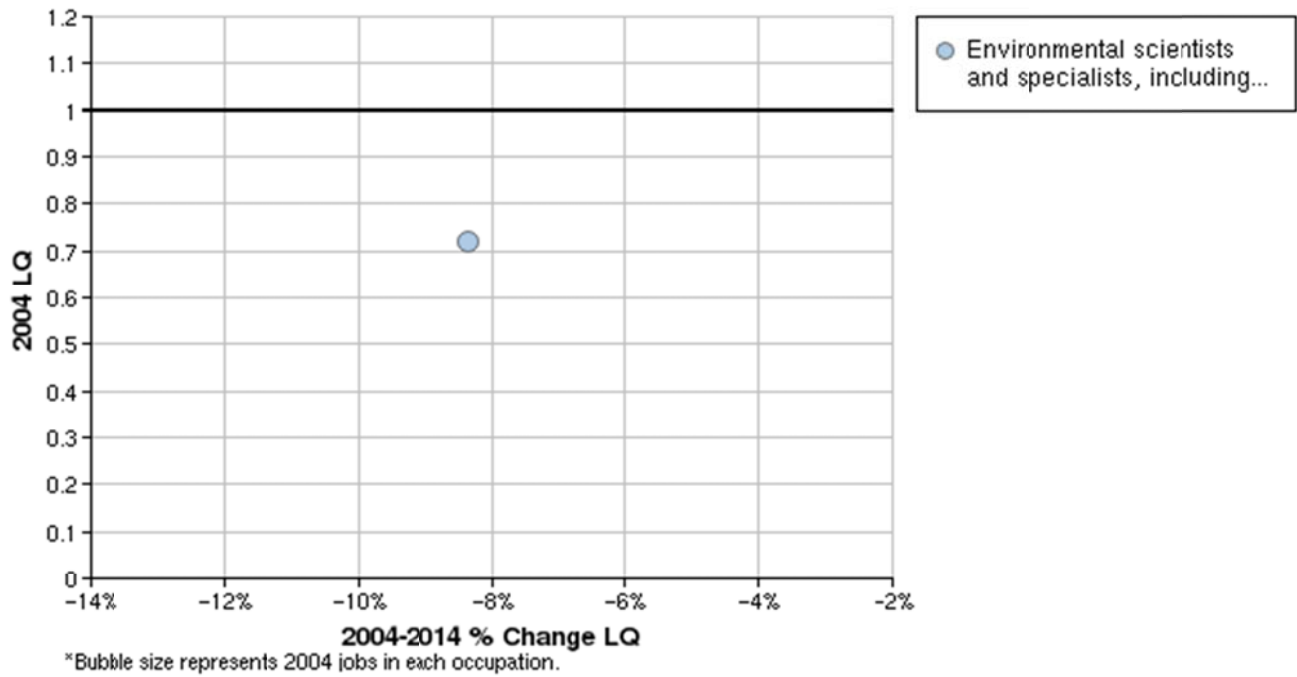
Top Industries for Selected Occupation



NAICS Code	Name	2004 Jobs	2014 Jobs	Change	% Change
920000	State government	190	187	-3	-2%
541611	Administrative Management and General Management Consulting Services	161	191	30	19%
541330	Engineering Services	116	122	6	5%
930000	Local government	109	108	-1	-1%
911000	Federal government, civilian, except postal service	85	88	3	4%
541380	Testing Laboratories	54	35	-19	-35%
541711	Research and Development in Biotechnology	48	52	4	8%

Source: EMSI Complete Employment - 4th Quarter 2010

Location Quotient Breakdown



SOC Code	Description	2004 Jobs	2004 LQ	2014 LQ
19-2041	Environmental scientists and specialists, including health	1,139	0.72	0.66
	Total	1,139	0.72	0.66

Source: EMSI Complete Employment - 4th Quarter 2010

Occupation	Education Level
Physical scientists, all other (SOC 19-2099)	Bachelor's degree

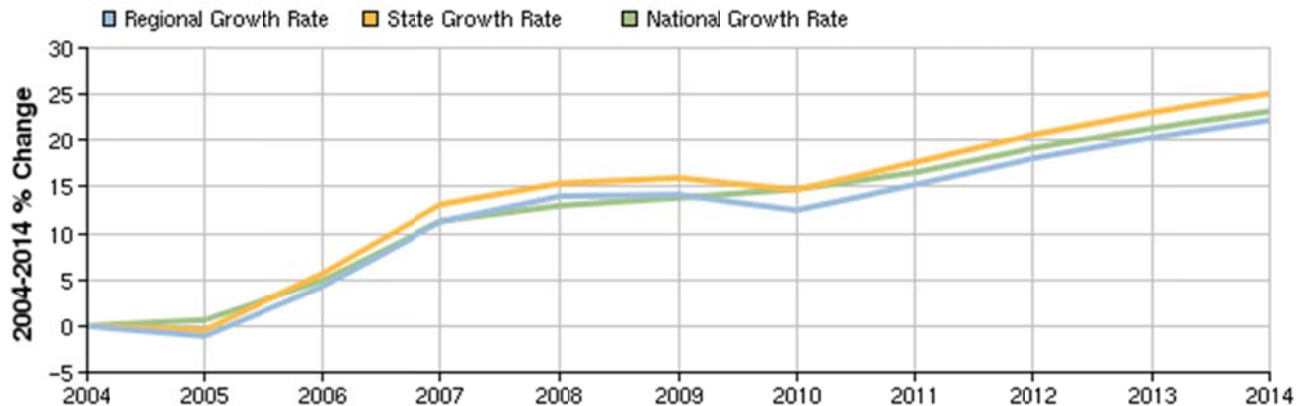
Executive Summary

Basic Information	
2004 Occupational Jobs	445
2014 Occupational Jobs	544
Total Change	99
Total % Change	22.23%
Openings	256
2010 Median Hourly Earnings	\$31.30

Economic Indicators	
2004 Location Quotient	0.75
2014 Location Quotient	0.77

Source: EMSI Complete Employment - 4th Quarter 2010

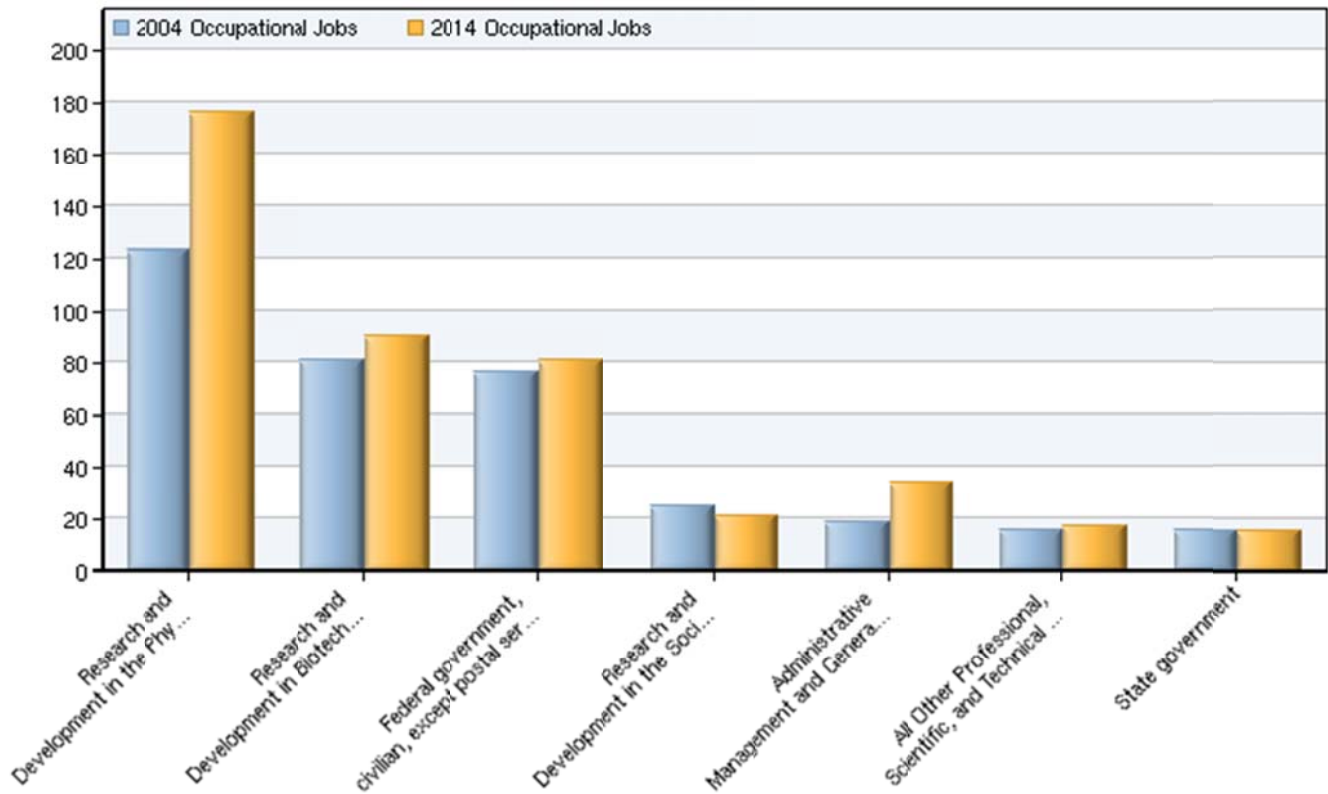
Occupational Change Summary



Region	2004 Jobs	2014 Jobs	Change	% Change	Openings	2010 Median Hourly Earnings
Regional Total	445	544	99	22%	256	\$31.30
State Total	650	813	163	25%	410	\$30.72
National Total	29,948	36,892	6,944	23%	18,166	\$36.72

Source: EMSI Complete Employment - 4th Quarter 2010

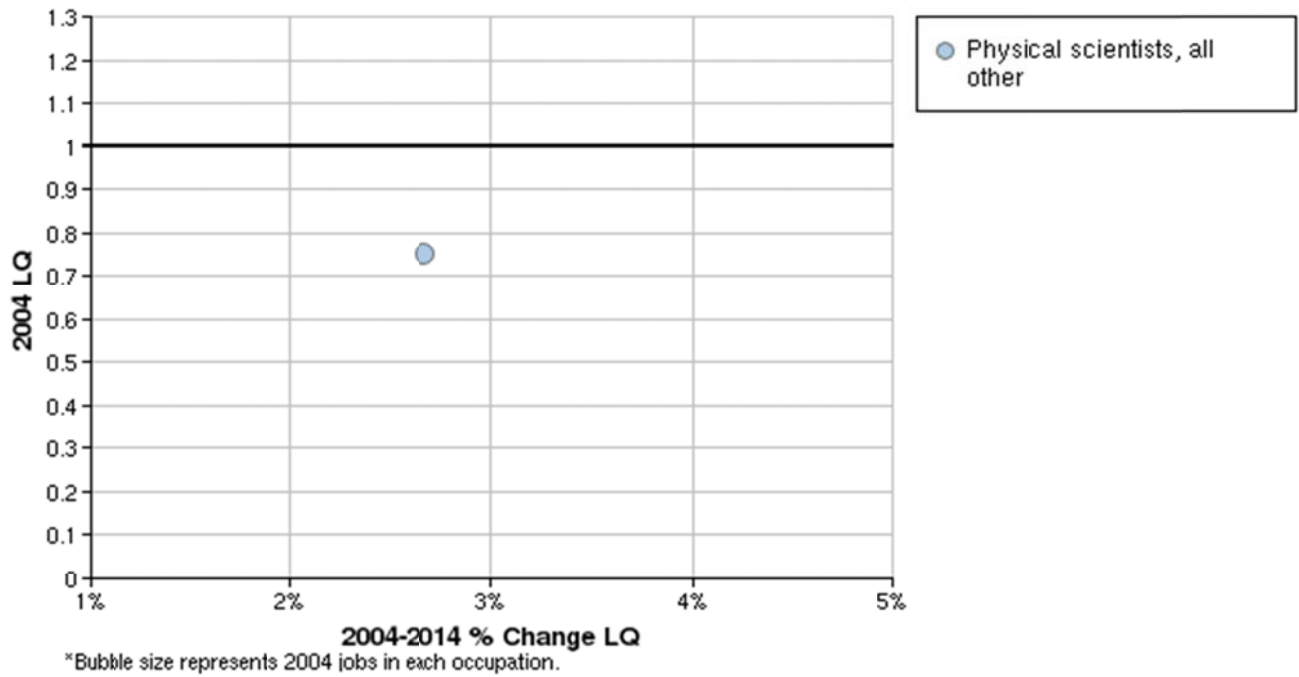
Top Industries for Selected Occupation



NAICS Code	Name	2004 Jobs	2014 Jobs	Change	% Change
541712	Research and Development in the Physical, Engineering and Life Sciences (except Biotechnology)	123	176	53	43%
541711	Research and Development in Biotechnology	81	90	9	11%
911000	Federal government, civilian, except postal service	76	81	5	7%
541720	Research and Development in the Social Sciences and Humanities	25	20	-5	-20%
541611	Administrative Management and General Management Consulting Services	19	34	15	79%
541990	All Other Professional, Scientific and Technical Services	16	17	1	6%
920000	State government	16	15	-1	-6%

Source: EMSI Complete Employment - 4th Quarter 2010

Location Quotient Breakdown



SOC Code	Description	2004 Jobs	2004 LQ	2014 LQ
19-2099	Physical scientists, all other	445	0.75	0.77
	Total	445	0.75	0.77

Source: EMSI Complete Employment - 4th Quarter 2010

Data Sources and Calculations

Industry Data

In order to capture a complete picture of industry employment, EMSI basically combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA), augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data, 15-year past local trends in each industry, growth rates in statewide and (where available) sub-state area industry projections published by individual state agencies and (in part) growth rates in national projections from the Bureau of Labor Statistics.

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

State Data Sources

This report uses state data from the following agencies: Pennsylvania Department of Labor and Industry, Center for Workforce Information and Analysis.

**Community College of Philadelphia
Summary Credit
Course Evaluation**

Course Number and Name CHEM 121 College Chemistry I

Catalog Description see attached

1. Is the course consistent with the college Mission?

Yes; it provides a coherent foundation for college transfer and employment.

2. Does the credit assignment meet accepted practices?

Yes; most, if not all, institutions offer College Chemistry as a 4 credit course consisting of three hours of lecture and 3 hours of lab. In some institutions, the lecture and lab may carry separate credits (3+1).

3. Do the course materials reflect the knowledge in the program's field of study?

Yes; the text is current and is updated periodically. Software tutorials are available for student use; they are supplied with the textbook while some other supplements have been purchased. The laboratory schedule is being evaluated for including some "nano" topics.

4. Is the catalog description of the course accurate?

Yes

5. Is this course content appropriate to the goals, purposes and/or objectives/activities of the course?

Yes; this course is designed for students who are majoring in science or a related field such as medicine or pharmacy. As such, it is a very demanding course.

6. Do the goals match needed knowledge base and skills?

Yes; feedback indicates that the students who have had this course are well prepared for their next courses (Organic Chemistry, etc). Likewise, this course transfers appropriately to other institutions.

7. If applicable, is the course content similar to that of other transfer institutions?

Yes, the course transfers to surrounding institutions and is regularly recommended by those institutions to their students as appropriate to take in the summer for reverse transfer of the credits.

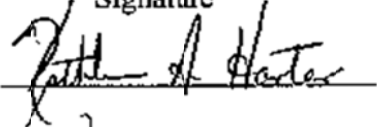

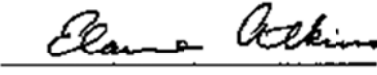
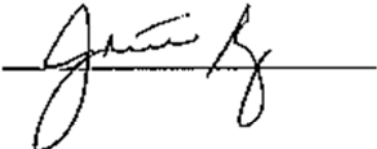
8. Has the Department head presented the Summary of the Credit Course Evaluation findings for departmental review and appropriate action?

Yes; the report is attached. All instructors agreed with the summary; the only comment (from multiple faculty members) was that a recitation period would be beneficial.

Action Plan

- *Insert appropriate nano-science experiments into the lab schedule and to emphasize the nano-realm of atoms in the lecture.*
- *Assess the College's and the Department's multimedia holdings and update them as appropriate.*
- *Seek increased access to the internet from the classrooms*
- *Explore the possibility of a "recitation" period for the course*
- *Incorporate a writing/research assignment into the syllabus to impact student's writing skills and expose them to scientific literature/resources.*

The above course is approved and deemed to be in compliance with College requirements for credit course evaluation and Pennsylvania Department of Education Chapter 335 Audit documentation requirement.

	Signature	Date
Department Head		<u>1-30-06</u>
Dean		<u>2/16/06</u>
Curriculum Development Coordinator		<u>2/21/06</u>
Vice President of Academic Affairs		<u>2/17/06</u>

Course Evaluation Summary Chemistry 121

The results of the *Course Evaluation* submitted by Chemistry 121 instructors have yielded the following information:

Course Design

- The pre-requisites are sufficient. [The Department's *Student Course Evaluation* data concurs with this: 91.7 % of the Spg 04 and 63.6 % of the Fall 03 students agree that the pre-requisites are adequate. Interestingly, 38.9% of the Spring students had taken Math 161 while that % was only 28.8% for the Fall students echoing the Department's concern that lack of math preparation is one of the biggest stumbling blocks to success in the course.]
- The time allotted is sufficient. Nevertheless, a one-hour recitation period per week would be beneficial.
- The course content is stimulating and challenging. Having a separate Honors section is good. Student interest is enhanced by relating the material to other science courses and personal experiences.
- Students are prepared for their next level of studies and for careers. This course is essential for students who wish to go on to medicine, pharmacy, chemistry and chemical technology careers. [Student data: 85.7% agreed that the course increased their desire to continue learning about this material, prepared them to perform professionally (81.3%), was practical and useful for their program (88.3%) and taught them to do careful and accurate work (83.7%)]
- Problem-solving skills are emphasized. The work required is appropriate and very intensive. Although there is no prescribed methodology in the syllabus, all instructors are using a large variety of techniques including lecture, discussion, demonstration, problem-solving, skills, lab and relevant internet sites (informational and textbook supplements) to implement the syllabus. The use of *MyCCP* will provide additional support.
- The evaluation is appropriate to the course material. (Student data: 90.6 % agree) The testing instruments are instructor-generated and include multiple choice, essay/free response and problem solving.
- The textbook and the lab book are rated "above average" and at the appropriate reading level. [Student data: 89.2% agree that the textbook provided good support for the classroom material.]
- The writing assignments (mostly laboratory reports and laboratory notebooks) are appropriate and adequate. Additional optional writing assignments could be incorporated. [Student data was mixed: approximately 35% said that the course had no effect on improving their writing skills, 40% reported improvement and 25% had no opinion. In addition, 50% reported that the course *provided opportunities* to improve their oral and written skills while 32% said there were no opportunities and 18 % had no opinion.]
- Course content and instructional materials are appropriate but somewhat inadequate. Many of the College's holdings are out-dated. Overheads need to be made available. Increased availability of technology in the classroom (internet access, computer projectors, student response systems, etc.) would be of great benefit. [Student data: 41.9 % reported use of multimedia and 40.1% reported use of the internet; 88.4% reported use of instrumentation in the lab.]

Course Relevancy

- Course is a firm and necessary basis for future studies in any type of science-related major. [Student data: 87.8% agreed that the course was useful for their program and 76.7 % said the class prepared them to perform professionally in the classroom or the workplace.]

Course Supplies and Equipment

- They are adequate. *MyCCP* will enhance the courses as faculty increase their usage of the *My Courses* feature.

Student Retention and Performance

- About 2/3 of the students who take the course complete it successfully. Summer students seem to do slightly better; ¾ earn A, B or C. (See *Grade Distribution Tables*). Math deficiencies are still viewed as having a negative impact on success and retention although not much as in Chem 101 and Chem 110.
- Student enthusiasm varies from *average* to *very high*.

General Questions

- The value of this course to students is *high* to *very high* based on their career goals after CCP. [Student data: 87.8% reported that the course was practical and useful for their program.]

Suggestions

- Eliminate in-service week and add another week to the courses
- Have dedicated Chemistry department multimedia equipment.
- Internet access from the classrooms
- Recitation period (one hour each week)
- Better coordination of the lecture topics and lab experiences.

CHEM 121-122 3-3-4

College Chemistry 3-3-4

Atomic structure, classification of matter, chemical and physical properties of the different states of matter, driving forces for chemical reactions, types and geometry of chemical bonds, periodic law, equilibrium chemistry, inorganic chemistry of several groups of elements and an introduction to organic chemistry.

Laboratory covers introductory quantitative techniques, equilibrium chemistry and the qualitative analysis of the more important anions and cations. Prerequisites: CHEM 110 (or permission of the Department Head) and MATH 118. CHEM 121 with grade of C or better is prerequisite to CHEM 122. For science, engineering and Chemical Technology students. *Additional course fee (CHEM 121 and CHEM 122): \$180.*

Chem 121 Grade Distribution Table							
	A	B	C	D	F	W	I
Fall 2001	28	34	23	5	12	32	
Spring 2002	20	26	22	8	16	20	
Fall 2002	34	33	31	10	18	27	
Spring 2003	37	44	21	5	20	29	
Fall 2003	35	31	27	13	18	15	
Spring 2004	38	27	29	5	11	23	2
Fall 2004	25	34	31	8	19	22	
Spring 2005	18	25	19	6	16	24	
TOTAL	235	254	203	60	130	192	2
n=	1,076						
Average %	21.8%	23.6%	18.9%	5.6%	12.1%	17.8%	0.2%

Total A+B+C = 64.3%

Summer Chem 121 Grade Distribution Table							
	A	B	C	D	F	W	I
Summer 1, 2002	14	23	13	3	6	6	1
Summer 2, 2002	4	8	6	0	5	1	0
TOTAL	18	31	19	3	11	7	1
n=	90						
Average %	20.0%	34.4%	21.1%	3.3%	12.2%	7.8%	1.1%

Total A+B+C 75.6%

Appendix H – Chemistry 121 Goals

Chemistry 121 (CHEM 121) – College Chemistry

Course Goals

This course is designed for students majoring in science or engineering fields. Upon successful completion of this course students should be able to:

- Use the metric system as a tool for performing calculations for measurements of length, area, mass, volume, energy, and amount of substance in terms of moles. Convert units for base and derived quantities within a given system of units as well as between different unit systems. Apply the concept of significant figures to express the inherent accuracy of measurements. Be familiar with the use of Scientific Notation to express the proper number of significant figures in measured data.
- Classify substances with regard to type; differentiate between physical and chemical properties and changes.
- Apply the knowledge of the periodicity of the elements towards the description of covalent and ionic bonding.
- Solve problems related to the quantitative aspects of chemical change; use the mole concept and the principles of stoichiometry effectively, including limiting reactants, and % yields.
- Understand models used in studying and explaining the structure, and behavior of atoms, molecules, solids, liquids, and gases.
- Use the Ideal Gas Law for determining parameters of gas phase systems; combine the gas law and the mole concept to study the quantitative aspects of gas phase chemical reactions.
- Effectively use equipment in the laboratory to properly measure mass, volume, pressure, temperature; perform basic qualitative analysis of based on characteristic simple reactions; use the method of titration for simple analytical tasks; be familiar with basic synthetic and separation techniques like filtration, crystallization, etc.

Prerequisites: Intermediate Algebra (Math 118), high school Chemistry, or Introductory Chemistry (Chem 110)

Appendix I – Student Surveys

**Community College of Philadelphia
Science Program Survey—Current Students (n=30)**

You are receiving this survey because you are enrolled in the Science curriculum at Community College of Philadelphia. We are conducting a survey of current students in the Science curriculum as we work to build on the program strengths and meet student needs. We are interested in knowing what you think about the program. Please take a few minutes to respond to the following questions. Your individual responses will be held in confidence.

1. The science curriculum is attached. Have you seen this before?
(Check all that apply)

- (16) Yes, I have seen this before in the catalog
- (10) Yes, I have seen this before on the college website
- (1) Yes, by talking with the department chair of Chemistry (W4-46)
- (5) Yes, by talking with a CCP advisor
- (0) Yes, by talking with a CCP counselor
- (10) No, I've never seen this

2. When did you enroll at the College? Semester_____ Year _____

Summer 2003	Spring 2009 (2)
Spring 2005	Fall 2009 (3)
Spring 2007	Spring 2010
Fall 2007	Summer 2010
9/ 2007	Fall 2010 (9)
Spring 2008 (3)	Fall, spring, summer I 2007-08, 2009-
Fall 2008 (3)	2011

3. Are you currently attending CCP (23) full time or (7) part time?

4. Approximately how many credits have you completed at CCP? _____

33	60	0
Above 80	17	17 credits
53	45	37
15	0	none as yet
58	22	47
9	30	0
70	68	43
3	0	56
0	35	
24	18	

5. Which of the following reasons were important to you when you enrolled in the Science program at CCP? (Mark all that apply)

- (14) To earn an Associate degree in Science
- (27) To prepare for transfer to a four year college
- (1) To learn skills needed to enter the job market immediately after CCP
- (1) To improve my skills for the job that I now have
- (10) To take courses that interest me
- (3) Other (Please explain):

pre-requisites for a master's program

Originally began at CCP to fulfill prerequisites for a master's program

some courses that are available at CCP are cheaper than a four year college yet holds the same value and credits.

6. How well is the Science Program preparing you for transferring to another college?

- (8) Preparation is excellent
- (9) Preparation is good
- (8) Preparation is fair
- (1) Preparation is not helpful
- (3) Not sure
- (0) Not planning to transfer

Please explain.

by having good teachers in science classes who gave us the information in a very easy way.

Im only here for a semester taking general education courses. so my training in science has not begun.

Prior to attending CCP, I was a biology major at Drexel University. The courses are exactly the same and the level of difficulty is the same in my opinion.

The Science Program is preparing me to transfer to a four-year college because most of the course requirements are the same.

I am more than content with the preparation thus far.

Chemistry courses are very thorough, but biology courses seem a bit easier and the teachers I have had are not as good

i doubt should i have to take any unnecessary classes which is not required or transferable

so far i have been taking classes that are mostly transferable but still i am not sure if i am taking all the right courses or not.

some of the courses that we required to take is not counted towards other universities' credit requirement.

am really learning a lot of things that will help to transfer

7. What is the program/major you intend to transfer into?

Please comment:

Computer Forensics
Biology
pharmacy

Neuroscience
Chemistry; Pharm D.
Chemistry

Pharmacy
Biochemistry
Chemistry
pre dental
Biomedical Science
Pre medicine
pre-med
Biology
Physicians Assistant
Middle Years Education Science
Concentration
Physics

Pharmacy
Pre-Pharmacy
Biochemistry
bachelors in biology
Biology
Chemistry
Science/Biology
Pre-Veterinarian
Premed
medicine
Biochemistry/Chemistry
environmental studies

8. What is your career goal?
Please comment:

To have a good job
Dentistry
to be a pharmacist
To go to medical school and obtain an MD.
Pharm D. ; Ph.D in Chemistry
To become a forensics scientist
Pharmacist
Research Biochemist. Government or Private
My career goal is to be a Medical examiner.
Dentist
To become a physician someday
Ultimately to become an anesthesiologist.
trauma physician
Veterinary medicine.
I want to work with a Dermatologist or Plastic Surgeon or possibly in pediatrics
Engineer

Pharmacy
To become a Pharmacist
Unsure
My current career goal is to graduate from Temple University with honors with a Bachelor's of Science in Education with a concentration in Science. I would also like to minor in Spanish to educate students who primarily speak Spanish.to be an optometrist
To become an Anesthesiologist.
To become a biology professor
To be a future scientist in medical field.
Pediatician
My goal is to become Veterinarian
To become a doctor or Physician Assistant
ophthalmology
To be become a denist or biochemist.
save the Earth

9. Do you think you are accomplishing the educational objectives that you set for yourself at Community College of Philadelphia?

(17) Yes, fully (13) Yes, partly (0) No

Please comment:

till now i completed 53 credit hours and my GPA is approx. 3.8 and i have one semester to complete the the required classes for my major and i think that is a great accomplishment for me as ESL student who came to this country and now nothing about english.

Only taking general educations that will transfer.

Its hard. I didn't really have a direction when first entering into CCP. As I continued my education I finally realized what courses I liked and wanted to do. I still like the idea of becoming a pharmacist but knowing how competitive it is I do not mind continuing a

Chemistry degree as a back up plan.

I'm very interested in biology. While here at CCP, I've take Bio 123, 124 and 241. All of which I really enjoyed and learned a great deal.

I am mid-way of my first class at CCP, so this is all I can comment so far.

Yes, I have had great professors at CCP who have increased my interest in science and education. Additionally, I always felt encouraged after meeting with the advisors.

My main objective is to earn a G.P.A of 4.0

am doing well in my courses

10. What do you think are the strengths of the Science Program?
Please comment:

well informed faculty

Biology and chemistry

i love science very much so i see every thing in it is strength specially the courage and support i found from the teachers.

There are many inspiring professors like Prof. ____ and Prof ____.

Too general

great transfer options

None

Dedicated and helpful professors

very structured program and in my experience good and helkpful professors
I'd say the strength of the science program are the professors. All of my science professors, especially the Bio 123, Bio 124 and Bio 241 professor knew a great deal about their subject and did they best to help us learn the material.

It is similar to programs at 4 year institutions which means students won't be intimidated by the curriculum if they choose to complete a 4-year degree

Great teachers.

Very good educators

some great teachers are available and very understanding and helpful.
it is flexible. you can pick between general electives and natural science.

-Helping students be interested in different courses and guiding them towards graduation.

I think that the strength of the science programs are the classes they give and how the teachers teach the class

The courses are very challenging preparing students for nursing, pharmacy and medical fields.

I haven't concentrated on the strengths of the program.

flexibility. Lab classes requirement.

11. What do you think needs to be changed or added to the Science Program in order to improve the program?

Please comment:

nothing

More biology courses

honestly now i have no clear idea but let me think of it and i will contact you latter.

More mentoring.

Please have at least 1 day a week for responding all concern related to career orientation or transfer students

Synchronize the lecture syllabus with the lab syllabus. 2. Make the curriculum more practical oriented.

More modern lab equipment.

the course requirements are not clear

I am very satisfied with my education in the science program. Nothing comes to mind that I would add or change.

More sections of upper level classes, such as Organic Chemistry.

I don't have enough experience with CCP's science program to suggest a change

It would be helpful if biology courses were structured in an easy-to-understand sequence, such as the chemistry courses are college chemistry I and II and organic chemistry I and II

More help from the guidance counselors.

so far I am satisfied wth everything.

more classes that is related to the major that will counted towards other universities' credit.

-More medical classes should be added and science related internships.

I think nothing has to be changed to the science program

More classes in various subjects maybe helpful.

More classes in the higher chemistry class offered at night.
math 165/166 could be mandatory replaced by math 171. Math 172 could be a mandatory. For the natural science lab classes chem 121/122, bio 123 and phys 140 could be mandatory, not the basic courses. Math Statistics (calculus based) could be added.

12. What sources have you used to get support and information about the Science Program? (Mark all that apply)

- (3) I have talked with the department chair in chemistry in room W4-46
- (9) I have talked with an academic advisor
- (6) I have talked with a counselor
- (10) My peers
- (8) My Science instructors
- (19) The college catalog
- (4) Other:

CCP website

Mail a letter letting me know I was accept to program.

my family

Department Chair and Dean of Science and Tech

If you are currently working, please answer questions 13-19. If you are not currently working please skip to question 20.

13. If you are currently working, what is your current job title and what type of work you do in your primary job?

Job Title:

salesfloor team member
home work
teacher
Work study
Lab Assistant
Jomar Textiles/
make up artist
Security officer
customer service representative
Sales Associate

Computer Operator
Cashier
Facility Coordinator
cashier
Pharmacy Technician
Orientation Leader at CCP
Cashier at Dry Cleaning
File Mail and Clerk
Legal Secretary
sales associate

Describe work:

stock shelves and help customers

specimen processing

I teach music

Supervising Associates

AV clerk

do make up for mostly bridal parties in the Chestnut Hill area

Security

I give walking tours and explain the students about all our resources available at CCP.

handle customer complaints, issue refunds, lottery, western unions
I sell shoes at Payless.

Check the clothes in and out, packaging, separate the clothes with the same kind and assist customers if they have any problems.

IT

Very essential in managing with finance

Long hours, but basically very easy

Submitting lawsuits to local courts, skip tracing

Marketing, accounting, processes development

Sales

14. Is this job directly related to the field Science? (2) Yes (18) No

15. Was your enrollment in the Science Program helpful to you in getting this job? (0) Yes (19) No

16. Were you employed in this job prior to enrolling in the Science Program at CCP? (14) Yes (5) No

17. If yes, have your experiences in the Science Program at CCP helped you do your job better? (2) Yes (11) No

18. How could your Community College of Philadelphia education be more useful to you in performing your job?

Please comment:

it can't

by giving me a chance to take all my classes and transfer to another school to have my degree and have a good job.

they cannot

Please have a regular meeting of all science students for express all concerns

It won't be useful for the job I have now. It will enable me to go to the next level in the biological sciences.

If I wanted to advance in this job community college of Philadelphia's business course would help

it couldn't im essentially a cashier

My job has no connection to my science courses at CCP.

It isn't useful to my current job

Apart from being an Orientation leader I am the assistant Corresponding Secretary of Student Government and I am involved with many clubs so it helps me with my job.

It can't be useful in that job. But I believe it will make me more responsible of doing good in whatever I am doing.

I'm not exactly sure.

when i change my job...

19. How many hours per week on average do you work in this job? ____ hours per week

10
15 - 20 hours
17
20 (5)
26
27 hours
30 (2)

36
40 (4)
40 hrs a week but i will have time for this program because i will get my hours cut down for school.
Temporary Job ; 8 hours a day for 1 week each month

20. If you are not employed now, is this employment status by your choice?
 (7) Yes (8) No

**Community College of Philadelphia
Science Program Survey—Graduates (n=20)**

We are conducting a survey of graduates of the Science Program as we work to build on the program strengths and meet student needs. We are interested in knowing what you think about the program and what you have been doing since you graduated. Please take a few minutes to respond to the following questions. Your individual responses will be held in confidence.

1. When did you enter the Science program at CCP?

Semester _____ Year _____ Unsure

Spring 1970

Fall 1986

Fall 1990

Fall 1992

1992

Fall 1994

Fall 1996

Fall 2002 (2)

FALL 2003

Spring 2004

Fall 2004

2004 or 2005

Fall 2005

Spring 2006

May 2009

Summer I 2008

Fall 2008

FALL 2009

2. Which of the following reasons were important to you when you initially enrolled in the Science program at CCP? (Mark all that apply)

(11) To earn an Associate Degree in Science

(18) To prepare for transfer to a four year college in the field of _____

Mechanical Engineering

pharmacy

Physics

Biology

Biology

Biochemistry

Science

(3) To learn skills needed to enter the job market immediately after CCP

(2) To improve my skills for the job that I now have

(3) To take courses that interested me

(0) Other (Please explain):

3. When did you graduate from the Science program at CCP?

Semester _____ Year _____

Summer 1989

May 1992

1995

Spring 1996

Spring 1997

Spring 2000

Spring 2003

Summer I (May) 2005

Spring 2005

Fall 2006

Spring 2006 (2)

Spring 2007

Fall 2007

SUMMER 2008

SUMMER 2008

Spring 2010 (2)

May 2010

Summer I (May) 2010

4. Do you think you accomplished the educational objectives that you set for yourself at Community College of Philadelphia?

(14) Yes, fully (16) Yes, partly (0) No

Please comment:

I graduated high school early initially went to Temple because at that time that was where everyone was going. I felt I was not learning at Temple and transferred to CCP. I learned my sciences and math to a great degree. Very excellent teachers at that time.

I didn't get to accomplish my goals, because I had to help my family pay bills.

I feel as though the academic science courses were very knowledgeable but I lack hands in skills to demonstrate that knowledge.

I took a bunch of science courses such that they could count towards some of the requirements for a biology/biochemistry major. One of the major problems that I faced was that the lab courses did not require us to write extensive lab reports, which have made it difficult for me to cope with my curriculum at Drexel.

I felt I knew just as much as those that went to four year colleges.

Earn credits for transfer

5. Which of the following describe what you have done/are doing since graduating from the Science Program? (Mark all that apply)

- (5) Currently attending a four-year college
 (10) Graduated from a four-year college
 (2) Currently attending a graduate school
 (3) Graduated from a graduate school
 (3) Part-time employment
 (9) Full-time employment
 (1) Other:

Looking for part or full-time employment.

6. Please answer if you have transferred to another institution (2- or 4-year) - if not, move onto question 7.

(NOTE: For respondents to the SurveyMonkey digital survey, there was a question added to determine if survey respondents would continue or move onto question 7: "Have you transferred to another institution?" - 15 respondents answered 'Yes' and 4 respondents answered 'No')

A) How well did the CCP Science Program prepare you for the academic demands at the college to which you transferred?

- (10) Preparation was excellent
 (5) Preparation was good
 (1) Preparation was fair
 (0) Preparation was not helpful

Please explain. We would appreciate your comments on your Science courses as well as your other general education courses.

I absolutely love CCP and wish they were a four year University. No other professors compare to the professors at CCP especially Dr. ____ and the Mrs. ____ in the Science program!

I thought the professors were excellent!!!!!! We need more of them.

Instructors were insightful and outstanding. Dr. ____, Dr. ____, Dr. ____.

The Community College of Philadelphia really prepare me and challenge me during the process of taking the courses.

The science program had given me a solid foundation in courses such as organic chemistry, cell structure and function, Genetics...

The science teachers at CCP are excellent. They were willing to share their knowledge outside of classroom. They paid attention to their students and wanted their students to be successful in the subject. They encourage their students to study hard and get good grades.

My first course, bio 106, was not of much help in the long run since I already had taken advanced biology at my high school in India. Bio 123, 124 & microbio were very helpful. Also, organic chem courses were on par with the (respective) courses at Drexel.

B) If you transferred to another college, did your transfer institution accept your CCP Science courses?

- (14) Yes, all of them
- (2) Yes, some of them
- (1) None of them

Please list the courses that **did not** transfer:

THEY TOOK 59 OF CREDITS OUT OF 90

don't remember 10 years ago

Human Anatomy (?) - the level of details was not sufficient for it to be considered an undergrad course equivalent.

C) Name of most recent attended College: _____

Date Started: _____ Major: _____

Graduation Date (If applicable): _____

and Degree Granted (if applicable): _____

Name of most recent attended College:	Date Started:	Major:	Graduation Date:	Degree Granted:
DREXEL UNIVERSITY	2009	BIOLOGICAL SCIENCE	2013	
Temple University	1998 (part-time attendance)	Geology	2005	B.A. Science
American Public University	04/02/2014	Information Systems Security	09/02/2015	BS
Temple University	2006	Biology	2010	yes
Temple University	08/02/2011	Environmental Engineering	01/02/2013	M.S. Civil Engineering (Envr Engr Concentration)
University of Phoenix	2001	Business Management	2005	Bachelors in Business

				Management
Rutgers Camden	09/02/1999	General Science	06/02/2001	BA
Widener University	07/02/2006	Nursing	05/02/2009	BSN
Eastern University	1997	Organizational Management		BA & MBA
Columbia University	Sep-10	Physics & Math		2012 or 2013
Philadelphia University	Spring	Health Science	Jun-10	
Temple University	Sep-07	Biology	13-May-10	Biology
Temple University	Fall 2010	Biology	Fall 2011	B.S. Biology
University of Pennsylvania	Sep-08	Pharmacology		
Temple Pharmacy	Sep-06	Pharm.D.	May-10	Pharm.D.
Temple University	Fall, 2007	Biology	Aug-10	Psychology

7. Were you satisfied with the instruction you received at CCP?
 (20) Yes (0) No, Please explain:

Professors are well educated and have the ability to teach.

Wish CCP had 4 year program. Instructors more personable - questions were welcomed - class was not rushed

*Not yet. Applied to Drexel University Co-Op Nursing Program for September 2011.

8. Did you use any of the following sources to get support and information about the Science Program? (Mark all that apply)
- (4) I talked with the Department chair of the Chemistry Department (W4-46)
 - (8) I talked with an academic advisor
 - (5) I talked with a counselor
 - (12) My instructors
 - (6) My peers
 - (10) The college catalog
 - (4) Other (Please explain):

Science & Math are my strongest subjects & I catch on quickly. A Friend pointed me in the right direction.

I lead myself into the direction of the science program.
I would like to talk to an academic advisor.

Was certain that I wanted to pursue science during my senior year of high school.

9. Were you satisfied with the support you received from the program?
 (18) Yes (1) No

A) If yes, please give an example of the type of support you received:

B) If no, what type of support were you looking for and did not receive?

(Note: For respondents to the SurveyMonkey digital survey, 9a and 9b response boxes were combined).

USING THE LEARNING LAB, BOOKS AND OTHER MATERIAL WHICH ARE ESSENTIAL TO MY OF SYUDY

See question #7

When I needed advice I recieved it in a timely manner.

Financial Aid office, enrollement disk, library service and computer lab supports are some of the major ones. Acadamidc and department advices were a type of support I did not recieved much. I did looked for career couch but not much support.

What classes to take and what time to take claases during your academic career.
Spoke with Instuctors to choose courses.

There was a lot of resources.

Dr. Cottell was more than helpful. Whe was somewhat of a mentor for me.
Financial aid support

I thought that there was going to be employment supoort or at least more direction as to what I can do next.

Tutoring in the math lab on a daily basis was crucial for me to do well in my upper level math courses at my 4 year institution.

Advising (for registering classes), types of carrer of choice

Letters of recommendation, information about 4 yr colleges and universities

Respitory care program staff is excellent

10. What do you think are the strengths of the Science Program?
Please comment:

VERY EFFICENCE

The professors really cared about our achieving our goals and that helped a lot!

The professors...

its coustre cariculum and coverage that enable science student to carry with while transfering to another institute with proper tool even though some institues did not give much weight for grade earned from CCP,

continuous support and encouragement

Professional, seasoned instructors

Transferable credits, good selection of courses.

Great teachers will to help students

Support from stall and fellow students

Science and Math are my strengths.

Dedication of staff

The professors, the students and rest of the financial aid staff has been the strength through out.

Dedicated professor who not only cared about giving you a grade but cared about the students applying what they acquired throughout the courses of their future studies and beyond.

It really prepared studnets to be knowledgable in the science field.

Courses: Bio 123,124, 221; Organic chem, physics (unsure of #) were very helpful.

Good.

The individual teachers. In all the science courses I took there all of the teachers were intelligent, approachable and fair.

11. What do you think needs to be changed or added to the Science Program in order to improve the program?

Please comment:

MORE LEARNING METERIAL, SUCH TECHNOLOGICAL EQUIPMENTS

Nothing

Haven't been there in awhile.

Better and more qualified instructors

I can't say

none

Nothing

I graduated in 1995, it's hard to know what needs to be changed at this point.

There should be tutoring available for those who do not catch on quickly, but are interested in having a future in the field.

Needs to be bigger

May be few of the professor

Programs that students ca applied what they've learnt such as an internship or coop.

* Field trips or visits to museums or science places. *Hands-on experience in a company (example: internships, part-time experience, co-op, or training). BTTP is a good example of this kind of program.

*Seminar by people from scientific field (a scientist, a doctor, a post-doc, a Boeing employee, Merk employee, etc.)

More number of biology/chemistry courses; Greater depth in some courses - especially lab related ones; Contacts in 4 year colleges/Universities for proper guidance regarding courses (transferred), types of internships that might be helpful, etc.

Should have ended in spring semester instead of Summer I. Big job competition with other school that ends in spring.

Possibly some peer/group study programs. Some from our classes got together on our own & that was really helpful.

Please answer questions 12-17 if you are working; otherwise skip to question 18.

(NOTE: For respondents to the SurveyMonkey digital survey, there was a question added to determine if survey respondents were working or would move onto question 18: "Are you currently working??" – 15 respondents answered 'Yes' and 4 respondents answered 'No')

12. What is your current job title and what type of work you do in your primary job? Job Title:

Describe work:

Job Title:	Describe Work:
PROGRAM SPECIALIST	HELP IMPLEMENT, EVALUATE and PLANING THE OPERATIONS OF MY CLIENTS
Research Assistant Temple University	I work as an Assistant to the Director at one of Temple's medical school labs
Sr Information Security Analyst	Analyzing Computer breaches and compliance issues
Space Reactor Technology Program Manager	Program Manager for NASA/DOE space reactor R&D activities, spread out at 4 national labs and 3 NASA centers, part of US Delegation to UN Committee on Peaceful Uses of Outer Space, Manage Nuclear Launch Safety Program and other tasks
Pharmacist	pharmacist
Housing Coordinator	Assign new freshmen on campus housing
Plant Health Safeguarding Specialist	USDA Government Science and Regulatory Duties.
RN Supervisor	
President	Self employed
Customer Service Representative for Dialysis Patients	Schedule appointments for patients on dialysis while on vacation, emergency travel, medical surgical visits or bereavements.
Quality Assurance Inspector	Inspect pharmaceutical products for any defects and make sure other product and equipment/logistics are in compliance.
Therapeutic Staff Support (TSS)	Currently working with children in their natural environment - school, home and community that struggle with academic challenges and behavioral issues. Children are taught how to identify their feelings and was to express them socially.
Graduate student in the Dept. of Pharmacology	n/a
Respiratory Therapist	Taking care of long term adults in ventilator civic unit.
Nuclear Pharmacist	Responsible for the production synthesis, dispensing, dispatching & quality control of radio pharmaceuticals used for therapy of diagnostic imagery.
Home Health Aide	Helping [drop] children with daily activities

13. Is this job directly related to a scientific field? (11) Yes (6) No

14. Were you employed in this job prior to enrolling in the Science Program at CCP? (4) Yes (11) No

15. If no, was your enrollment in the Science Program helpful to you in getting this job? (7) Yes (3) No

15a. If your enrollment in the Science Program was "not" helpful to you in getting this job please list the reasons below.

The A.S. Science degree was only loosely helpful, it's main strength was allowing me to enter a strong B.S. Mechanical Engineering Program, which allowed be to enter a strong M.S. Nuclear Engineering Program, etc

job looked at business background. science history was not used or reviewed

Needed to complete my B.S. in biological sciences to apply to grad schools.

The basic requirement for job is high school diploma

16. What courses or topics could have been added to the Science curriculum that would have been more useful to you in performing your current job?

Please comment:

NONE

How to negotiate a higher salary LOL!

More writing courses.

nothing

Nothing

n/a

I did not have the job @ the time, so this question does not apply.

The program was just right (I can't think of any right now, maybe in the future)

No need.

I retook Spanish I and II at CCP I had it in high school and spoke it a little bit. I would highly recommend Latin at least be encouraged for those going into the science/medical fields.

17. How many hours per week on average do you work in this job?
_____ hours per week

35

>40 (2)

40 HOURS PER WEEK

40 (6)

50 (2)

50+

55

18. If you are not employed now, is this employment status by your choice?

(5) Yes (5) No

Community College of Philadelphia
Science Program Survey—Former (n=12)

You are receiving this survey because at one time you were enrolled in the Science curriculum at Community College of Philadelphia. We are conducting a survey of former students of the Science Program as we work to build on the program strengths and meet student needs. We are interested in knowing what you think about the program and what you have been doing since you left the program. Please take a few minutes to respond to the following questions. Your individual responses will be held in confidence.

1. When did you enter the Science program at CCP?

Semester _____ Year _____

Fall 1979

9/1988

Spring 2003

Spring 2005

Fall 2007 (3)

Summer 2008

Fall 2008

2009

S - 2009

Fall 2009

2. What year did you leave the Science program at CCP?

Semester _____ Year _____

Spring 1981

1990

Spring 2005

Fall 2007

Fall 2008

Spring 2008

Fall 2008

Summer 2009

Fall 2009

Summer 2010 (2)

3. Which of the following reasons were important to you when you initially enrolled in the Science program at CCP? (Mark all that apply)

- (0) To earn a certificate
- (4) To earn an Associate Degree in Science
- (11) To prepare for transfer to a four year college
- (0) To learn skills needed to enter the job market immediately after CCP
- (1) To improve my skills for the job that I now have
- (1) Other (Please explain):

To prepare needed pre-regs for N.D.

4. What factors led you to leave the Science program before completing it? (Mark all that apply)

- | | |
|---|--|
| <input type="checkbox"/> (0) I learned skills that I wanted to know | <input type="checkbox"/> (0) Courses that I needed were not offered when I needed them |
| <input type="checkbox"/> (1) Conflict with work schedule | <input type="checkbox"/> (0) Courses were not required at transfer institution |
| <input type="checkbox"/> (0) Conflict with family responsibilities | <input type="checkbox"/> (0) Did not like the program |
| <input type="checkbox"/> (8) Transferred to another college | <input type="checkbox"/> (1) No longer interested in the field |
| <input type="checkbox"/> (0) Financial reasons | <input type="checkbox"/> (1) Changed my major |
| <input type="checkbox"/> (0) Problems with Financial Aid | <input type="checkbox"/> (1) Other _____ |
| <input type="checkbox"/> (0) Personal reasons/illness | |
| <input type="checkbox"/> (1) Academic difficulties | |

1-Changed mind about medical school.

5. Which of the following describe what you have done/are doing since leaving the Science Program? (Mark all that apply)

- (2) Secured full-time employment
- (2) Secured part-time employment
- (0) Attended another 2-year college part time
- (0) Attended another 2-year college full time
- (8) Attended a four-year college part time
- (0) Attended a four-year college full time
- (0) Graduated from a four-year college
- (3) Attended a graduate school
- (1) Other:
Please comment:

1-Dental School

6. What do you think are the strengths of the Science Program?
Please comment:

Instruction/teaching is way better than what we are receiving at 4-yr institution. I Miss CCP!!!n/a

The Science program at CCP offers not only a wide range of classes but free tutoring which is beneficial in securing knowledge.

The fact that they emphasize higher level math (eg Math 171) makes it a very good program to be in.

Courses and instuctors

Very good.

Good faculty, very good support. Science program were rigorous and gave us lot of knowledge.

Randy Libros is a fair and talented educator. I enjoyed the Physics class he taught & learned a great deal from him.

Good teachers(teaching) Prepared to except an internship at 4yr college, work study placement in field of major

Flexible Schedules. Great professors.

The qualified instructors that care about teaching the material is a strong aspect of the program.

7. Were you satisfied with the instruction you received? (11) Yes (0) No
8. Were you satisfied with the support you received from the program faculty?
 (10) Yes (1) No
- 8a. If Yes, please give an example of the type of support you received:

Academic advising, fincial aid, advising were way helpful.

Academic support, faculty is very knowledgable

Personal attention if needed. Willingness to help. Availability druring class and other times for assistance.

They were very supporting and encouraging. Get support to get information about other university's requirements on specific programs. So I know which classes are needed to take. Professors very helpful.

Tutoring from instructor for chem 101 & 102. --> Most important - work study job was in Chem lab as an assistant. INVALUABLE.

8b. If no, what type of support were you looking for and did not receive?

Academic counseling (One-on-One)

9. What do you think needs to be changed or added to the Science Program in order to improve the program?

Please comment:

More diverse courses such as histology, immunology courses could be added and some form of collaboration for research activited could be established with a 4-yr university.

I believe the Science program should offer chemistry courses that transfer to Drexel being that Drexel is affiliated with CCP

More Course options, better student advising.

Better labs& tutoring system to struggling students. Advising about careers needs improvement.

Looking back, I wish someone had "tied me into" on to receiving my associates before leacing the program. I went on to a 4 yr college but I did not graduate. I ended up with 130+ credits with no kind of degree. Employment is dim without a degree

Some of the equivalent sciences classes in Temple and other 1 & 2, Physics 1 & 2 and possibly the calculus courses are much harder at those intstitutions. An improvement could be increasing the intensity of the program so students may be better prepared once they transfer.

COMMUNITY COLLEGE OF PHILADLEPHIA

Division of Mathematics, Science and Health Careers

Modified Academic Program Audit

Associate in Applied Science (A.A.S.) in Nursing

Authors: Francesca DiRosa
Barbara McLaughlin

September 10, 2012

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I. DESCRIPTION OF PROGRAM

The Nursing Program is one of eight health career programs in the Division of Mathematics, Science and Health Careers. The Nursing curriculum prepares students for beginning staff nurse positions in acute, long-term care and community-based facilities. Thus, students are provided with a theoretical and practical foundation of knowledge and skills that will equip them as staff nurses to plan, provide and evaluate nursing care for individual health maintenance or health promotion needs. Upon successful completion of the curriculum, students receive an Associate in Applied Science (A.A.S.) degree and are eligible to sit for the state licensure examination to become a registered nurse (R.N.).

The Nursing Program is comprised of 64 credits using the College's formula of six hours of clinical laboratory for one credit. The Nursing Program's integrated curriculum consists of four nursing courses over four semesters. Each nursing course flows from the mission and core values and builds on previous courses. All nursing courses include a large group lecture, a small group seminar and clinical experience. In addition, the first two nursing courses include a nursing skills laboratory. Skills- testing based on critical elements is required of every student in the first two nursing courses. In addition to the classroom learning environment, selected clinical laboratory learning experiences, under the guidance of nursing faculty are provided at a variety of health care agencies in Philadelphia. These experiences provide students with the opportunity to apply classroom learning in client care situations. The availability of learning experiences may necessitate evening or weekend clinical laboratory assignments for students.

The Nursing Program has a strong presence in the Philadelphia community. Local baccalaureate, associate degree and Licensed Practical Nursing (LPN) program directors actively participate in the Nursing Program's Advisory Committee. The Nursing Program affiliates with over thirty health care agencies in the city and representatives from selected agencies also serve on the Nursing Advisory Committee. Appendix A contains the members of the current Nursing Advisory Committee.

In addition to having a strong presence in the Philadelphia community, the Nursing Program has distinguished itself regionally and nationally through extensive work with funding partners. Community College of Philadelphia was the lead school in the Helene Fuld Health Trust grant to Integrate Community Based Nursing into Associate Degree Nursing Programs. In 2006, the Nursing Program was funded by The John A. Hartford Foundation to assess the state of the teaching related to the care of older adults in associate degree nursing programs. This grant was continued in 2009 and retitled Integrating Care of Older Adults in Pre-Licensure Nursing Programs. Numerous local, regional and national speaking opportunities resulted from this grant. Faculty were able to share evolving knowledge and teaching strategies with nurse educators.

Most recently the Nursing Program continues to work on the integration of care of older adults into nursing curricula through funding provided by The Hearst Foundations. This funding supports CCP nursing faculty as they share information with nurse educators at 24 conferences over a 4 year period. Both the Hartford funding and the Hearst funding are in collaboration with the National League for Nursing. Laerdal Medical and the Independence Foundation have also be significant supporters of these endeavors.

Finding ways to support students throughout the Nursing program has also been a focus within the department. Each year, with the assistance of the Office of Institutional Advancement, the department seeks funds for scholarships for nursing students. These are in addition to the numerous long standing scholarships previously designated. One example of this is a grant from the Independence Blue Cross Foundation in 2012 for just over \$8,000. This allowed the distribution of sixteen (16) scholarships of \$500 each to nursing students.

Accreditation: The Nursing curriculum is accredited by the National League for Nursing Accrediting Commission, 3343 Peachtree Road, NE Suite 500, Atlanta, GA 30326, 404-975-5000, www.nlnac.org and is approved by the Pennsylvania State Board of Nursing.

II. MISSION AND GOALS

The Statement of Mission of the Community College of Philadelphia is found in the College Catalog and is fully incorporated into the Department of Nursing Philosophy and Core Values. The faculty of the Department of Nursing at Community College of Philadelphia developed their philosophy of nursing by interweaving the College Mission with their beliefs about nursing. The faculty fully subscribes to the College Mission of preparing students to be informed and concerned citizens who actively participate in the cultural life of the city and who are educated to meet the changing needs of their profession. Additionally, the program outcomes of the Department of Nursing, which focus on areas of program satisfaction, graduation rates, NCLEX-RN (*National Council Licensure Examination for Registered Nurses*) pass rates, and job placement, fully reflect the core mission of the Community College of Philadelphia to provide access to higher education for all who may benefit and to develop career technologies which provide a coherent foundation for college transfer, employment, and life-long learning.

Department of Nursing Core Values and Philosophy

The mission of Community College of Philadelphia affirms a belief in access to higher education for all who may benefit by providing a coherent foundation for college transfer, employment, and lifelong learning. The College and the Nursing Program draw together students from a wide variety of ages and backgrounds and seeks to provide programs that increase awareness and appreciation of a diverse world, that improves students' abilities to pursue paths to inquiry, and that fosters self-fulfillment through service to others and preparation for future work. In concert with the College's mission statement, the faculty in the Department of Nursing adheres to a philosophy based on the belief that the fundamental nature of education is growth. The collective vision of faculty in the Department of Nursing is based on a shared commitment to student success where educational growth is a process in which the teacher guides the learner as an active participant. The faculty function as nursing experts, as facilitators of learning, and as nurturers of students. They are committed to assisting students to value their own unique backgrounds and experiences as a foundation for service to others, to prepare for future work and study and to enjoy the challenges in the nursing profession. Faculty in the Department of Nursing are strong advocates of the College's mission. Faculty believe that the College's associate degree nursing graduates are prepared with the knowledge, skills, and abilities necessary for practice, transfer and self-fulfillment. Specifically graduates of the program integrate theories and concepts from

science and liberal arts in the practice of nursing, fully collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings and consistently practice within the legal and ethical framework of nursing.

Nursing education at the Community College of Philadelphia supports the fact that nursing is a challenging, satisfying profession that empowers individuals, families, communities, and society at large. Professional standards, such as the NCLEX blueprint and QSEN (Quality and Safe Education for Nurses) competencies, and national competencies guide the curriculum. Additionally, faculty incorporate core values of scholarship, service, support, and excellence that serve as the foundation for carrying out the Department of Nursing's philosophy and inform decision-making regarding the program of learning. The core values are:

Scholarship – Scholarship is the discovery, translation, application and transmission of knowledge, skills and abilities/attitudes that contribute to the development and practice of evidence based nursing. It includes a passion for life- long learning. Commitment to scholarship is best demonstrated through evidence based learning throughout the curriculum to promote student inquiry, creative curriculum designs and research to determine the impact of innovative approaches on student learning. The associate degree nursing program is the first step in a career pathway leading to increased opportunities in nursing.

Service – Service is the commitment to engage local, regional and national communities. It includes participation in organizational activities that benefit the program, college, community, and profession and involves developing and sustaining partnerships that are critical to the program, student and faculty development, and the profession. Faculty endeavor to inspire students to develop values and beliefs that include a commitment to service to the local community.

Support - Support of students is achieved through mentoring, interactive learning and extensive faculty-student partnerships to individualize learning strategies, both formal and informal. It includes the principles of equity, treating all persons in a respectful manner; advocacy for student and faculty beliefs, attitudes and perspectives and acknowledgment and inclusion of the variations of individuals. Through mentoring and by fostering the co-learner philosophy with students, students are encouraged to embrace professional practice and academic advancement.

Excellence – A culture of excellence reflects a commitment to clinical competence, legal and ethical practice, collaboration, integrity and leadership. This approach to professionalism embodies the unique nature of nursing. Faculty and clinical partners, as role models for students, personify the qualities for professionalism and hold students to standards of nursing care that demonstrate caring, empathy, respect for self and colleagues, and a commitment to continuous growth and understanding.

The outcome of the interplay of professional standards, national competencies and core values is captured in the ability of graduates to provide safe and effective care in a wide variety of settings and to uphold the professional standards of nursing. In this way, faculty honor and acknowledge a deep commitment to the health and welfare of the Philadelphia community.

Program Goals

To Graduate Students Who Can:

- Independently plan, implement and evaluate both patient care outcomes and system effectiveness in order to deliver safe and effective care in a variety of practice settings.
- Work effectively with inter-professional teams to develop a comprehensive plan of care by fostering communication, mutual respect, and shared decision making to achieve quality patient care in both transitional and permanent settings.
- Demonstrate accountability by functioning within the legal/ethical parameters of nursing practice.
- Use data to minimize risk of harm to patients across the life span and monitor outcomes of care processes to make changes in order to continuously enhance the quality and safety of clients/families.
- Provide high quality, comprehensive care for clients/families based on an understanding of complex psychosocial and physiological health alterations, respect for client and family preferences, values, and needs.
- Evaluate and modify as needed clients/family's response to therapy in order to maximize self-care and optimal functioning across the lifespan.

III. PROGRAMMATIC STUDENT LEARNING OUTCOMES:

Upon successful completion of this program graduates will be able to:

- Integrate theories and concepts from science and liberal arts in the practice of nursing.
- Collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings.
- Practice within the legal and ethical framework of nursing.

In addition to the institutional and nursing education unit student learning outcomes above, the National League for Nursing Accrediting Commission (NLNAC) Standard VI,

Criteria 6.5 requires the Nursing Program to demonstrate evidence of achievement in meeting the following program outcomes:

- Performance on licensure exam
- Graduation/Program completion
- Program Satisfaction
- Job Placement

Respective outcome data for these outcomes can be found in Tables 2 through 5.

IV. PREVIOUS AUDIT RECOMMENDATIONS (1998)

In 1998 five years prior to the 2003 accreditation visit an audit of the Nursing Program was conducted. As a result of this audit, the following recommendations were developed to address concerns related to student recruitment, faculty development, faculty diversification, facilitation of transfer opportunities, and data maintenance. All of these recommendations were actualized in the ensuing years leading up to the 2003 accreditation visit:

Recommendation 1. By June 1998, the Department will develop a recruitment plan and seek institutional support to maximize resources. The plan will be implemented by Fall 1998, and include advertising, a new brochure, and a Web site.

Outcome 1. The recruitment plan was developed within the department and was implemented. It included the development of a new brochure that highlighted the program's diverse student population. A website was also developed.

Recommendation 2. The Nursing Department Faculty Selection Committee will develop guidelines for hiring new faculty by May 1998. The Nursing Department will request a Minority Fellowships Project Fellow for the 1998-1999 and 1999-2000 academic years.

Outcome 2. Guidelines for hiring new faculty were developed and implemented. During the years 1998-2000 there were two minority fellows. Neither was later employed by the department but both did go on to take positions in nursing education.

Recommendation 3. Faculty involved in Pew Projects will support colleagues in their efforts to expand technology initiatives. Faculty will develop a plan to integrate computer based learning in the Nursing Program by May 1998. Twelve new computers will be installed in the College nursing laboratories by April 1998.

Outcome 3. The computers were installed and have since been updated using other grant monies. They are and have been located in W2-22 and W2-17. The faculty began their discussion regarding the use of technology and now administer the nursing courses as hybrid experiences. In addition, the computers are used by students during their community rotations to enter data related to services. The Pew Project was the beginning of a significant increase in technology in the program. Since then the department has purchased three simulation mannequins, audience response devices, and multiple interactive programs that are used throughout the nursing program.

Recommendation 4. By December 1998, the Nursing Program will develop a process to facilitate more favorable placement and articulation for nursing graduates at four year institutions which have articulation agreements with the College. Faculty will explore options for nursing graduates to use individual assessment models such as the portfolio to facilitate advanced placement in the bachelor's or master's program at the receiving institution.

Outcome 4. Since the 1998 audit, nursing faculty have worked with counseling to facilitate articulation options for graduates. A number of seamless transition options have resulted including those with Thomas Jefferson University, Drexel University, Widener University and Immaculata University. Students are encouraged to plan for this transfer option upon admission to the nursing program. According to graduate follow-up studies, an average of 40% of the graduates are enrolled in a RN-BSN or RN-MSN program within one year of completion of the program at CCP. Five (four part time and one full time) of the department's current faculty are graduates of the nursing program who articulated in this manner to complete their bachelor's and master's degrees.

The faculty decided not to pursue individual assessment models such as the portfolio to facilitate advanced placement in the bachelor's or master's program at a four year college or University because most baccalaureate programs have discontinued the use of portfolios as a method of assessing previous learning experiences. The current trend is to accept a pre-determined number of credits for the associate degree in nursing to the bachelor's degree.

Recommendation 5. Through implementation of the Department's evaluation plan, faculty will be encouraged to assess and develop courses and teaching in the context of the Nursing Program, the College and the nursing profession. This initiative will be the focus of faculty development during the 1998-1999 academic year. Faculty will begin the process of self study required by the National League for Nursing Accreditation Commission during the 1998-1999 academic year. During the next 1999-2000 academic year, faculty will review curriculum and assemble materials needed to write the self study in 2000-2001.

Outcome 5. Faculty have been involved in course development and course revision. Faculty met regularly to participate in the completion of the 2000-2001 self study. Each semester faculty use data collected from course evaluations to revise and update the content of each of the four nursing courses. These courses are Nursing 101, Nursing 132, Nursing 231, and Nursing 232. In addition, since 1998, the faculty have successfully completed two self study reports for the National League for Nursing Accrediting Commission. Each of these self studies includes an in-depth review of the program curriculum.

V. 2003 REAPPROVAL

In 2002-2003 the Nursing Program conducted its self study in preparation for the impending accreditation site visit in February 2003. The results of the 2003 visit were exceptional.

The Nursing Accrediting Commission deliberations centered on the Self Study Report, the School Catalog, the Program Evaluator report, and the recommendation for accreditation

proposed by the evaluators and evaluation panel. The Commission affirmed the patterns of strength and concern as identified through the peer review process and “approved the associate degree program for continuing accreditation and scheduled the next evaluation visit for Spring 2011.

Patterns of Strengths:

- a) *Leadership of the nurse administrator*
- b) *Nursing faculty*
- c) *Curriculum integrity*

Patterns of concern:

- a) *None identified*

Points of consideration:

- a) *NLNAC address is not available in published documents*

The NLNAC address was subsequently inserted into published documents.

VI. 2011 REAPPROVAL

In 2010-2011, the Nursing Program carried out a self study and had its re-approval accreditation site visit in February 2011.

After review of the self-study and a successful on-site visit, the NLNAC (*National League for Nursing Accrediting Commission*) team recommended continued accreditation for 8 years.

During the exit conference the visitors sited several program strengths. They included:

- The number of partnerships the department has with agencies, other schools, and individuals that support student learning and faculty development.
- The department’s three Center of Excellence Designations.
- Part time faculty are all masters’ prepared nurses and are engaged in the workings of the nursing department.
- The faculty’s integration of evidence based practice into the curriculum.
- Students are well supported by the College.
- The nursing department curriculum offers numerous creative learning opportunities for students with limited resources. The Nursing faculty have maximized opportunities.

The visitors offered a few suggestions for improvement. They included;

- Making certain that the core values and competencies are better reflected in our evaluation tools for the course.
- Defining the purposes of the faculty and curriculum committees.

The visitors expressed that they felt that the College had a “wonderful” Nursing Program and were impressed by the “sense of community and service” that they saw and

heard in speaking with faculty and students. They were also impressed by the college wide support that was demonstrated for the nursing department in the meetings they attended.

Subsequently, the National League for Nursing Accrediting Board of Commissioners granted the Associate Nursing Program continuing accreditation for the maximum number of years allowed and scheduled the next evaluation visit for Spring 2019. The Board of Commissioners identified the following strengths and areas needing development:

Areas of Strength by Accreditation Standard

Standard 1: Mission and Administrative Capacity

- Recognition as a Center of excellence by National League of Nursing (NLN) in 2004, 2007, and 2010

Areas Needing Development by Accreditation Standard

Standard 2: Faculty and Staff

- Ensure that faculty performance reflects scholarly activities and evidence-based teaching and clinical practices.

Response: Faculty in the department of nursing attend and present at an extensive list of conferences. Many presentations in the last 2 years have dealt with evolving knowledge of care of older adults. This information has been integrated in to the curriculum of the nursing program. Faculty also speak regularly on teaching strategies and curriculum development. Nursing faculty have attended conferences related to global health, mental health nursing, care of families, etc. All of this information in integrated into the classroom, clinical and seminar activities. A complete list of scholarly activities for faculty is available in the NLNAC self study.

Standard 4: Curriculum

- Ensure course syllabi reflect course concepts and student learning outcomes

Response: All syllabi include course objectives and student learning outcomes as of Fall 2010.

Standard 6: Outcomes

- Revise the expected level of achievement for licensure exam pass rates to be congruent with NLNAC Criterion.

Response: Faculty included the outcome measure on the systematic plan to read, "The NCLEX-RN pass rate will be at or above the national level." Note: we are required to be at 80% or higher, (Pennsylvania State Board of Nursing) thus this is the outcome measure currently used.

VII. PROGRAM EFFECTIVENESS

Program Outcomes

The goals and objective of the Nursing Program's systematic plan for evaluating student learning is to ascertain the degree to which our Nursing graduates are achieving the identified competencies consistent with the institutional mission, professional standards and nursing education unit. Thus, the evaluation of the program is a dynamic and ongoing systematic process. The systematic program evaluation plan addresses each of the NLNAC standards and criteria. The plan has been revised several times since its development, most recently as a result of the NLNAC's 2008 Standards and Criteria. Nursing faculty completed revisions in the Fall 2008 semester and approved the current plan in December 2009. The complete Systematic Program Evaluation Plan can be seen in Appendix B.

Faculty have used the plan as guide for reviewing and updating policies and procedures within the Department. The plan has also been instrumental in helping faculty to identify strengths of the program as well as areas needing improvement. In addition, the Nursing Program has developed an Assessment Plan (Appendix C) which consists of evaluating course and program learning outcomes on a yearly cycle that will further inform the program in its decision making, planning, and development.

Throughout the Self-Study report, evidence showed that data based on the assessment methods described in the Systematic Program Evaluation were aggregate, trended, and used to make curricular changes. Examples include:

- The philosophy has been revised to better reflect the mission of the College, current trends in health care and core values for nursing education unit
- Course objectives have been revised to reflect QSEN (Quality and Safe Education for Nurses) and NLN (National League of Nursing) competencies
- The faculty revised the clinical evaluation tool to reflect current practice trends including QSEN competencies
- The student evaluation of each nursing course is the basis for planning for each subsequent semester
- The Nursing Student Handbook is updated annually
- Course delivery systems are regularly evaluated and revised
- The careful inclusion of technology, including simulation, has been integrated and evaluated
- The implementation of a plan to increase NCLEX pass rates resulted in a 16% increase and stabilization of results
- The review of cohort study data and admission procedures resulted in change of admission GPA to 2.75
- The review of Advanced Placement Option student success resulted in elimination of the use of the NLN mobility profile examination and the awarding of one semester credit for life experience.

At the conclusion of each semester, in addition to the course evaluation tools provided by the College, the Nursing Program has each student complete a course evaluation tool based on the course objectives. There is also an opportunity for the students to provide

qualitative information about the course. The evaluation asks the student to assess what they learned, how they learned, and their perceptions of the Nursing program. Table 1 is an example of the information gathered from students at the completion of each nursing course.

Table 1
Department of Nursing
Course Assessment – Nursing 101 Fall 2010 (N=119)

	5	4	3	2	1
What you Learned: Upon completion of Nursing 101 the student will					
1. Assess physiological, psychosocial, developmental and environmental factors that influence the delivery of safe and effective nursing care.	41%	50%	8%	1%	0%
2. Demonstrate the use of standardized communication techniques with members of the health care team to provide safe and effective care to client(s).	49%	40%	9%	1%	0%
3. Demonstrate accountability by functioning within the ethical/legal parameters of nursing practice.	55%	33%	11%	1%	0%
4. Demonstrate basic nursing skills by accessing research evidence, clinical experts, and information technology to identify standards of care.	40%	46%	11%	3%	0%
5. Utilize therapeutic communication skills to assess coping mechanisms, cultural influences and preferences for clients/families.	50%	38%	12%	0%	0%
6. Identify factors that influence client/family's ability to function optimally across the lifespan and at transitions in care.	35%	50%	13%	0%	0%
How You Learned					
7. Classroom faculty are knowledgeable nurses.	73%	24%	2%	0%	0%
8. Classroom faculty are effective teachers.	42%	37%	16%	3%	2%
9. My clinical teacher was a knowledgeable nurse.	87%	11%	2%	0%	0%
10. My clinical teacher was an effective teacher.	85%	13%	1%	2%	0%
11. My college lab teacher was a knowledgeable nurse.	66%	28%	5%	1%	0%
12. My college lab teacher was an effective teacher.	51%	34%	11%	3%	1%
13. The skills videos were a helpful resource.	36%	34%	18%	9%	3%
14. College nursing skills laboratory study guides were a useful tool.	43%	47%	8%	3%	0%
15. The online portion of the college nursing skills lab helped me to prepare to practice the skills.	30%	45%	18%	7%	1%
16. Tutors in the college lab were knowledgeable.	32%	32%	34%	1%	1%
17. Textbook readings were relevant to what I was learning.	45%	45%	8%	2%	0%
18. The ACE component of the course prepared me to assess my clients.	48%	37%	6%	3%	0%

What we learned

5 – I have an excellent knowledge base

2- I don't know enough to meet this objective

4 – I know enough to meet this objective

1- I didn't learn anything about this

3 – I know a lot, but I need to know more to meet this objective

How you learned

5- Strongly agree-1strongly disagree

In addition, aggregate data related to graduates competencies appropriate to role preparation is gathered through employer surveys. Questionnaires are distributed to Nurse Managers who hired a CCP graduate in the last three years; this allows employers to make a general assessment of the Program's graduates. On average 6-8 employers respond to the survey each year. The results of the 2007-2009 surveys are found in Table 2.

Table 2
Employer Follow- Up Study

Qualities/Attributes	Aggregate data for graduates hired in the last 3 years (2007-2009)
Mastery of Nursing Knowledge	Scale of 1-4
Performance of Technical Nursing Skills/Procedures	2.87
Organization/Prioritization/Care Management Skills	2.80
Communication Effectiveness	2.75
Work/Team Relationships/Collaboration	3.10
Professionalism/Dependability/Accountability	2.90
Ability to deliver safe, effective, quality nursing care	2.80
Culturally sensitive/Shows respect for patient/family preferences and needs	2.87

1= Below level of peers, 2= Average to peer group, 3=Above average to peer group, 4= Superior to peer group

The 2011 Program self study demonstrated evidence of achievement in meeting the following Program outcomes:

- Performance on licensure exam
- Program Completion/Graduation Rates
- Program Satisfaction
- Job Placement

Performance on Licensure Exam

The average pass rate for graduates of the Nursing Program over the past five years is 83.3% with a range between 71% and 90%. First time test-takers have passed the NCLEX-RN at a rate of 86-90% for the past three years however, in 2011 there was a decline in the pass rate. Results for the last six years are demonstrated in Table 3.

Table 3
NCLEX-RN Pass Rates

Year	2006	2007	2008	2009	2010	2011
Number of Graduates	122	131	119	105	130	112
Pennsylvania	87%	82%	85%	87%	86.5%	87.85%
Community College of Philadelphia	82%	71%	87%	90 %	86.59 %	77.88%

The data included in Table 3 is based on the National Council of State Boards Reports on graduates that have taken the NCLEX-RN. The data do not include graduates who tested outside the Commonwealth of Pennsylvania.

In 2007, the Nursing graduates pass rate was 11% below the Pennsylvania pass rate. Faculty discussed a number of possible factors influencing the result, developed a variety of strategies to assist students and consulted the Office of Institutional research to design a cohort study related to predictors of success on the NCLEX-RN (*National Council Licensure Examination for Registered Nurses*). This study continued for four years. The consistent predictors of success on the NCLEX-RN are student performance on assessment measures in nursing courses and the student score on the HESI (*Health Education Systems, Inc.*).

After considerable discussion related to standardized test packages and benchmark scores, an action plan was immediately developed. Faculty created a program known as S.W.A.T. (Success With Academic Testing). This initiative requires students to purchase a designated NCLEX review book selected by faculty. Each week a series of questions is assigned for completion. Each student must visit their faculty mentor to validate completion of the questions and discuss the student's clinical reasoning. A series of selected questions is discussed during seminar in an effort to hone test taking skills and strategies. In addition, faculty began to offer the opportunity for students to participate in the HESI-RN-exit test. Each February, fourth semester students are offered the opportunity to take the test on campus. Though not mandatory, since its offering in February 2007, all second year students have taken the exam. Students receive immediate results and a remediation plan. Faculty receive both individual and aggregate data for the class, and use the data to develop focused review sessions in the later part of the fourth nursing course. All students are invited to attend these sessions. Also, there are voluntary support resources available to students who want more experience with computer adaptive testing.

Following implementation of this action plan, the Community College of Philadelphia nursing graduate pass rate increased by 16% and was 2% above the Pennsylvania pass rate. Based on the success of these strategies, the faculty have incorporated them as the basis for an action plan to increase the pass rate achieved by the Class of 2011. In addition to the strategies in place, faculty have added several additional approaches. These include but are not limited to:

- **Intense mentoring of each second year student.** Each faculty member has been assigned approximately 10 students as their mentees. Faculty communicate on a weekly basis with this group of students to offer support and suggestions about preparing for the licensure examination. Support strategies include sending weekly questions for review, working on case studies, and reminder emails.
- **Biweekly quizzes using NCLEX questions from the SWAT sessions.** Students are assigned 150 questions every two weeks that are related to the content being taught in the classroom. Faculty randomly select 20 of those questions to appear on a quiz that is taken during seminar. Following the quiz, questions are reviewed, highlighting test taking strategies.
- **Increase in active learning strategies in the classroom.** A faculty development program was held to help faculty integrate these learning strategies into their presentations and clinical conferences.

As a result of the pass rate below 80%, in 2011 the State Board of Nursing of Pennsylvania required the submission of an in-depth evaluation and action plan. Appendix D contains the full action plan. Programs are given two years to correct this issue. Failure to do so may result in loss of state approval status.

Graduation Rates

Table 4 describes The College's nursing student graduation rates for the past four years. On average, 84% of a nursing class graduates from the College.

Table 4
Graduation Rate for Nursing Students*

Graduation year	Percent Graduating Within 3 years of Admission
2008	84.2%
2009	83%
2010	81%
2011	88%

Program Satisfaction

Each year, at six months following graduation, graduates are surveyed regarding program satisfaction. The survey includes a series of Likert scale statements asking graduates to rate overall satisfaction with the following: *the program; preparation for current position; the development of clinical judgment skills; the ability to provide high quality care to clients and families; and the ability to uphold the professional standards of nursing.*

Data gathered from the graduate follow-up studies have been used by faculty to improve the effectiveness of the Program and its student success initiatives.

Prior to 2009, the graduate satisfaction survey was mailed to each graduate. This method often yielded a low percentage of response. Therefore, in an effort to increase response

feedback, the faculty decided to distribute the graduate follow-up survey via the Department of Nursing Facebook alumni page. As Table 5 indicates, the response rate did increase from the 2008 rate in both 2009 and 2010 and overall, students express high satisfaction with the Nursing program.

Table 5
Results of Graduate Follow-up Survey*
Classes of 2006, 2007, 2008, 2009

	2006	2007	2008	2009	2010
Number of Graduates	122	131	119	105	130
Response rate	32/122 – 26.2%	66/131 – 50.3%	23/119- 19.3%	47/105 45.7%	41/130- 31.5%
Overall, I found the nursing program at Community College of Philadelphia to satisfactory or unsatisfactory.	4.2	3.8	4.11	4.56	4.14
The nursing program provided the assistance I needed to function as a graduate nurse.	4.25	4.27	4.55	4.5	4.07
The nursing program assisted me with development of clinical judgment skills+	4.25	4.4	4.0	Not asked	Not asked
The nursing program assisted me to provide high quality care to clients and families.	Not asked	Not asked	Not asked	4.48	4.17
The nursing program helped me to uphold the professional standards of nursing.	Not asked	Not asked	Not asked	4.67	4.14

Using the following rating scale: 5=strongly agree/very satisfactory – 1= strongly disagree/unsatisfactory

*Table demonstrates the mean score for each of the quantitative questions.

+This question was moved to the employer survey after 2008.

Job Placement

For the years 2006 and 2007, job placement rates remained as in the past with nearly 100% of graduates employed as registered nurses well within six months of graduation. In 2009, the employment picture for registered nurses in Philadelphia area took a downward turn. Many of the large hospitals, in particular, were beginning to limit the number of new graduate hires and were hiring only graduates of bachelor's degree programs, if they were hiring at all. Thus, graduates of the CCP Nursing Program were reporting a very low

employment rate. Those finding employment were taking part-time positions that occurred in settings considered non-traditional for new graduates such as home care, outpatient clinics, mental health facilities, and acute rehabilitation units.

The graduating class of 2010 reported a slight improvement in the employment picture. While very few had secured registered nurse positions at the time of graduation, a number report that they have been hired for a diverse array of positions. The employment picture for acute care settings has remained stagnant with most hospitals not hiring any new graduates, regardless of type of pre-licensure education program. Members of the Nursing Program advisory committee report that they are hiring only nurses with experience and will consider all graduates after one year of experience in any setting. (See Table 6)

Table 6
**Job Placement Rates and Patterns
Classes Graduating 2006-2010***

Year	2006	2007	2008	2009	2010
Response Rate	N of graduates = 122 32/122 =26.2%	N of graduates = 131 66/131 = 50.3%	N of graduates = 119 23/119= 19.3%	N of graduates= 105 47/105= 45.7%	N of graduates=130 40/130=30.7%
Employed in Nursing	32 (100%)	66 (100%)	20 (87%)	15 (32%)	28 (70%)
Clinical Areas	Med/Surg Pediatrics Gerontology Emergency Room Maternity Mental Health Rehabilitation	Med/Surg Pediatrics Gerontology Emergency Room Maternity Mental Health Rehabilitation Community clinics Home care	Med/Surg Pediatrics Gerontology Emergency Room Maternity Mental Health Rehabilitation Community clinics Home care	Home care Mental health Gerontology – LTC Acute Rehabilitation	Home care Long term care Rehabilitation Mental health Dialysis Wound Care Acute care Clinical research

Data gathered from course evaluations, graduate follow-up studies, NCLEX reports and faculty discussions are shared with program alliances which include those identified in the section that follows.

VIII. PROGRAM ALLIANCES

The Nursing Program is fully approved by the Pennsylvania State Board of Nursing and appears on the Board’s list of approved nursing programs on its official website.

The Department of Nursing maintains full compliance with the Professional and Vocational Standards for education programs of the Pennsylvania State Board of Nursing. In addition, the Program submits annual reports to the Board of Nursing, NLNAC, and the

NLN. The Nursing Program is an institutional member of the National League of Nursing and the National Organization of Associate Degree Nursing (NOADN). The Program is also recognized as a Center of Excellence by the National League of Nursing (2003, 2007, 2010), a designation that continues until 2015.

The Nursing Advisory Committee is comprised of members of the local nursing community and meets twice a year. The Committee includes a practical nursing educator, educators from bachelors and higher degree nursing program as well as representatives from clinical agencies used by the Nursing Program. Input from this group provides essential information related to the practice environment and the influence on nursing academics.

The Department of Nursing has a number of formal agreements with outside agents and agencies to accomplish specific goals and objectives. Funds from outside agents and agencies for designated use by the department of Nursing for specific purposes are managed by the Department with the assistance of Institutional Advancement and the Office of Finance and Budget. Currently the Nursing Program is working with the Independence Foundation, the Hartford Foundation, the Hearst Foundations, the National League for Nursing, and Drexel University on grant initiatives.

IX. OPERATING COSTS AND FUNDING

The Department of Nursing budget has remained stable at about \$1.5 million. Both the operating and capital budgets provide sufficient resources to accomplish Nursing Program goals, objectives, and activities. The Table 7 describes the operating budget for the Nursing Program from 20007 to the present. Table 8 is a summary of capital items purchased for the Department in the years 2007-2010. Tables 9 through 12 summarize Nursing Department purchases funded by grant monies.

Below is a list of the endowments for student scholarships, a faculty chair and grants provided by outside agencies and foundations:

Faculty Chair

- Independence Foundation Chair in Nursing

Nursing Student Endowed Scholarships

- The Harold E. Kohn Memorial Nursing Student Scholarship
- Arronson-Lavine Nursing Student scholarship
- Independence Foundation Nursing Student Scholarship
- Anne Ritter Nursing Student Scholarship
- Dr. Thomas W. Langfit Nursing Student Scholarship
- Hal Lane Chesler Memorial Nursing Student Scholarship
- Temple School of Nursing Alumni Association Nursing student Scholarship
- Brent Blundin Nursing Student Scholarship

Current Grants

- The John A. Hartford Foundation Fostering Geriatrics in Pre-Licensure Nursing Education Phase II (2009-2012)

- Independence Foundation Health Promotion in Zip Code 19130 (2009-2011)
- HRSA Faculty Development: Integrated Technology into Nursing Education and practice Initiative, subcontract with Drexel University (2008-2013)
- HRSA Scholarships for Disadvantaged Students
- Pennsylvania Higher Education Foundation Scholarships
- Independence Blue Cross Nursing Student Scholarships

Table 7
Operating Budget for the Nursing Program 2007-2010

Object Code	2007-08	2008-09	2009-10	2010-11
Faculty Salaries	\$858,224	\$884,948	\$720,915.05	\$787,937
Visiting Lecturer	\$42,500		\$54,318.06	\$23,233.80
Academic Year Credit Pool	\$543,603	\$662,949	\$733,206.97	\$779,460
Extended Time-Administrative Project			\$29,460	\$29,924
Full-Time Classified	\$38,779	\$40,229	\$40,233.62	\$42,143.00
Student Wages	\$5,316	\$5,316	\$5,957	\$5,316.80
Supplies Pool	\$14,617		\$13,702.69	\$12,550
Freight	\$400.00	\$400.00	\$175	\$400.00
Postage			\$75.20	\$82.67
Hospitality	\$250.00	\$250.00	\$307.00	\$370.00
Institutional & Professional Membership*			\$500.00	\$480.00
Travel Pool	\$4,966	\$8,614.00	\$6,400.00	
Maintenance Pool	\$550	\$570		
Telephone line service	\$450	\$500	\$500	\$600.00

Table 8
Summary of Capital Items for the Department of Nursing Purchased 2007-2010 with Perkins Funds and College Capital Funds

Item Purchased	Total Amount
2 Male/Female catheterization simulators	\$1,600.00
12-Lead EKG placement trainer mannequin	\$726.00
2 AC suction with battery backup	\$1,600.00
2 Welch/Allyn Otoscopes	\$890.00
2 Examination and Diagnostic breast models	\$980.00
2 Lifeform tracheostomy care simulators	\$890.00
2 Chester Chest mannequins with central IV lines	\$2,500.00
1 Bandaging Simulator	\$599.00
1 Cardiac monitor used with Vital Sim Mannequin	\$4,500.00
3 Pulse Oximeters for nursing skills lab	\$1,160.00
1 Micro Sim Computer Program	\$4,000.00
2 infusion pumps	\$6,000.00
Tables and chairs for room W2-17*	\$16,244.00
Total	\$41,689.00

*Not purchased with Perkins monies

Table 9
Summary of Items Purchased Through Independence Foundation Grant

Storage units in room W2-17 for community supplies	\$4,500.00
Supplies for community clinical activities	\$12,000-15,000/year
Total	16,500.00-19,500.00

Table 10
Summary of Items Purchased Through John A. Hartford Foundation Grant

Equipment	Total Amount
2 Vital Sim Mannequins	\$8,062.00
Computer software for Vital Sim	\$4,400.00
Faculty training for Vital Sim	\$3,000.00
Total	\$15,462.00

Table 11
Community College of Philadelphia Foundation Mini-Grants

150 devices for the Audience Response System (spring 2010)	\$5,000
Geriatric student-led conference (spring 2008)	\$5,000
Faculty preparation for NLN CNE certification (spring 2007)	\$1,500.00
Total	\$11,500.00

Table 12
Independence Foundation Endowed Chair

Endowed Chair in Community Health Nursing	\$1,000,000
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X. CLINICAL AFFILIATIONS

The College holds affiliation agreements on behalf of the Nursing Program with the following clinical settings (Table 13 denotes Nursing courses and type of experience related to setting):

Acute Care Agencies

Albert Einstein Medical Center
 Fox Chase Cancer Center
 Good Shepherd/Penn Partners
 Hahnemann University Hospital
 Holy Redeemer Hospital and Medical Center
 Jeanes Hospital
 Lankenau Hospital
 Mercy Hospital of Pennsylvania
 Pennsylvania Hospital
 Presbyterian University of Pennsylvania Medical Center
 Temple University Hospital
 Thomas Jefferson University Hospital

Long Term Care Agencies

Cathedral Village
Philadelphia Protestant Home
The Watermark at Logan Square

Community Based Agencies

Archdiocese of Philadelphia High Schools
Children’s Crisis Center
Community College of Philadelphia
New Courtland Spring Garden Senior Center
Philadelphia Public Health Department- District 5
Project Home
School District of Philadelphia
Spring Garden Towers
Young World
The Philadelphia School
St. Joseph’s Preparatory School
North Philadelphia Start

Table 13
Clinical Agencies

Clinical Agency	Nursing Course	Type of Experience
Acute Care agencies		
Albert Einstein Medical Center	All courses	Medical/surgical experience
Fox Chase Cancer Center	Nursing 231 & 232	Medical/surgical experience
Good Shepherd/Penn Partners	All courses	Medical/surgical experience/long term acute rehabilitation
Hahnemann University Hospital	All courses	Medical/surgical experience
Holy Redeemer Hospital and Medical Center	All courses	Medical/surgical experience
Jeanes Hospital	Nursing 101 & 132	Medical/surgical experience
Lankenau Medical Center	Nursing 101 & 132	Medical/surgical experience
Mercy Hospital of Philadelphia	Nursing 101 & 132	Medical/surgical experience
Pennsylvania Hospital	All courses	Medical/surgical experience
Presbyterian University of Pennsylvania Medical Center	Nursing 101 & 132	Medical/surgical experience
Temple University Hospital	Nursing 101 & 132	Medical/surgical experience
Thomas Jefferson University Hospital	All courses	Medical/surgical experience
Long Term Care agencies		
Cathedral Village	Nursing 231 & 232	Long term care experience in a continuing care community
Philadelphia Protestant Home	Nursing 231 & 232	Long term care experience in a continuing care community
The Watermark at Logan Square	Nursing 231 & 232	Long term care experience in a continuing care community
Community Based agencies		
	Nursing Course	Type of Experience
Archdiocese of Philadelphia	Nursing 231 & 232	Community based activities

High Schools		
Children’s Crisis Center	Nursing 231 & 232	Community based activities
Community College of Philadelphia	Nursing 231 & 232	Community based activities
New Courtland Spring Garden Senior Center	Nursing 231 & 232	Community based activities
Philadelphia Public Health Department –District 5	Nursing 231 & 232	Community based activities
Project Home	Nursing 231 & 232	Community based activities
School District of Philadelphia	Nursing 231 & 232	Community based activities
Spring Garden Towers	Nursing 231 & 232	Community based activities
Young World	Nursing 231 & 232	Community based activities
The Philadelphia School	Nursing 231 & 232	Community based activities
St. Joseph ‘s Preparatory School	Nursing 231 & 232	Community based activities
North Philadelphia Head Start	Nursing 231 & 232	Community based activities

XI. FINDINGS

The Community College of Philadelphia's Nursing Program continues to demonstrate excellence in providing nursing education that upholds professional standards, national competencies, and a comprehensive set of core values. The consistent accreditation award of eight years speaks to the quality and effectiveness of the curriculum as well as to the faculty's proactive and effective efforts in assisting students to be successful in achieving course and curriculum learning outcomes. As is evident from the Nursing Program's Self Study, faculty continue to use assessment outcomes and community resources as a means of gathering information to keep the Program current and relevant both in scholarship and practice. In this way, faculty continue to acknowledge and maintain a deep commitment to the health and welfare of the Philadelphia community.

Given the new requirements from the Pennsylvania State Board of Nursing, faculty will need to carefully monitor the outcomes of the current action plan which was designed to increase pass rates on the NCLEX exam. In addition, responses from students indicated some concerns about the effectiveness of some teaching strategies which should be reviewed as part of the department's course assessment plan.

Although the job market in Philadelphia remains a challenge for new graduates from all pre-licensure programs, our Nursing Program graduates remain highly valued in the Philadelphia nursing job market. This is demonstrated by the survey data received from employers who ultimately hire our nursing graduates. Although employment is being found at a slower rate than in the past, once hired, employer results reveal graduates from our Nursing Program are performing at or above the level of their peers.

XII. RECOMMENDATIONS

The following recommendations are suggested based on the findings of this audit:

1. Complete and assess the outcomes of the current Action Plan targeted to increase pass rates on the NCLEX Exam (Spring 2013).
2. Continue to explore ways to address career pathways for nursing students.
 - a. Explore any initiatives that will assist students in finding employment (Spring 2013).
 - b. Continue to work with the College to determine if a BSN program can be implemented.
 - c. Continue to offer the annual Student Day event which brings Nursing Program graduates and prominent local and regional nurses to the campus to share experiences with students.
3. Continue to meet the College requirement for assessment.

- a. Review student survey responses to address concerns related to effective teaching strategies (Fall 2012).
- b. Provide data for program and course assessment (Spring 2013).

APPENDIX A

Nursing Advisory Committee

2011-2012 Nursing Advisory Committee

Ms. Linda M. Celia, M.S.N., R.N., BC
Director, Staff Education & Training
Hahnemann University Hospital
Broad and Vine Streets, Mail Stop 345
Philadelphia, PA 19102-1192

Ms. Rhona H. Cooper, R.N., M.S.N.
Coordinator, School Health Services
School District of Philadelphia
440 N. Broad Street, Suite 206
Office of Specialized Services
Philadelphia, PA 19130

Angelo DeFeo, RN., BSN
Staff Nurse
Watermark
Two Franklin Town Boulevard
Philadelphia, PA 19130

Dr. Lana DeRuyter, Ph.D., R.N.
Dean, Allied Health and Nursing
Delaware County Community College
Route 252 and Media Line Road
Media, PA 19063-1094

Dr. Gloria Donnelly, Ph.D., R.N., F.A.A.N.
Dean, School of Nursing
Drexel University
1505 Race Street, MS 501
Philadelphia, PA 19102-1192

Mary Hanson-Zalot, RN, MSN
Associate Dean for RN-BSN and MSN programs
Thomas Jefferson University School of Nursing
130 South 9th Street, Suite 1200
Philadelphia,, PA 19107-5233

Ms. Fran Kestel, R.N., M.S.N.
Student Liaison and Clinical Coordinator
Albert Einstein Medical Center
5501 Old York Road
Philadelphia, PA 19141-3018

Catherine Levonian, RN, PhD
Director, Staff Development/Student Liason
Thomas Jefferson University Hosptial
11th and Walnut Streets
Philadelphia, PA 19102

Dr. Rhonda Maneval, R.N., D.Ed.
Director, RN-BSN Program
Temple University
College of Health Professions
Jones Hall, Room 524
3307 North Broad Street
Philadelphia, PA 19140-5101

Ms. Anna Marshalick, R.N., M.S.N.
Consultant
228 Cardinal Drive
Conshohocken, PA 19428-1393

David O'Brien, RN., M.S.N.
Education Specialist
Pennsylvania Hospital
8th and Spruce Streets
Philadelphia, PA 19107

Karen Rafferty, RN., M.S.N.
Nursing Education Liaison
Temple University Hospital
3402 N. Broad Street
Philadelphia, PA 19140

Dr. Judy Gay, Ph.D.
Vice President for Academic
Affairs

Dr. Barbara McLaughlin, Ph.D., R.N., CNE, A.N.E.F.
Professor and Department Head, Nursing

Dr. Mary Anne Celenza, Ph.D.,
Dean, Division of Mathematics,
Science & Health Careers

Ms. Lauren Tavolaro-Ryley, R.N., M.S.N., CNS
Associate Professor, Nursing

Dr. Andrea Mengel, Ph.D, R.N.
Professor and Independence
Foundation Chair

Dr. Ivory Coleman, E.D., R.N.
Professor, Nursing

Ms. Jean Byrd, R.N., M.S.N., CNE
Assistant Professor, Nursing

APPENDIX B

Systematic Program Evaluation Plan

**Courses to Program Level Student Learning Outcomes
Nursing Program**

The **Nursing Program** curriculum prepares students to achieve the expected student learning outcomes identified by the program. The following table demonstrates how learning activities in specific course map to these learning outcomes.

KEY:

I –Introduced R-Reinforced and opportunity to practice M-Mastery at exit level A- Assessment evidence collected

PROGRAM GOALS

REQUIRED COURSES (non-nursing/may be taken before or con-currently with nursing)	Integrate theories and concepts from science and liberal arts in the practice of nursing.	Collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings.	Practice within the legal and ethical framework of nursing.
English 101 and 102	R- Students are expected to create documents using college level writing skills that include documentation using APA style. A research paper is required in each of the 4 nursing courses. A –Assessment occurs as part of the grading rubric for papers.	R- Coherent written and verbal communication skills are practiced.	A – Knowledge of rules of documentation/citation of sources
Sociology 101	R- Sociological concepts that impact client needs and care. A – Recognition of cultural implications in nursing	R- Application of information related to cultural sensitivity. A – Recognition of cultural implications in nursing	
CIS 103	R- Comfort level with electronic communications, ability to produce word documents, power points, email, attachments, data retrieval, etc. A- presentation of paper, use of data bases, etc. assessed in rubric	R- ability to communicate using electronic resources. Use of electronic resources in clinical setting to retrieve data. A- Assessed on clinical evaluation tool.	A- Knowledge of use and distribution of electronic medical information assessed on evaluation tool.

REQUIRED COURSES (non-nursing/may be taken before or con-currently with nursing)	Integrate theories and concepts from science and liberal arts in the practice of nursing.	Collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings.	Practice within the legal and ethical framework of nursing.
Math 118	A -ability to perform basic arithmetic calculations for medication administration – Students must score 9/10 each semester.		A -Can dispense accurate doses of medications
Biology 109/110/241	R -Information is used during discussion of health alterations. A -Assessment occurs in test questions related to pathophysiology of diseases. Additional assessment occurs in the clinical setting in discussion of impact of disease on body function. M -Information is not re-taught in nursing courses.	R -Students are expected to use information from Anatomy/Physiology and Microbiology in making decisions about patient care. A -Assessment examples include students knowledge of medications, pathophysiology, and nursing care decisions.	
Diet 111	R -Use of this information occurs in planning nursing care and therapeutic regimens related to diet.	R -Use of this information occurs in planning nursing care and therapeutic regimens related to diet.	
Electives – 1 Humanities/1 General elective			

REQUIRED COURSES - NURSING	Integrate theories and concepts from science and liberal arts in the practice of nursing.	Collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings.	Practice within the legal and ethical framework of nursing.
Nursing I (Nursing 101)	<p>I-Students are introduced to the profession of nursing and the science of nursing. Fundamental practices of nursing are presented (examples – health promotion, vital signs).</p> <p>R-Practice of concepts learned in the classroom occurs in the laboratory and in clinical settings.</p> <p>A-Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p>	<p>I-Students are introduced to the profession of nursing and the science of nursing. Fundamental practices of nursing are presented.</p> <p>R-Practice of concepts learned in the classroom occurs in the laboratory and in clinical settings.</p> <p>A-Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p> <p>M-Mastery of selected basic nursing practices is expected at the completion of this course.</p>	All students are expected to practice within legal and ethical standards at all times.
Nursing II (Nursing 132)	<p>R-Continue to integrate sciences as students learn more about pathophysiology of disease and its impact on the body and the person.</p> <p>A--Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p>	<p>I/R-Concepts of physiological integrity, psychosocial integrity, safe, effective care environment, and health promotion/maintenance are examined. Use of the nursing process to plan and implement care of clients and families.</p> <p>A-Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p> <p>M-Mastery of selected basic nursing practices is expected at the completion of this course.</p>	All students are expected to practice within legal and ethical standards at all times.

REQUIRED COURSES - NURSING	Integrate theories and concepts from science and liberal arts in the practice of nursing.	Collaborate with nurses and other members of the health care team to provide safe, culturally sensitive, effective nursing care to clients in a variety of settings.	Practice within the legal and ethical framework of nursing.
Nursing III (Nursing 231)	<p>R-Continue to integrate sciences as students learn more about pathophysiology of disease and its impact on the body and the person.</p> <p>A--Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p>	<p>I/R – Nursing care for clients/families experiencing common health alterations across the life span in a variety of settings is studied. Students synthesize and integrate knowledge, skills and abilities associated with nursing practice to develop plans of care. Clinical decision making skills and resource management principles are introduced and practice in the clinical setting.</p> <p>A-Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p> <p>M-Mastery of selected basic nursing practices is expected at the completion of this course.</p>	All students are expected to practice within legal and ethical standards at all times.
Nursing IV (Nursing 232)	<p>R-Continue to integrate sciences as students learn more about pathophysiology of disease and its impact on the body and the person.</p> <p>A--Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p>	<p>I/R –Students synthesize and integrate knowledge, skills, and abilities to evaluate and modify plans of care. Students independently plan, implement and evaluate the delivery of safe and effective care. Concepts of management are further developed through collaboration with members of the health care team.</p>	All students are expected to practice within legal and ethical standards at all times.

		<p>A-Assessment is via objective tests and clinical performance using a rubric evaluation tool.</p> <p>M-Mastery of selected basic nursing practices is expected at the completion of this course.</p>	
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APPENDIX C

Nursing Course Assessment Plan

Course Student Learning Outcome Assessment Report

Department: Nursing Date: October 2011
 Course Name: Nursing I Course Number: Nursing 101
 Semester Evaluated: Fall 2011 Number of Sections Evaluated: 6

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
Assess physiological, psychosocial, developmental and environmental factors that influence the delivery of safe and effective nursing care.	Critical thinking paper	65% of the students will score at 75% or higher on the critical thinking paper	76.4% of students scored 75% or higher on the paper.	Continue to provide mentors Encourage students to use the Learning Lab Tutor for writing support.
	Skills lab testing	85% of the students will pass skills testing on the first try.	90% of students passed skills testing on first attempt.	Unsuccessful students were tutored and retested. Policy for retesting was reviewed. Students are permitted one opportunity to retest. Inability to pass results in a grade of F in the course.
	Student responses on department evaluation tool.	70% of students will rate their learning at a 4 or above on a 5 point scale.	91% rated their learning as having excellent or enough to meet the objective. 8% selected that they needed to know more. 1% did not have enough information.	Review learning activities for diversity of style. Continue to offer mentoring and encourage students to use faculty office hours. Continue to offer PASS (promoting academic success for students) sessions to engage students in discussion of materials.

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
<p>Demonstrate the use of standardized communication techniques with members of the health care team to provide safe and effective care to clients.</p>	<p>Observation of student during clinical practice in hospital and simulation settings.</p> <p>Student responses on department evaluation tool.</p>	<p>90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to communication.</p> <p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>100% of students received a satisfactory in this category at the end of the semester.</p> <p>90% rated their learning as having excellent or enough to meet the objective. 8% selected that they needed to know more. 2% did not answer the question.</p>	<p>Continue to integrate SBAR and hand off practices in clinical, simulation and college lab.</p> <p>As above</p>
<p>Demonstrate accountability by functioning within the ethical/legal parameters of nursing practice.</p>	<p>Professional accountability criteria on clinical evaluation tool</p> <p>Student responses on department evaluation tool.</p>	<p>90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating to ethical/legal parameters.</p> <p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>100% of students received a satisfactory in this category at the end of the semester.</p> <p>89% rated their learning as having excellent or enough to meet the objective. 9% felt they needed more.1% selected that they did not know enough.</p>	<p>Integrate seminars on use of social media and update discussion of professional behaviors in all courses.</p>

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
Demonstrate basic nursing skills by accessing research evidence, clinical experts, and information technology to identify standards of care.	Critical thinking paper	65% of the students will score at 75% or higher on the critical thinking paper	76.4% of students scored 75% or higher on the paper.	Continue to provide mentors Encourage students to use the Learning Lab Tutor for writing support.
	Questions on multiple choice tests	80% of the students will achieve an average grade of 75 or higher on multiple choice tests.	86.8% of students earned an average of 75 or higher on multiple choice tests	Continue to personally contact all students who score less than 76 on course examinations. Offer test review, study skills, use of learning lab, and tutors.
	Student responses on department evaluation tool.	70% of students will rate their learning at a 4 or above on a 5 point scale.	888% rated their learning as having excellent or enough to meet the objective. 11% selected that they needed to know more. 1% did not answer the question.	Review and revise content on evidence based practice and research in Nursing 101 course outline.
	Clinical evaluation tool	90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating to basic nursing skills.	100% of students received a satisfactory in this category at the end of the semester.	
Identify factors that influence client/family's ability to function optimally across the lifespan and at transitions in care.	Responses on seminar forums in particular those related to care of older adults and families.	Qualitative responses in seminar forums will reflect an understanding of care of older adults and growing families.	Responses to questions in seminar forums indicate an understanding.	Introduce ACES framework, essential nursing actions and knowledge domains for care of older adults. Continue seminars related to life transitions.
	Student responses on department evaluation tool.	70% of students will rate their learning at a 4 or above on a 5 point scale.	86% rated their learning as having excellent or enough to meet the objective. 11% selected that they needed to know more. 3% did not have enough information	

Course Student Learning Outcome Assessment Report

Department: Nursing

Date: October 2011

Course Name: Nursing II

Course Number: 132

Semester Evaluated: Spring 2012

Number of Sections Evaluated: 6

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
<p>Prioritize the relationships among physiological, psychosocial, developmental and environmental risk factors to deliver safe and effective nursing care.</p>	<p>Critical thinking paper</p>	<p>65% of the students will score at 75% or higher on the critical thinking paper</p>	<p>76.5% of students scored 75% or higher on the critical thinking and writing paper. Many students continue to lose points related to APA style deficiencies.</p>	<p>Review English 102 (The Research Paper)course syllabi for inclusion of APA. Provide review materials for APA. Continue to offer mentoring and encourage students to use the learning lab for writing support.</p>
	<p>Questions of multiple choice tests</p>	<p>80% of the students will achieve an average grade of 75 or higher on multiple choice tests.</p>	<p>74.8% of the class achieved an average grade of 75 or higher on course exams.</p>	<p>Continue to personally contact all students who score less than 76 on course examinations. Offer test review, study skills, use of learning lab, and tutors. Use Kaplan resources for review of content areas and identification of areas that need improvement.</p>
	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>75% rated their learning as having excellent or enough to meet the objective. 23% selected that they needed to know more. 2% did not answer the question.</p>	<p>Include decision making tree information in post conferences and have students practice this. Use Kaplan resources to highlight priority questions.</p>

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
<p>Communicate with members of the health care team using evidence-based practice concepts to provide safe and effective care to clients.</p>	<p>Evidence based practice conference evaluation</p>	<p>75% of the qualitative responses on the conference evaluation form will demonstrate a positive learning experience for students.</p>	<p>93% of responses were positive in nature.</p>	<p>Continue annual conference as a mechanism to allow students to explore evidence based practice, communication and teaching and learning skills.</p>
	<p>Observation in clinical activity</p>	<p>90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating to communication skills.</p>	<p>100% of students received a satisfactory in this category at the end of the semester.</p>	<p>As above</p>
	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>82% rated their learning as having excellent or enough to meet the objective. 18% selected that they needed to know more.</p>	
<p>Demonstrate accountability by functioning within the ethical/legal parameters of nursing practice.</p>	<p>Professional accountability criteria on clinical evaluation tool</p>	<p>90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating to legal and ethical practice.</p>	<p>100% of students received a satisfactory in this category at the end of the semester.</p>	
	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>91% rated their learning as having excellent or enough to meet the objective. 9% selected that they needed to know more.</p>	

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
<p>Demonstrate the integration of risk reduction knowledge, skills, and attitudes related to potential complications of treatment and disease by using research evidence, clinical experts and information technology to support clinical decision making.</p>	<p>Questions on multiple choice tests</p>	<p>80% of the students will achieve an average grade of 75 or higher on multiple choice tests.</p>	<p>74.8% of the class achieved an average grade of 75 or higher on course exams.</p>	<p>Continue to personally contact all students who score less than 76 on course examinations. Offer test review, study skills, use of learning lab, and tutors. Use Kaplan resources for review of content areas and identification of areas that need improvement.</p>
	<p>Critical thinking paper</p>	<p>65% of the students will score at 75% or higher on the critical thinking paper</p>	<p>76.5% of students scored 75% or higher on the critical thinking and writing paper. Many students continue to lose points related to APA style deficiencies.</p>	<p>As previously stated</p>
	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>86% rated their learning as having excellent or enough to meet the objective. 12% selected that they needed to know more. 2% did not answer the question.</p>	<p>Faculty development program presented on clinical conference questions and techniques.</p>
<p>Use therapeutic interventions for care of clients/families with psychosocial health alterations, accounting for client/family preferences, values and needs.</p>	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>88% rated their learning as having excellent or enough to meet the objective. 7% selected that they needed to know more. 5% did not answer the question.</p>	<p>Continue to integrate concepts related to QSEN competencies and family/client centered care</p>
<p>Acknowledge the client/family as a full partner in incorporating the principles of health promotion and disease prevention to promote optimal functioning through life transitions.</p>	<p>Student responses on department evaluation tool.</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p>	<p>93% rated their learning as having excellent or enough to meet the objective. 7% selected that they needed to know more.</p>	

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
Using a client/family centered approach, plan implement and evaluate care of clients and families with complex psychosocial and physiological health alterations in a variety of settings.	<p>Student responses on department evaluation tool.</p> <p>Questions on multiple choice examinations</p> <p>Clinical evaluation tool</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p> <p>80% of the students will achieve an average grade of 75 or higher on multiple choice tests.</p> <p>90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating complex health alterations.</p>	<p>89% rated their learning as having excellent or enough to meet the objective. 9% selected that they needed to know more. 2% did not answer the question.</p> <p>As Above</p> <p>100% of students received a satisfactory in this category at the end of the semester.</p>	Review course content related to mental health concepts at end of semester during planning.
Plan, implement and evaluate the utilization of appropriate resources and client teaching to engage clients/families in active partnerships to maximize self-care and optimal functioning across the lifespan and at transitions in care.	<p>Student responses on department evaluation tool.</p> <p>Clinical evaluation tool</p>	<p>70% of students will rate their learning at a 4 or above on a 5 point scale.</p> <p>90% of students will receive a satisfactory rating on the clinical evaluation tool in categories relating to use of resources.</p>	<p>98% rated their learning as having excellent or enough to meet the objective. 2% selected that they needed to know more.</p> <p>100% of students received a satisfactory in this category at the end of the semester.</p>	Continue to integrate community based care concepts. Offer continued service learning activities that are age appropriate and promote healthy lifestyles

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
Work effectively with inter-professional teams to develop a comprehensive plan of care by fostering communication, mutual respect, and shared decision making to achieve quality patient care in both transitional and permanent settings.	Student responses on department evaluation tool. Clinical evaluation tool	70% of students will rate their learning at a 4 or above on a 5 point scale. 90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to communication.	89% rated their learning as having excellent or enough to meet the objective. 11% selected that they needed to know more. 100% of students received a satisfactory in this category at the end of the semester.	Look for ways to include IPE experiences in simulation and real time clinical experiences. Review SBAR communication
Demonstrate accountability by functioning within the legal/ethical parameters of nursing practice.	Student responses on department evaluation tool. Clinical evaluation tool	70% of students will rate their learning at a 4 or above on a 5 point scale. 90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to quality and safety	95% rated their learning as having excellent or enough to meet the objective. 6% selected that they needed to know more. 100% of students received a satisfactory in this category at the end of the semester	Continue to include Law and Society week presentations in course
Use data to minimize risk of harm to patients across the life span and monitor outcomes of care processes to make changes in order to continuously enhance the quality and safety of clients/families.	Student responses on department evaluation tool. Clinical evaluation tool	70% of students will rate their learning at a 4 or above on a 5 point scale. 90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to quality and safety.	85% rated their learning as having excellent or enough to meet the objective. 13% selected that they needed to know more. 2% did not answer this question 100% of students received a satisfactory in this category at the end of the semester	Review discussions of evidence based practice throughout the curriculum,

Student Learning Outcomes Evaluated	Method of Assessment	Assessment Benchmark	Results of Assessment	Action Plan
Provide high quality, comprehensive care for clients/families based on any understanding of complex psychosocial and physiological health alterations, respect for client and family preferences, values and needs.	Student responses on department evaluation tool. Clinical evaluation tool	70% of students will rate their learning at a 4 or above on a 5 point scale. 90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to complex health alterations.	95% rated their learning as having excellent or enough to meet the objective. 5% selected that they needed to know more. 100% of students received a satisfactory in this category at the end of the semester	
Evaluate and modify as needed clients/family's response to therapy in order to maximize self-care and optimal functioning across the lifespan.	Student responses on department evaluation tool. Clinical evaluation tool	70% of students will rate their learning at a 4 or above on a 5 point scale. 90% of students will receive a satisfactory on the clinical evaluation tool in categories relating to complex health alterations.	92% rated their learning as having excellent or enough to meet the objective. 8% selected that they needed to know more. 100% of students received a satisfactory in this category at the end of the semester	

APPENDIX D

Action Plan 2011-2012

COMMUNITY COLLEGE OF PHILADELPHIA
DEPARTMENT OF NURSING
ACTION PLAN FOR NCLEX SCORES

ACTIVITY	IMPLEMENTATION	Expected Outcome
Establish a Mentor program	<p>Fall 2011 – all faculty have been assigned 9-10 second year students as mentees. Faculty will contact these students via email or phone to discuss remediation activity if needed, NCLEX questions, group discussion, test taking strategies, etc. The first contact will be made at the end of the fall semester and will continue until the student has been successful on the licensure examination.</p>	All second year students will be mentored through successful completion of the licensure examination.
Re-institute the Clinical preparation sheet (sample attached)	<p>Fall 2011 – All clinical faculty will receive copies of the prep sheet and it will be reviewed at the end of the semester wrap up. Discussion will include rationale for use and strategies for using the information.</p> <p>Spring 2012 The clinical prep sheet will be prepared by the faculty and includes information that students should be familiar with prior to coming to that particular unit. Students will access this through the group site and complete it prior to clinical rotations. Faculty will be asked to update these each semester. Information includes most common diagnoses, medications, procedures, co-morbidities, etc.</p>	Faculty will report an increase level of student preparation for the clinical experience.
Develop a Tool Kit for clinical faculty for down time in clinical	<p>Spring 2012 The tool kit will contain short activities that faculty can download. Websites will be included. Activities will be based on course objectives and assigned to students at the beginning of each clinical week. They can they be discussed in post conference. Examples include activities from the QSEN website focusing on safety, management of care, and scope of practice. Activities will be posted on the faculty group site for access electronically.</p>	<p>Students will report a decrease in “down” time during the clinical experience.</p> <p>Students will gain an increased understanding of professional responsibility related to management of care, safety and scope of practice.</p>

Seek opportunities for free or low cost testing for students	Fall 2011 – students will Beta test questions for Pearson company Possible opportunity to do testing with NLN gero test Will continue to offer HESI in early spring 2012	All second year students will experience computer adaptive testing. Faculty will use aggregate and individual results to mentor students.
Conduct a survey of graduates (successful and unsuccessful)	Fall 2011/Spring 2012 Survey graduates to see what worked for them. Also gather data from those who were unsuccessful related to what they feel were their problems. Graduates were sent a letter both through regular mail and CCP email informing them of the survey. The survey link was included and can be accessed via email and the department’s alumni Facebook page. Data is currently being collected. This information will be used to inform the action plan.	A response rate of at least 35% will be received. Aggregate data will be used to inform current and additional action plan strategies.
Review admission policies – including those for readmitted students and advanced placement	Admission policies were reviewed and determined to be adequately rigorous. Spring 2012 Committee will look at advanced placement policies during the semester	Admission criteria will remain unchanged for generic students.
Faculty Development for all full and part time faculty	Offer a full day during spring faculty development week to include: Review of curriculum Strategies for questioning in clinical Simulation Clinical expectations Active Learning Strategies Course coordinators will continue to communicate weekly with part time faculty to update them on issues. Investigate additional faculty development activities – perform a needs assessment with current faculty.	100% of full and part time faculty will take part in development activities. Each full time faculty will agree to integrate 1 new active learning strategy into their classroom activities. 100% of faculty with participate in curriculum review.
Curriculum review	Faculty reviewed current curriculum map and compared it to the NCLEX test plan and aggregate data from Mountain Measure and HESI. Low scoring areas revealed were: <ul style="list-style-type: none">• Management of care/manager of care	Ongoing – Areas of low scoring were identified.

	<ul style="list-style-type: none"> • Safety • Professional issues • Scope of practice • Med/surg content areas included; Fluids & electrolytes Elimination Tissue Integrity Immunity Grief and Loss Mood affect <p>During planning for the spring semester, teaching teams are assessing these content areas.</p>	
HESI exit test	Continue to offer this as an option in early spring 2012. Faculty will use aggregate data to create simulation activities for student learning. Mentors will use individual data to assist students in preparation for licensure examination.	90% of the Class of 2012 will participate in the HESI exit examination.
Mountain Measure	Most current data received is for the Class of 2010 – pass rate of 86%. Will order report for Class of 2011 but data are not available until May 2012.	Data from report will be reviewed to inform long term action planning.
Test packages	Spring 2012 faculty will again discuss this option.	Faculty will consider testing packages.
Student orientation to licensure examination	Annual discussion with students regarding applying for test and licensure will continue. Will reiterate the importance of review course and preparation after review course before taking the test. Based on data from previous graduates regarding taking the test early and practicing with questions.	100% of second year students will attend the sessions related to licensure examination and registration.